ST. LUCIA ELECTRICITY SERVICES LIMITED

LUCELEC SAFETY RULES

Employees of Lucelec …

THESE RULES ARE ABOUT YOU!

THESE RULES ARE FOR YOU!

Revised 2009

FOREWORD

LUCELEC is committed to provide and maintain a Healthy and Safe Work Environment for its employees, contractors and visitors.

LUCELEC is further committed to isolate and protect the public from hazardous conditions that may exist relating to the generation, transmission and distribution of electrical power.

To this end, it is of value for LUCELEC to protect its employees and the general public from unsafe and unhealthy conditions. The Safety Rules contained herein are but one of many initiatives developed in order to obtain excellence in the management and performance of Health and Safety.

Managing Director

_____

Date: _____

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DEFINITIONS

ALIVE

Energised or charged and being capable of delivering energy.

Energised

Connected to a source of energy such as a generator, battery, air compressor, oil or water pump…

Charged

Isolated from a source of energy but is not de-energised. Contains stored energy such as . . .

- A compressed spring or a charged capacitor.
- A tank or pipe containing a substance at greater or less than atmospheric pressure.
- Electrical equipment that is charged through induction because of the close proximity to live electrical apparatus.
- Substance that is explosive, poisonous or contaminated.

APPARATUS

All of the equipment used for the purpose of generation, transmission and distribution of electricity.

APPROVED

Satisfies the requirements of LUCELEC's specifications, practices and procedures.

APPROVED WORK PRACTICES

Procedures, which have been verified and approved for use in LUCELEC.

COMPETENT PERSON

A person who . . .

- Is qualified because of his or her knowledge, training and experience to perform work safely and correctly.
- Is familiar with the LUCELEC Safety Rules, and applicable approved work practices and procedures.
- Applies the Safety Basics before performing work.

CONFINED SPACE

A space in which an oxygen deficient atmosphere may occur because of its construction, location, contents or work activity thereby accumulating hazardous gas, vapour, dust or fumes.

CONTRACTOR

Any individual or company engaged by LUCELEC on a contract, sub-contract or consulting basis to do work for, or on behalf of LUCELEC. The term ”contractor” refers to both the contractor and employees of the contractor.

CONTROLLING AUTHORITY

The person or position in the LUCELEC organization designated as responsible for performing, directing or authorizing changes in conditions or positions of apparatus or devices under his/her control.

DE-ENERGISED (ELECTRICAL)

Where energy has been dissipated through a connection to an earth potential.

DE-ENERGISED (MECHANICAL)

Apparatus where hazards exist as a result of temperature, pressure, chemical substances, gases, radiation, motion and have been eliminated by . . .

- Correctly positioning valves, gates and dampers.
- Opening pipes, tanks or equipment to Atmospheric Pressure.

- Purging, ventilating or cooling.
- Applying brakes or installing physical blocking devices to stop motion.
- Discharging springs that contain potential energy.

DESIGNATED SUBSTANCE

A biological, chemical or physical agent or combination thereof, prescribed as a designated substance, to which the exposure of a worker is prohibited, regulated, restricted, limited or controlled.

EARTH

The conductive mass of the earth whose electrical potential at any point is conventionally taken as zero.

EARTHED

Connected to earth through switchgear with an adequate rated earthing capacity or by approved earthing leads.

EMERGENCY

A situation that requires immediate action to prevent serious adverse effects on the health and safety of employees, the public or the environment. An

emergency may be the result of uncontrolled explosions, fires, releases of hazardous materials or natural disasters. In an emergency LUCELEC personnel shall take action that they are authorized and trained to do only if it is safe to do so.

FALL ARREST SYSTEM

Safety devices that arrest the fall of a worker and limit the distance that a worker could fall.

INCIDENT

An unplanned event or happening that has the potential to cause an accident which could result in an injury. (A near miss)

INDUCTION

Voltage produced by a changing magnetic field within an object that is conductive.

INDUSTRIAL WORK SITE

At LUCELEC an Industrial Work Site means . . . a generating plant, transformer station, switchyard, transmission lines, and any land, building, structures, auxiliary equipment, where work is being conducted.

ISOLATED

Apparatus that is not connected to a source of energy. Example: Isolated by means of an electrical switch or a valve.

INTERLOCKS

Interlocks prevent interference from one operating system to another. An example is an electrical reversing motor starter. The forward position and reversing position are interlocked to prevent simultaneous operation.

LIMIT OF APPROACH

The safe physical distance that must be maintained by personnel or equipment from live electrical apparatus to ensure a safe working environment.

LINES

Electrical . . .
Overhead or underground conductors used to transmit electrical energy.

Mechanical . . .
Pipes, tubes, hoses used to transmit gases or liquids.

OFF ROAD VEHICLES

Vehicles such as fork lift trucks that are not normally used on public roadways.

PERMIT TO WORK

LUCELEC's formal criteria for control or risk reduction when undertaking pre-planned work that is hazardous.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Safety equipment such as safety boots, safety glasses, hearing protection and safety helmets used to reduce the severity of personal injury if an accident were to occur.

SAFE WORK AREA

A well-identified work area that contains hazards that have been either eliminated or are being controlled.

SECOND POINT OF CONTACT

The point in which a circuit would be complete on a body as a result of contact between two points at a different potential.

SUPERVISOR

A competent person who is designated as having authority over a workplace and a worker(s).

WORKPLACE

Any land, premises, location or thing at, upon, in or near which a worker works.

SAFETY RULES

GENERAL PROVISIONS

SECTION 1

100 Requirements

1. The Safety Rules contained herein, are mandatory and must be observed at all times.

2. Priority must be given by each LUCELEC employee, while performing work, to prevent accidents, thereby, avoiding personal injury and safeguarding life.

101 Knowledge of Safety Rules

It is the responsibility of all employees to know and understand safety rules which apply to them.

