SECTION 2.0

ELECTRICAL SAFETY

The following material is being provided for informational purposes and in order to promote safety awareness. It does not constitute nor should it serve as a substitute for legal or other professional advice. Alcatel-Lucent makes no representations or warranties of any kind, express or implied, in providing this material.

Document Change History

Edition Number	Reason and Description of Change	Affected Pages	Effective Date
1.0	New	All	15th December 2014

Table of Contents

1 Purpose

This document establishes the ALU Electrical safety-related work practices with regards to operations where the potential for electrical hazards will be present for all ALU employees and shall be implemented to prevent injuries and/or damage to equipment/facilities.

A risk of electrical hazards (e.g., electrical shock, source of ignition, explosion) exists whenever working with power tools or electrical circuits. Some ALU operations are considered high risk due to the potential contact with exposed energized components.

2 Scope

This applies to all ALU organizations and employees that work on or near energized equipment. Where any national, international, or local legal or customer requirements or standards are more stringent than those cited in this document, these requirements shall be followed.

The document offers advice on practices, which if followed, would be deemed to be compliant. Adherence to the Procedures is not mandatory and local processes can be followed as long as they are documented and are consistent with these Procedures and meet the Company Requirements.

3 Roles and Responsibilities

The following is a table describing the Roles and Responsibilities of individuals and groups dealing with tower climbing operations. Refer to Section 0.0 for Organizational Roles and Responsibilities.

Individual/Group	**Roles/Responsibilities** Some of the roles and responsibilities can be done by the same person
ALU Top Management	• Endorse all safety processes/controls that will address/manage electrical hazards present in ALU operations. • Provide adequate resources (e.g., financial, human,

	technological, safety) to assure the implementation of approved Procedures and work practices.
ALU Project Managers	• Convey EHS requirements to subcontractors and ALU Staff with the support of PDC and the EHS staff. • Verify that adequate budgets are allocated for each project or task. • **Ensures that ALU subcontractors complete the EHS Subcontractor Qualification Process before beginning work**.
ALU Procurement Organization(PDC-Project Sourcing)	• Provide the ALU Subcontractor EHS Manual to all Services Suppliers with any Service Agreement along with an acknowledgement of receipt/understanding. • Provide support in the development of project/site specific Electrical Risk Analysis. • Complete the EHS evaluation of ALU Subcontractors identified by Procurement as providing support in High Risk Operations (e.g., electrical).
ALU EHS Community	• Develop and provide Electrical Safety and Lockout/Tagout Awareness training to applicable ALU personnel. • Assist in the selection of adequate safety equipment (e.g., Personal Protective Equipment (PPE), insulated tools, insulated floor mats, GFCIs, etc). • Assist in the investigation and follow-up of incidents/accidents. • Ensure that ALU staff are properly trained and qualified in accordance with their work assignments.

Line Managers	• Ensure training records are being maintained on the Alcatel-Lucent University's database (SABA). • Verify Electrical Safety Risk Assessment is being conducted so approved work practices are ensured. • Verify applicable licenses/credentials for ALU subcontractors working in assigned projects. • Ensure that employees working on or near energized circuits are familiar with the construction and operation of the equipment and the hazards involved and are qualified in accordance with applicable local requirements. • Responsible for enforcing electrical safety requirements.

Individual/Group	Roles/Responsibilities Some of the roles and responsibilities can be done by the same person
Electricians	• Achieve and maintain locally required credentials/licenses/ Qualifications. • Attend all required training applicable to assigned duties (e.g., Electrical Safety, Lockout/Tagout, First Aid-CPR and other locally required training). • Wear and inspect required PPE. • Use and inspect approved/required safety equipment (e.g., multimeter, insulated tools, floor mats, GFCI, etc.). • Conduct and document Risk Assessment when working near or on energized exposed equipment. • Report potentially hazardous conditions that were not properly addressed / controlled. • Adhere to safety procedures/approved work practices. • Ensure the availability and implementation (as needed) of the site specific Emergency Plan. • Remove damaged/defective safety equipment and PPE from service.
Field Technicians	• Ensure required licenses and certifications are in place before conducting any work. • Attend all required training applicable to assigned duties (e.g., Electrical Safety, Lockout/Tagout, First Aid-CPR and other locally required training). • Wear and inspect required PPE. • Use and inspect approved/required safety equipment (e.g., multimeter, insulated tools, floor mats, GFCI, etc.). • Assist in the preparation of operation specific Risk Assessment when assisting electricians working near or on energized exposed equipment. • Report potentially hazardous conditions that were not properly

	addressed / controlled. • Adhere to safety procedures/approved work practices. • Assist in the implementation (as needed) of the Site Specific Emergency Plan. • Take precautions to ensure own personal safety when providing assistance during an emergency. • Remove damaged/defective safety equipment and PPE from service.

4 Definitions and Acronyms

Alternating Current (AC) – electricity that alternately reverses direction of motion in a circuit.

Arc-blasts - occur when powerful, high-amperage current arc through the air. Arcing is the luminous electrical discharge that occurs when high voltages exist across a gap between conductors and current travels through the air. Temperatures as high as 35,000°F have been reached in arc-blasts.