102 Employee Conduct

1. Employee use of illegal drugs, intoxicants or other mind-altering substances is strictly prohibited in the workplace.

2. No employee is allowed to perform work if under the influence of medications drugs, intoxicants or other mind-altering substances including the after effects of consumption prior to entering the work-place.

3. Employees are expected to perform their work in a professional manner and are not to engage in any pranks, shenanigans, tomfoolery or any other mischievous behaviour.

103 Performance Limitations

Employees experiencing physical or other limitations that could affect their ability to perform work safely are required to inform their supervisor.

104 Clothing, Jewellery and Long Hair

1. Loose clothing must not be worn while working around moving parts.
2. Jewellery must not be worn while working around moving parts.
3. Jewellery must not be worn while working around live electrical apparatus or circuitry.
4. Long hair including facial hair must be suitably confined to prevent entanglement with moving parts.

105 Emergency Plans

1. All workplaces within the LUCELEC organization must maintain emergency plans in anticipation of hurricane, fire, physical assault or other threat to personal safety.
2. Employees must be knowledgeable of emergency plans, and engage in an emergency response practice, at intervals prescribed by LUCELEC management.

106 Authorization to Work on Equipment

Work shall not be performed on any apparatus unless specifically authorized by the appropriate Controlling Authority.

107 Authorization to Operate Equipment

Operation of equipment is strictly prohibited unless specifically authorized by the appropriate Controlling Authority.

108 Personal Protective Equipment

1. As a condition of employment, all LUCELEC employees, must wear the appropriate personal protective equipment (PPE) while on an industrial work site. The minimum (PPE) shall be safety helmets, safety footwear and safety glasses with side shields. This requirement applies equally to contractors and visitors at industrial work sites.

   1.1 The only exceptions to this rule will be **designated** walkways, hallways, offices, eating areas and washroom facilities.

2. All LUCELEC employees and contractors are responsible for using all personal protective equipment required by their job and as designated at their workplace.

2.1 These shall include but not be limited to: head, eye, ear, respiratory, hand and foot protection.

3. Supervisors and contractor administrators are responsible for ensuring that the correct (PPE) is worn by their workers.

109 Tools and Protective Equipment

1. All tools and protective equipment must be inspected prior to use. (shields, guards, barriers, dielectric gloves, etc.)
2. Defective tools and protective equipment must not be used.
3. Maintenance and inspection procedures for tools and protective equipment must be carried out as prescribed.

110 Work Planning

All work assignments must be adequately planned before actual work is performed. The work plan shall include . . .

- Work site inspections.
- Hazard identification. (Safety Basics)
- Pre-job briefings to discuss job steps, approved

work practices (if required), emergency response, barriers, tools, permit to work requirements and the personal protective equipment to be used.

111 Housekeeping

Poor housekeeping is a major contributor to physical injuries in the workplace. The minimum standards are . . .

- Equipment and tools must be returned to their proper storage area on completion of work assignments.
- Equipment and tools must not be left unattended in roadways, aisle ways, entranceways, exits, or in open floor areas where they could pose a tripping or bumping hazard.
- Shop, vehicle and storage areas must be kept neat and orderly.
- Spills must be cleaned up immediately.
- Waste must be disposed of in appropriate containers.
- Fire extinguishers, eye wash stations, first aid equipment, etc. must not be blocked with devices or equipment.

- Unsafe conditions must be reported immediately.

112 Working Alone

1. LUCELEC management must determine where working alone is acceptable.
2. When required, two or more competent persons must be available and properly equipped to provide assistance to anyone working alone.
3. When an employee encounters hazards that will make it unsafe to work alone, he/she must report this condition to their supervisor.
4. Before working alone, an employee must ensure that his whereabouts and estimated time of completion is communicated to a competent person.

113 Safe Work Area

1. Limits of approach (Rule 203) must be adhered to at all times.
2. **No** work shall be carried out on equipment that could present . . .
   - Electrical energy hazards.
   - Mechanical energy hazards.

- Stored energy hazards.
- Chemical hazards.
- Thermal hazards.
- Body mechanic hazards.

UNLESS . . . Safe conditions for work are provided by:

1. Isolating and de-energising the equipment in accordance with the LUCELEC Permit To Work; or
2. Physically removing the equipment from the area containing the above noted hazards and all hazards have proven to be exhausted; or
3. Providing protection by the use of Approved Work Practices and approved Personal Protective Equipment and the work is performed by a competent person.

114 Isolating, De-energising, Locking and Tagging

1. All equipment, devices and apparatus capable of being **alive** or **charged** must be considered to be energised until it has been positively proven to be **isolated** and **de-energised**.
2. Isolating, de-energising, tagging and locking of equipment, devices and apparatus must comply

with the requirements of LUCELEC's Permit To Work or Work Protection Code (WPC).

115 Interlocks and Guards

Interlocks and guards must not be bypassed, removed or worked on unless authorized and approved work practices are in place to protect the workers or public from any associated hazards; or . . .

The interlocks and guards are within the isolated zone of a Permit To Work and are authorized to be worked on.

116 Respiratory Protection

LUCELEC must provide workers with proper and standardized breathing apparatus as warranted by the work to be carried out.

117 Welding

1. Welding and torch cutting must only be performed by a competent person.

2. Compressed gas cylinders must not be stored in welding areas when the cylinders are not in use.

118 Checking for Leaks

Open flames must not be used for leak checking,

detecting gases or checking for air movement.

119 Painting

1. Painting with non latex paint must be done in well ventilated areas or carried out by using proper breathing apparatus.

2. Spray painting must not be performed if it is possible for the spray to come in contact with live apparatus.

120 Internal Combustion Engines

Combustion engines fuelled by gasoline, diesel, propane or natural gas must not be operated indoors unless adequate ventilation exists or the exhaust is discharged to outside atmosphere.

121 Grinding Wheels

1. Grinding wheels, rotating wire brushes and abrasive discs must only be operated in accordance with the manufacturer's operating instructions.

2. Defective grinding wheels and abrasive discs must not be used under any circumstance.

3. When mounting grinding wheels, only approved collars and washers are to be used.

4. Grinders and rotating wire brushes must have guards or suitable protection provided for the user and must not be operated without them.

5. Eye, face and hand protection must always be used when operating grinders.

6. The internal face of a cup wheel must not be used for grinding.

7. Do not apply sudden or harsh loads to a grinding wheel or disc.

122 Maintenance Access Ways (Man Holes)

1. The rules found in Section 6 (Confined Spaces) must be observed when work is performed in maintenance access ways.

2. Signs and barriers must be used around opened maintenance access ways. Work to be carried out in maintenance access ways that are located in public areas such as walkways or roadways must have additional guards or barriers in place to protect the worker and the public from falling hazards.

3. The manhole access must be clear of equipment, tools or other material that could fall into the manhole.

123 Buried Services

The location of all underground electrical services or any other utility services must be verified before any work such as excavation or drilling is carried out.

124 Work Performed in Public Areas

Signs, barriers, guards and a safetyman will be used when work is to be performed where there is a public presence (pedestrians or vehicular). A safe work area must be established to prevent public interference.

125 Adverse Weather Conditions

1. No work shall be performed when weather conditions present hazardous working conditions.

2. Outside work must be suspended immediately when there is the presence of an electrical storm.

126 Work Site Inspections

1. Supervisors must conduct daily work site inspections to ensure that work is being carried out according to the requirements of the LUCELEC Safety Rules and the Occupational Health and Safety Act.

2. Monthly work site inspections must be performed by representatives of the LUCELEC Health and Safety Committee.

127 Work Refusals and Work Stoppages

If an employee has reason to believe that work being performed is dangerous and could cause an accident or injury, the employee has the right to refuse the work until the endangerment is eliminated or controlled.

128 Accident / Incident Reporting

1. Employees must immediately report any accident/ incident to their supervisor.

2. Supervisors must document the accident/incident and forward the accident/incident investigation report with supporting documents through the chain of command to their Department Head. The Department Head shall review the report, make recommendations, sign and forward the documents to the HS&E Officer. A copy of the documents shall be kept in the department.

3. All motor vehicle accidents must be reported to the appropriate authority(s).

129 Contractor Safety

1. Contractors must work to the same safety standards and rules as LUCELEC employees.

2. All requests for tender must clearly state LUCELEC's safety requirements and expectations.

3. LUCELEC must assign a contractor administrator with responsibility for ensuring that contractors adhere to LUCELEC's policies, procedures and safety rules.

4. The contract administrator must be available to contractors while work is being carried out on LUCELEC's behalf.

130 Visitors

1. All visitors must wear the appropriate personal protective equipment that is normally required to be worn by employees at the work site being visited. (See rule 108-1)

2. There must be a LUCELEC employee available and responsible for the safety of the visitor(s) while on the work site.

3. The supervisor in charge of the work location to be visited must be informed prior to entry.

4. Employees visiting work locations other than their own work location are considered to be visitors and visitor safety rules will apply.

131 Safety Meetings

Departmental safety meetings should be held at regular intervals.

132 Artificial Respiration

Employees should practice artificial respiration at regular intervals.

133 First Aid

LUCELEC should have emergency response capabilities in place. First aid training should be part of these capabilities.

134 Training and Qualifications

1. Employees who feel they are not competent at their assigned work and require training must bring it to the attention of their supervisor.
2. Supervisors are responsible for ensuring that their workers receive the appropriate training to make them competent.
3. Supervisors are responsible for assigning work to only competent people.
4. Department Heads are responsible for ensuring that their supervisors (temporary or permanent) are competent.

ELECTRICAL WORK

SECTION 2

200 Treat all Electrical Apparatus as Alive

All electrical apparatus must be considered alive unless:

- The apparatus is isolated and de-energized in accordance with LUCELEC's Work Protection requirements.
- The apparatus is physically removed from all potential energy sources.

201 Work on Live Circuits

1. Work on live circuits having a rating in excess of 300 V (phase to earth) shall not be performed alone.
2. Work on live circuits having a rating in excess of 300v (phase to earth) may only be performed by competent individuals (a) using approved live line maintenance (LLM) techniques, and (b) with the approval of the Controlling Authority.
3. Switching operations on electrical apparatus operating at voltages in excess of 300 V (phase to earth) shall only be performed using *approved work practices*.
4. No work will be performed near live and exposed apparatus operating in the range of 300 V (phase to earth) to 750 V (phase to phase) unless barriers are installed to prevent physical contact.

202 Testing for Voltage

1. Only *approved* voltage test indicators shall be used when testing for voltage.
2. Prior to testing for voltage, the test indicators must be proven to be functional.
3. Upon completing the testing for voltage, the test indicators must be proven, again, to be functional.
4. Voltage test indicators must only be used within the voltage ratings to which they are designed.

203 Limits of Approach

1. Work within the vicinity of or on live electrical apparatus can only be carried out if safe clearance from live electrical apparatus is maintained.
2. The **Limits of Approach** as outlined in **Table 1** are minimum requirements. It is recommended that while maintaining a safe limit of approach, barriers be installed to further improve a safe work environment.
3. The **Limits of Approach to Energized Conductors or Equipment** is outlined in **Appendix 8**.

LIMITS OF APPROACH

Table 1

Conditions/Restrictions	Voltage Range Phase to Phase	Clearance to be Maintained
Under direct supervision of a competent person, personnel may approach, work and allow materials, equipment and conductive tools to be used as long as clearance is maintained at all times.	750v to 15Kv	> 0.9 m (3ft)
	15kv to 50kv	> 1.2 m (4ft)
	50kv to 150kv	> 1.5 m (5ft)

204 Capacitance, Inductance and Static Electricity

All sources of energy must be identified and eliminated prior to undertaking work. Where it is not possible to eliminate the effects of capacitance, inductance or static electricity, then work can only be performed by using approved work practices and procedures.