Bonding - Electrically connecting containers or a person to a container to prevent the buildup of static electricity while working in potentially flammable or explosive environments.

Breakdown - A condition that occurs when insulation fails and allows current to flow rather than preventing it.

Conductor – A material capable of carrying an electric current. This includes any material that will allow current to pass through it.

Direct Current (DC) - electricity that moves in a continuous direction in a circuit.

Double Insulation – User is insulated from the internal electrical circuits by the tool housing.

Electricity - is the flow of electrons, known as current, through conductors such as wires and switches. Current flows in a closed or complete circuit, and is measured in amperes. Voltage,

measured in volts, is the force that pushes electrons through a circuit. Voltage and current are directly proportional: as voltage increases, current increases. Current flow is also dependent on the resistance, measured in ohms, of the circuit. Current is inversely proportional to resistance: as resistance increases, current decreases. Hertz is the measure of how rapidly alternating current alternates.

Generator – An electro-mechanical device used to create the electrical pressure (i.e., voltage).

Ground – A low resistance path to earth ground; a common or neutral conductor that physically connects to the earth ground.

Ground Fault Circuit Interrupter (GFCI) - An electro-mechanical device which will automatically stop the flow of current if leakage is detected; it terminates current in 1/40 of a second.

Insulator – A material having a high resistance to an electrical current.

Lockout /Tagout (LO/TO) – An organized set of procedures designed to insure that equipment being serviced, installed or maintained is completely shut down and free of hazardous energy before work operations proceed and to insure that equipment is not re-energized prior to the completion of the work.

Qualified person – One familiar with construction and operation of the equipment and the hazards involved, which holds valid credentials (e.g., licenses, diploma, certificates, etc.) in accordance with local requirements.

Note 1: Whether an employee is considered to be a "qualified person" will depend upon various circumstances in the workplace. It is possible and, in fact, likely for an individual to be considered "qualified" with regard to certain equipment/operation in the workplace but "unqualified" as to other type of equipment/ operation.

Short circuit – A condition that exists when a conductor carrying an electric current comes in contact with another conductor or ground.

Static electricity – A build-up of electrical charge between two surfaces.

5 Referenced and Supplementary Documents

Document Number	Document Title
EHSMS – L3–446–01	Alcatel-Lucent Environment, Health and Safety Subcontractor EHS Manual (Section 5.6)
Section 3	Lockout/Tagout Procedure
Section 6	Personal Protective Equipment
Section 2	Electrical Safety Procedure
Appendix A	Electrical Safety Risk Assessment
Appendix B	Electrical Safety Inspection Form
Appendix C	Site Emergency Action Plan for Electrical Work
Appendix D	Safety Meeting

6 Process Flow Diagram

Not applicable

7 Process/ Procedure/ Work Instruction

7.1 General

7.1.1 Hazard Identification

These requirements will be applicable to ALU operations (e.g., installation, maintenance and repair of telecommunications equipment and any other components/services) that will have the potential for exposure to electrical hazards.

In addition to arc blasts, fires and explosions can result if circuits are overheated or if arcing occurs in flammable atmospheres. This is of particular concern in battery rooms/areas.

7.1.2 Control Measures

7.1.2.1 General Requirements

Flexible/extension cords shall be used instead of a permanent wiring/connection only when absolutely necessary and in a manner that is safe and not cause damage to the cord.

Ground fault circuit interrupters (GFCI) are required on all jobs.

Portable lights, tools and appliances with external metal housings shall be equipped with a third wire ground conductor, unless they are protected by properly marked double insulation.

The following precautions shall be taken when working in the vicinity of exposed energized components:

- Use non-conductive ladders, scaffolds (i.e., wood or fiberglass) and other tools (e.g., tape measures, squares, etc.).

- Work operations shall not proceed when water or excessive moisture is noted in the work area.

- When working with energized electrical circuits, TEST and RETEST for VOLTAGE every time returning to the work area (e.g., after breaks, meals, interruptions) or before starting any work operation.

- All tools shall be fully insulated. **It is not acceptable to insulate tools by covering exposed metal with electrical tape or shrink wrap tubing.**

- Sufficient access and working space shall be provided and maintained around electrical equipment to permit ready and safe operation and maintenance of such equipment.

7.1.2.2 Procedures

Exposed energized parts to which an employee may be exposed shall be de-energized before the employee works on or near them unless it has been determined in coordination with the customer/facility manager (as applicable) that de-energizing introduces additional hazards or it is not feasible due to equipment design or operation limitations.

Frame and aisle lighting as well as appliance outlets are not essential for the maintenance of service and shall never be worked on while live. This requirement also applies to other AC circuits, which do not supply power to equipment such as blower motors, test equipment, carrier bays, etc.

Control of hazardous energy (Lockout/Tagout) procedures must be followed when de-energizing machinery, equipment, or systems requiring servicing or maintenance.