205 Use of Temporary Earthing Devices

1. Earthing devices must only be used in accordance with the rules of LUCELEC's Permit-to-Work.
2. Earths must be installed and removed by using approved live line tools and approved work practices and procedures.
3. Earths must be inspected and must be in good

condition before use.

4. The size and capacity of earths must be in accordance with approved work practices and procedures.

5. Earths must be clearly identified.

6. The installation and removal of earths must be documented, in accordance with the rules of the Permit-To-Work.

206 Other Electrical Apparatus

1. Neutral wires, conductors, busses and sky wires are to be considered alive and must be de-energised before work begins.

2. Approved work practices and procedures must be adhered to when installing jumpers prior to cutting, splicing or repairing neutral wires, conductors, busses or sky wires.

207 Barriers

1. Visual barriers must be used before work begins to identify the safe work area for the worker(s) and to identify a hazardous area for people not involved in the work.

208 Live Line Work

1. Live line work can only be performed when **Approved Work Procedures and Practices are in place**.

2. When live line work is being performed on a circuit equipped with an automatic reclosure feature (A/R), the A/R must be blocked prior to the commencement of work.

209 Live Line Tools

1. Live line tools must not be used by employees unless they are deemed competent by having been instructed or are under instruction in the proper use of these tools.

2. When working on energized lines or equipment using live line tools, there must be at least two competent employees assigned to the work.

3. When live line work is in progress, no other work shall be carried out on the pole or the structure.

4. Live line tool operations must be carried out under the direct supervision of a person who is competent in the work being performed.

5. Live line tools must be maintained on a regular

basis in order to preserve their dielectric and insulating properties.

6. Live line tools made from fibrous material shall be electrically tested at least every 36 months.

210 Climbing and Working Aloft

1. Climbing spurs shall not be worn while doing work on the ground, in aerial buckets or platforms, on ladders, or while driving vehicles.

2. The length of the gaffs on climbing spurs shall not be less than 3.17 centimetres (1.25 inches) measured on the inside of the gaff.

3. No work aloft (on poles, structures or aerial devices) is allowed unless the worker is secured by means of a suitable fall protection device or fall arrest system.

4. All tools and materials shall be passed to workers, working aloft, by means of tool bags or hand lines. Hand lines must be controlled by a grounds man and not be allowed to extend outside of the safe working area.

5. Under no circumstances shall anything be thrown from the structure to the ground or allowed to be thrown to workers while working aloft.

6. Tools shall not be laid on cross arms or ladders or in

other places or positions from which they may fall.

7. All poles should be carefully inspected before climbing to ensure that they are in a safe condition for the work to be performed.

8. If the condition of the pole is in doubt, it shall be adequately guyed or supported by suitable means.

211 Ground Work

1. Under no circumstances shall work be carried out on the ground that would present a hazard to workers, working aloft.

2. No work, other than supporting the work aloft, shall be permitted in the immediate vicinity of the pole or structure, due to the hazard of falling objects.

3. No admittance of the public (pedestrians or vehicular) is allowed in the vicinity of the safe work area.

212 Working on De-energized Lines

1. Before conductors can be considered de-energised, temporary earthing devices of current carrying capacity shall be placed and remain on conductors between the work location and all possible sources of electrical energy.

2. Temporary earthing devices shall be installed with a live line tool, only after potential tests have been completed to ensure that the conductors are isolated.

3. Temporary earthing devices shall be installed so that one set is visible to at least one member of the crew at all times.

4. Locations where the de-energised line runs, and crosses, or is adjacent to another line, shall be considered hazardous and safe work practices and procedures shall be used.

5. Before connecting a temporary earthing device to a circuit, the earthing device must first be connected to a low resistance earth. Conversely, the earthing device must first be removed from the circuit before being disconnected from earth.

213 Pole Handling

1. Workers involved in pole handling operations shall use only approved tools, equipment, policies and procedures.

2. Crew members must be positioned to minimize the danger of injury should the control of a pole(s) be lost.

3. Pole piles must be made stable by the use of wedges on each layer of poles.

214 Rubber Gloves

1. Only rubber gloves that meet the equivalent standards of the American Society for Testing and Materials (ASTM) shall be used.

2. Rubber gloves must be:

   - Air tested and the leather protectors must be visually inspected prior to each use.
   - Stored in approved containers only and maintained in serviceable condition.
   - Exchanged at any time they become damaged.
   - Laboratory retested at least every 90 days of in-service use.
   - Worn with the absence of rings and watches that could stress or damage the glove.

3. Rubber gloves should never be:

   - Worn inside out or without leather protectors.
   - Used after the expiry date stamped on the cuff.

215 Earth Gradient Control Mat

1. Earth gradient control mats must be used whenever a worker or supervisor believes that a step or touch hazard exists.

2. Earth gradient control mats must be inspected prior to use to ensure that they are in good condition.

3. If permanent earth gradient control mats are not installed then portable earth gradient control mats must be used when carrying out the following operations:

    - Operating air break switches, load interrupters, and load break switches.

    - Operating motor operated switches by hand control.

FALLING HAZARDS

SECTION 3

300 Fall Protection

1. Fall protection equipment must be worn continuously when there exists the potential hazard of falling 3 meters (9ft) or more.
2. Workers must be tied off when moving to, from or between work locations where safe access is not provided.
3. Fall arresting equipment that has been activated in the arresting of an actual fall must not be used again until it has been reconditioned and re-certified.
4. Equipment designed for one time use, such as life-lines and shock absorbers must not be used again.
5. Whenever fall arrest systems are used a rescue plan must be included in the work procedure.
6. Workers using fall protection must be properly trained.
7. Fall arrest equipment must be regularly inspected to ensure it is in good working order.

301 Ladders

1. Portable metal ladders must not be used in the proximity of live electrical apparatus.
2. Ladders with missing, broken or weakened steps are not to be used.

3. When working from a portable ladder, the ladder shall be securely placed, held, or tied to make it secure to prevent slipping or falling.

4. Ladders shall be placed so that the distance between the bottom of the ladder and the wall or structure is approximately one fourth of the working length of the ladder. In no case shall this distance be much greater than one fourth of the working distance of the ladder.

5. Ladders shall not be placed in front of doors opening toward the ladder unless the door is open, locked or guarded.

6. No more than one person shall use a portable ladder at one time.

7. Portable ladders are not to be used when supported by a moving vehicle.

8. Ladders may be used on fixed scaffolding only if secured and fall protection is used.

9. Ladders must not be used as a horizontal work platform.

302 Scaffolds

1. The construction, alteration and dismantling of a scaffold must be carried out by a competent person or under the supervision of a competent person.

2. Scaffolds must be inspected before use to ensure that:

   - Handrails, midrails, toe boards and decking are secure and in place.
   - All wheels on moveable scaffolds are locked.
   - All locking pins are in place.
   - The scaffold is secured to a structure if over 3 meters (9ft) high.
   - The scaffold has a firm base.

3. Scaffolds are not to be moved while workers are on them.

303 Guard Rails and Openings

1. Openings used for access, in floors, roofs or other surfaces must have covers that can withstand a load equal to the structure surrounding the opening.

2. When openings are uncovered, they must have warning signs to identify a falling hazard, and guardrails or other physical barriers to restrict access. Where barriers are not practicable the opening must be controlled at all times to prevent a falling accident.

VEHICLE OPERATIONS

SECTION 4

400 Regulation

All drivers of LUCELEC owned vehicles, LUCELEC rented vehicles or employees driving privately owned vehicles while on LUCELEC business must comply with the laws and regulations of the St. Lucia Highway Traffic Act.

401 Drivers License

All drivers must posses a valid and appropriate driver's license issued by the St. Lucia Ministry of Transportation.

402 Unauthorized Operation of Lucelec Vehicles

Drivers are responsible for ensuring that there is no unauthorized operation of any LUCELEC vehicle for which they are responsible.

403 Orientation

1. Before driving any LUCELEC vehicle for the first time, employees must be given a general orientation session and be knowledgeable of the safety rules contained in this section.

2. Employees must familiarize themselves with the operation of vehicles and the location of all controls and instrumentation before driving.

404 Circle Check

A daily circle check must be carried out before any vehicle is used.
(See Table 2)

Circle Check

Table 2

Engine Compartment	Interior	Body
• Crankcase oil level • Coolant levels • Fan belt condition • Windscreen washer fluid	• Adjust seat and mirror • Run engine and check all gauges and indicator lights • Check windscreen wiper	• Check that lights are operating and clean • Check for new scratches or dents • Inspect all tires and wheels

Note: Report All Defects to Supervisor Immediately

405 Defensive Driver Training

It is recommended that mandatory defensive driver training be given to employees driving on LUCELEC business.

406 Hitchhikers

Giving hitchhikers (non-employees) rides in LUCELEC vehicles is not permitted except in an emergency.

407 Headlights

Headlights should be used in poor or reduced lighting conditions while a vehicle is in motion for improved visibility by the driver, pedestrians and other drivers.

408 Moving in Reverse

1. Vehicles should be parked, where practicable and where it is safe to do so, by backing in to parking areas, allowing the vehicles to be driven out and reducing hazards of reversing.
2. Drivers must ensure that there are no obstructions before moving vehicles in reverse.
3. Drivers must sound the horn before moving in reverse in areas where their view is obstructed.

409 Weather Conditions

Vehicles should not be driven during extremely adverse weather conditions nor when the driver is exhausted.

410 Emergency Safety Equipment

LUCELEC vehicles should be equipped with emergency equipment such as a first aid kit, fire extinguisher and blanket.

411 Passengers

1. The number and seating of passengers in motor vehicles must not exceed the limitations specified by the vehicle manufacturer and the laws of St. Lucia.

2. Passengers shall not ride on or in the buckets or baskets of mobile work equipment while the equipment is in transit.

3. Passengers shall not ride in a trailer connected to a motor vehicle while in transit on a public roadway.

FIRE AND EXPLOSION HAZARDS

SECTION 5

500 Fire Safety

1. All LUCELEC employees shall be familiar with the location, care and handling of fire fighting equipment in and about the worksite to where they are normally employed.

2. All means of fire access and fire escape routes must be kept free of obstructions at all times.

3. All fire equipment shall be maintained in proper working condition and be clearly visible and accessible at all times.

4. Portable fire extinguishers containing substances that are electrically conductive, (water and acid solutions) must never be used when fighting fires near live electrical apparatus and should be labelled as such.

5. Carbon Dioxide (CO_2) Gas extinguishers and Dry Chemical extinguishers are non conductive and may be used to fight fire in or around exposed electrical apparatus. (Consideration given to the 'SAFE LIMITS OF APPROACH')

6. Employees working on or around live electrical apparatus shall wear clothing that is resistant to ignition and the propagation of flame.

501 Batteries (Wet Cell)

Hydrogen is produced when batteries are being charged and can explode when ignited. The following precautins must be taken:

1. Eliminate sources of ignition in the vicinity of batteries and battery charging stations.
2. When cleaning or working around batteries, take extra precautions to prevent sparks.
3. The entrance to battery rooms or battery stations must clearly display warning signs such as **"Explosion Hazard" or "Danger No smoking or Open Flames."**
4. While working in battery rooms personal protective equipment must be worn. (Goggles or face shields and acid resistant apron) All other persons shall wear eye protection on entry to a battery room.
5. All battery rooms must be suitably ventilated to minimize the chance of hazardous gas accumulation.
6. Eye wash stations must be regularly checked and maintained.

502 Batteries (Dry Cell)

Precautions:

- Never short the positive and negative posts together.
- Dispose of used batteries in accordance with environmental requirements.

Note:

Dry cell batteries when damaged, incinerated or shorted present an explosion hazard.

503 Flammable and Combustible Liquids

1. When handling gasoline and other flammable and combustible liquids, refer to the Material Safety Data Sheets for information on precautions that should be taken.
2. Gasoline and other flammable and combustible liquids, not in use, should be:
   - Stored in facilities that have no potential source of ignition and are ventilated with fire safety provisions.
   - Out doors and away from potential interference.
   - Identified with warning signs “Danger . . .

Flammable Products".

3. Gasoline must not be used for cleaning.

4. For storage and dispensing of flammable liquids they should be enclosed in containers equipped with a spring loaded cap and flame arrestor.

504 Transporting Flammable Liquids

Flammable liquids must be transported in sealed containers.

505 Compressed Gas

1. All compressed gas cylinders must be secured in an upright position during transportation, storage and use.

2. Valve protection caps must be in place when the cylinder is not in use.

3. Compressed gas cylinders must be labelled in accordance to Workplace Hazardous Materials Information System. (WHMIS)

4. Compressed gas cylinders must not be:

   - Dropped or banged against each other.
   - Rolled, skidded or dragged.
   - Located near live electrical apparatus where

they could become conductive.

- Subjected to temperatures higher than 50 degrees centigrade (122 degrees Fahrenheit)
- Located in high traffic areas. (Vehicular or pedestrian)

5. Empty compressed gas cylinders must be stored in the same area as full cylinders and must be identified as EMPTY.
6. Users of compressed gas cylinders must verify that the correct gas is being used before connecting the cylinder to a system.
7. Leaking compressed gas cylinders must be taken out of service immediately and vented in an outdoor area until empty. The cylinder must be identified as DEFECTIVE and returned to the supplier for repair.
8. Do not use lubricants on cylinder fittings.
9. Gas cylinders used for welding or cutting in a confined space or tank should be kept outside of the space whenever practicable.

506 Storage of Compressed Gases

1. Compressed gas cylinders must be held in place to protect against mechanical damage.

2. Compressed gas cylinders stored outside must be firmly supported on a raised concrete platform and protected from weather by a non-combustible canopy.

3. Cylinders of different compressed gases that may react with one another must not be stored in the same area.

CONFINED SPACES

SECTION 6

600 Workers Responsibilities

1. Workers entering a confined space must:
   - Know what hazards exist in the confined space and how to control the hazards.
   - Use the required personal protective equipment.
   - Maintain communication with a safety person stationed outside the confined space.
   - Leave the confined space at once if any symptoms exist such as nausea, headache, dizziness, eye or throat irritation.
2. The confined space must not be re-entered until the atmosphere has been tested to ensure that it is safe.

601 Work Planning

Work must be planned before entering a confined space and considerations made to the following:

HAZARD IDENTIFICATION

1. Testing must be done for hazardous gas, vapor, dust, fumes or oxygen deficient or oxygen enriched atmosphere.
2. Smoking is not permitted in any confined space.

3. Approved work practices must be used if it is necessary to use an open flame or a device, which can cause sparking in a confined space.

CONTROL OF HAZARDS

1. Ensure that the confined space has an unobstructed and easily accessible exit in the event of an emergency.
2. Provide adequate ventilation in confined spaces as required.
3. Use approved work procedures if all sources of energy cannot be isolated and de-energized.
4. Use all necessary personal protective equipment.
5. If a confined space cannot be completely purged or ventilated then an approved breathing apparatus must be worn. A safety harness, rescue rope and a safety person must also be used.
6. Before work begins in a confined space, review the rescue plan.

HAZARDOUS MATERIALS AND CONDITIONS

SECTION 7

700 Managing Hazardous Materials

1. An inventory of all hazardous materials used within LUCELEC must be kept and continuously updated.

2. All hazardous materials used in LUCELEC must have Material Safety Data Sheets available for quick reference.

3. All containers of hazardous materials must be clearly labelled.

4. Workers must be provided with specific information concerning the hazardous materials and substances that they are exposed to.

5. Special consideration should be given to the replacement and disposal of designated substances and other highly toxic materials. If substitutes cannot be found, then tight control measures and procedures should be established.

Note:

Refer to Appendix 4 for information on Workplace Hazardous Material Identification System Classes and Appendix 5 for information on the Standards For Hazardous Materials.

701 Use and Storage of Hazardous Materials

The use and storage of hazardous materials must

comply with the information provided in the Material Safety Data Sheets.

702 Hazardous Conditions

Work environments can pose hazardous conditions such as noise, temperature, relative humidity, airflow, radiant heat, and should be taken into consideration when planning work.

Noise Control

- In work areas where noise levels exceed 85 decibels appropriate hearing protection must be worn.
- Warning signs should be posted in areas where the noise level exceeds 85 decibels.
- Tests should be carried out every three years to measure noise and determine if noise levels have deteriorated.
- Employees who work in high noise areas on a regular basis should have hearing tests conducted periodically.

WORKSHOPS, STORES AND OFFICES

SECTION 8

800 General

1. Stairs shall be kept free of objects and handrails are to be used when walking up or down stairs.
2. Boxes, chairs or other objects must not be used as substitutes for ladders.
3. Floors are to be kept free of tripping hazards.
4. Liquid spills must be cleaned up immediately.
5. Materials stored on shelves shall be placed in an organized manner to prevent falling. Heavy objects are to be stored on lower shelves.
6. Faulty equipment or defective electrical cords are not to be used and should be reported to the supervisor immediately.

801 Office

1. Desk drawers and filing cabinet drawers must be kept closed when not in use.
2. Only one drawer of a filing cabinet shall be opened at one time to prevent the cabinet from tipping over.
3. Floors are to be kept free of tripping hazards such as phone cords, extension cords, paper cartons etc.
4. Caution should be exercised when working close to

office machines where loose clothing and jewellery could create an entanglement hazard.

802 Stores

1. Materials must not obstruct walkways and should be stored on shelves or compartments.

2. Suitable equipment must be used to move heavy objects and assistance should be obtained when necessary.

FORESTRY

SECTION 9

900 Competent Persons

Line clearing operations within 3 meters (9 ft) of energized conductors or apparatus, and operating in excess of 750 volts must be performed by a competent person or under the continuous direction of a competent person.

901 Notification

The person in charge of line clearing shall inform the Controlling Authority of the transmission and distribution circuit, prior to the commencement of work, to determine if it is safe to commence work or if Permit-to-Work is required.

902 Working Aloft

1. When working aloft in trees, a safety person must be present and be competent to conduct a rescue.

2. Trees must be inspected prior to climbing to determine if it is safe to do so, taking into consideration the strength of the limbs and the proximity to electrical hazards.

3. Personnel working aloft must wear a suitable fall arresting device.

4. Work aloft must be immediately suspended if weather conditions make the job hazardous.

903 Footware

Climbers must wear suitable footwear with rubber or other non-slip soles and heels.

904 Burning of Brush and Debris

The following must be adhered to:

- Brush and debris must not be burned if there is a possibility of damage to conductors, insulators or insulation.
- Fire regulations and environmental regulations must be respected when burning brush or debris.
- Fires must be continuously controlled and extinguished at the end of the work assignment.

905 Felling Trees

1. Before felling trees, limbs that could contact power lines or damage property should be removed.
2. Trees should be felled away from power lines or structures. If a tree must be felled toward a power line, the tree should be topped low enough to clear all conductors.
3. Motor vehicles must not be used to pull down trees.

4. Guy ropes should be used to control the direction of fall and long enough that workers are able to stand well outside the striking distance of the tree.

5. Special precautions must be taken to prevent the public from entering the felling area of trees.

6. Prior to cutting or felling a tree, workers shall first determine an escape route, shout a loud warning when the tree is about to fall and stand clear of the butt when the tree is falling.

7. No trees are to be left partially cut when vacating the work area.

906 Safety Ropes

Safety ropes used for working aloft should not be made from polypropylene or natural fibre and the following rules shall apply:

- When working in areas frequented by the public, the free ends of ropes shall not be allowed to dangle on or near the ground.
- When working in trees, workers should keep safety ropes taut at all times.
- Safety ropes should be inspected each day prior to use.
- Safety ropes must not be used to lower

branches or limbs.

- Workers must prevent safety ropes from swinging or falling into live conductors.

907 Portable Ladders

1. Ladders used for line clearing operations should be non-conductive and have non-slip basis.
2. Portable ladders must be secured if there is the possibility of the ladder slipping or falling.
3. Trucks must not be used to support portable ladders.
4. Ladders must be removed from trees when not in use.

908 Tools and Equipment

1. A rope or tool bag must be used when passing tools or equipment to or from workers aloft.
2. Tools, equipment or materials must never be thrown aloft or from aloft.
3. Hand saws must be securely fastened to a worker's belt or saddle when not in use.
4. Pruners and pole saws must be hooked securely over a strong limb when not in use.

909 Chain Saws

1. Only competent persons shall be permitted to operate chain saws.

2. When a chain saw is in use, no one shall be permitted to be within a 2-meter (6ft) radius of the chain saw.

3. Appropriate personal protective equipment must be used when operating a chain saw.

4. Chain saws exceeding 9 kilograms (20lbs) must not be used above shoulder level and should not be operated aloft.

5. Chain saws must not be used aloft unless they are secured with a rope independent of the climbers' safety rope.

6. Chain saws must be allowed to cool before being refuelled.

7. When moving a chain saw from one location to another the saw should be shut off unless trees to be cut are close together and the approach is not obstructed.

910 Limbs Falling on Conductors

Should a limb fall from a tree and come in contact with conductors, workers will maintain a safe limit of

approach and the Controlling Authority shall be contacted to have the circuit isolated and de-energized prior to limb removal . . .

Unless:

LUCELEC has established Safe Work Practices and Procedures for the removal of limbs using insulated pole pruners.

911 Aerial Devices

1. When a worker is aloft in an aerial device, a second worker must be readily available to conduct a rescue.
2. Trucks must not be moved unless the attached aerial device is in the stowed position.
3. Aerial devices must be inspected for structural, mechanical and hydraulic defects at regular intervals by competent heavy equipment mechanics.
4. Aerial devices shall be operated as per the manufacturer specifications and be electrically and dielectrically maintained as per the manufacturer recommendations.
5. Aerial devices must only be operated by competent individuals.

APPENDICES

APPENDIX 1

SAFETY BASICS

IDENTIFY ***the hazards.***

ELIMINATE ***the hazards wherever practical.***

CONTROL ***the hazards when they cannot be eliminated.***

PROTECT ***against hazards when they cannot be eliminated.***

MINIMIZE ***the severity of an injury after the injury has occurred.***

APPENDIX 2

OCCUPATIONAL HEALTH AND SAFETY ACT

The Occupational Health and Safety Act of St. Lucia and its regulations establish the minimum standards for ensuring worker health and safety in industrial, commercial and construction work sites.

The act also defines the health and safety responsibilities of the various work place parties.

The Ministry of Labour has the authority to inspect any work site to identify non-compliance and is responsible for investigating complaints, refusals to perform unsafe work, allegations of reprisals, accidents and fatalities.

Contravention of the Act and non-compliance could result in legal action and where necessary, prosecution.

LUCELEC employees should posses a working knowledge of the OHSA regulations in addition to a firm knowledge of the LUCELEC Safety Rules.

APPENDIX 3

EMERGENCY PREPAREDNESS

Establishing Emergency Plans

1. Assign a coordinator to develop and administer emergency plans.
2. The emergency plan should include:
    - A detailed evacuation description including site maps.
    - Search and rescue procedures.
    - Re-entry plan.
    - Roles and responsibilities of personnel.
    - Control of hazardous materials.
    - Control of System Control.
3. Train supervisors and employees about the emergency plans.
4. Post site maps and escape routes.
5. Carry out planned and surprise training drills.
6. Ensure emergency protective and rescue equipment is available and in good condition.

7. Liase emergency plan contingencies with hospitals, fire and police departments.
8. Establish emergency teams.
9. Practice emergency first aid.

APPENDIX 4

WHMIS CONTROLLED PRODUCTS

This Symbol Represents	It means the material . . .
 **Class A-** Compressed Gas	• poses an explosion danger because contents are held under high pressure • may cause its container to explode if heated • may cause its container to explode if dropped
 **Class B-** Combustible and flammable material	• may burn at relatively low temperatures • may burst into flame spontaneously in air or release a flammable gas on contact with water • may cause a fire when exposed to heat, sparks or flames or as a result of friction
 **Class C-** Oxidizing material	• may cause a fire when it comes into contact with combustible materials such as wood • may react violently or cause an explosion when it comes into contact with combustible materials such as fuels
 **Class D, Division 1-** Poisonous and infectious material: immediate and serious toxic effects	• may be fatal or cause permanent damage if inhaled or if it enters the body through skin contact
 **Class D, Division 2-** Poisonous and infectious material: other toxic effects	• may cause death or permanent damage as a result of repeated exposure over time • may be a skin or eye irritant • may be a sensitizer, which produces a chemical allergy • may cause cancer, birth defects or sterility
 **Class D, Division 3-** Poisonous and infectious material: biohazardous infectious material	• may cause serious disease resulting in illness or death
 **Class E-** Corrosive material	• causes severe eye and skin irritation upon contact • causes severe tissue damage with prolonged exposure • may be harmful if inhaled
 **Class F-** Dangerously reactive material	• is very unstable • may react with water to release a toxic or flammable gas • may explode as a result of shock, friction or increase in temperature • undergoes vigorous polymerization

APPENDIX 5

HAZARDOUS MATERIALS

501 Definition

A biological, chemical or physical agent or combination thereof, prescribed as a designated substance, to which the exposure of a worker is prohibited, regulated, restricted, limited or controlled.

502 Designated Substances

- Acrylonitrile.
- Arsenic
- Asbestos
- Benzene
- Coke Oven Emissions
- Ethylene Oxide
- Isocyanides
- Lead
- Mercury
- Silica
- Vinyl Chloride

APPENDIX 6

LIFTING AND HANDLING GUIDELINES

Lifting Guidelines

1. Examine the object to be lifted and assess:
   - The size and weight of the load.
   - The centre of gravity.
   - Places to get a firm grip.
   - Lifting devices or methods available. (Leverage devices)
   - A clear pathway to the destination.
2. Do not attempt to lift the load if it is beyond your physical capabilities; get help.
3. Lift with your legs and not your back.
4. Keep the load as close to your body as possible.
5. Do not twist your back while changing body direction.

APPENDIX 7

HEALTH AND SAFETY PASSPORT PROGRAM

Basic Principle

The Health and Safety Passport Program provides workers with the necessary orientation and training required to perform work in LUCELEC. The Passport Program has four levels; each level certifies a worker to be competent and gives him/her clearance to perform work in certain hazardous areas of the utility.

Passport Level 1: Employees receive a general introduction to the workplace and its hazards in their orientation. They are made familiar with the LUCELEC Safety Rules and emergency procedures and learn to apply the Safety Basics. This level gives access to all administrative areas, locker facilities, lunchrooms, parking areas and walkways.

Passport Level 2: In addition to the requirements for the previous level, employees receive specific information about hazards in areas that are considered to be non-life threatening, but serious never the less. These areas could include stores, workshops and construction at ground level with no electrical or mechanical hazards present.

Passport Level 3: In addition to the requirements for the previous level, employees receive Permit to Work training,

standard first aid training, driver training and specific information about hazards in areas where serious hazards are present. These areas could include chem. labs, power plants, switchyards, substations, water treatment facilities and other similar areas. This passport level does not include working with live or pressurized equipment or working at a height but would include driving.

Passport Level 4: In addition to the requirements for the previous level, employees receive CPR training and specific information about the most serious hazards present in the utility. These workers would be entitled to work on pressurized or live equipment, operate lifting devices and cranes, work with hazardous chemicals and work in confined spaces.

APPENDIX 8

LIMITS OF APPROACH TO ENERGIZED CONDUCTORS OR EQUIPMENT

Limits of Approach to Energized Conductors or Equipment

Limits of Approach	General Public Safe Limits of Approach For Persons And Equipment		Utility Employee Work Zone Safe Limits of Approach for Routine Activity						Utility employee Qualified to Perform Glove Work	
	Exposed	Covered	Exposed			Covered			Unprotected body Parts to:	
	Boom trucks, Ladders, Building Materials, Temporary Structures		Personnel	Non-Insulated Booms	Certified IAD	Personnel	Non-Insulated Booms	Certified IAD	Exposed Work	Exposed second point of contact
.75 - 15kV	10 ft	5 ft	3 ft	3 ft	1 ft	1 ft	1 ft	6 in	6 in	18 in
15 - 50kV	10 ft	5 ft	4 ft	4 ft	2 ft	2 ft	2 ft	6 in	6 in	18 in
50 - 150kV	15 ft		5 ft			No Cover-up used on voltages Above 50kV			Rubber glove work 36kV not performed	
Conditions / Restrictions	General public, Unqualified utility Workers must Maintain set Distances as Prescribed		Under the direct supervision of a competent person, personnel may approach work, and allow materials, equipment and conductive tools to be used as long as clearance is maintained at all times. Live line stick work incorporating Distance Approach Methods fall into the routine work activity limits of approach values.						Rubber gloves may be removed providing that the continuing work activity falls outside of the exposed value distances.	

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