Lockout/Tagout procedures shall include the following steps:
Step 1 Prepare for Process Shutdown
Step 2 Perform Shutdown
Step 3 Isolate
Step 4 Perform Lockout/Tagout
Step 5 Release All Stored Energy
Step 6 Verify Zero Energy State

Only employees trained/qualified in accordance with local codes and standards may work on or near exposed energized parts and follow approved work practices.
All employees who are at risk of electric shock (including those who do not perform tasks reserved for qualified electricians), must attend a Basic Electrical Safety course and a Lockout/Tagout course or equivalent; to include at a minimum:

- Safe work practices that pertain to their respective job assignments.
- The skills and techniques necessary to distinguish exposed live parts from parts of electrical equipment.
- The skills and techniques necessary to determine the nominal voltage of exposed live parts.
- The approach distances (clearance distances) for qualified employees and corresponding voltages as specified in Section 9 of this document.
- Training in the use, selection, maintenance, and limitations of Personal Protective Equipment (PPE) and other applicable safety equipment, including safety glasses, insulated gloves, hard hats, rubber matting, shielding materials, and insulated tools.

Additional courses or on-the-job training may be required depending on the nature of the job assignment.

Additionally, employees supporting operations where the potential for electrical hazards exist must be trained on First Aid/ CPR/Bloodborne Pathogens.

Training documentation must be readily available to verify that training has been accomplished and such training shall be kept up to date.

These records should be maintained in the corporate training database (SABA) and must be retained for the duration of employment. Training documentation should include employee name, course name (number), and dates of training.

All electrical incidents/accidents and near misses must be reported to the ALU EHS Organization per the Serious Incident and Occupational Reporting Company Requirement and investigated.

7.1.2.3 Equipment

Safety-related work practices shall specify PPE which will provide protection for employees who may work on or near exposed energized parts and will be selected on the basis of the hazards involved.

PPE may include the following:

- Non-conductive hardhat
- Non-conductive safety glasses with side shields (Must meet ANSI Z87 specifications or equivalent)
- Low voltage rubber gloves

Other safety equipment may include the following:

- Access Control kit
- Ground Fault Circuit Interrupter
- Multimeter
- Lockout/Tagout Kit
- Insulated rubber mats
- Insulated Tools
- Canvas (not an insulator but use for padding)
- Insulated Protective Sheeting

Equipment Inspection

All PPE, Safety Equipment and electrical tools must be inspected before every use in accordance with manufacturer's instructions. Defective equipment must be tagged and taken out of service.

Refer to PPE ALU Procedures in Section 6 for additional details.

Equipment Testing

Applicable equipment must be tested (e.g., GFCI, Low Voltage Gloves, insulated tools, Multimeters) and certified in accordance with manufacturer's instructions/applicable standards (e.g., TL9000).

7.1.2.4 Process

The following steps shall be completed when an AC or DC operation will take place:

- Conduct and document a Risk Analysis – Appendix A (local in country equivalent procedures may be used).

- Conduct an Electrical Safety Inspection – Appendix B (local in country equivalent procedures may be used).

- Prepare a Site Emergency Plan – Appendix C (local in country equivalent procedures may be used including contacting local emergency response phone numbers (i.e., #911), ensuring the availability of first aid kits on site, and employee First Aid/CPR training).

- Conduct a Safety Meeting – Appendix D (local equivalent forms can be used) prior to starting the job each day.

- Ensure the availability and use of all necessary equipment.

- Ensure approved procedures are documented and followed.

- Ensure that employees assigned to the operation do not work alone. A second person shall be a qualified person and shall be within visual and hearing distances of the work area. The second person shall also meet current First aid/CPR training requirements.

Examples of Power Work Requiring a Second Person:
Work operations on or near exposed equipment or circuit parts that are or may be energized at 50 volts or greater, including, but not limited to: cabling, power bays, bus bars, power plants, etc. (Examples include connecting cables to working plant and bays, tapping cables in to energized cable, connecting on to bus bars, etc.)

Exempted DC Power Maintenance Work Operations

The following DC Power Maintenance Work Operations have been determined to be low risk and do not require a second person to be present. Additional low risk DC Power Maintenance Work Operations may be exempted from having a second person present upon review and approval by a Safety Professional or equivalent.

- ✓ Battery string or cell voltage measurements
- ✓ Plant voltage or current measurement
- ✓ Setting plant voltages or thresholds
- ✓ Alarm testing
- ✓ Insertion or removal of fuses
- ✓ Replacement of defective cards
- ✓ Resetting plants/rectifiers due to callout/outage situation

- Remove all jewelry, watches and loose fitting clothing.

- Protective sheathing shall be used to cover all exposed energized components.

- Rubber matting shall be used to cover the floor area of any energized equipment to be serviced.

- Access to area where work is to be performed shall be restricted by use of barrier tape, warning signs, tags, cones or other similar alerting methods.

- Once work is completed all protective sheathing shall be removed.

- All covers and panels shall be replaced and secured.

- All debris and barricades shall be removed from the work area.

7.1.2.5 Special Cases

Tower Operations

Ensure proper means of electrical grounding are available for the tower that meets local and national codes.

Crane Operations

Cranes may need to be grounded when working near or around power lines.

When working near overhead power lines, controls must be implemented (e.g., de-energize, cable insulation, observe approach distances) if the risk assessment indicates that contact or flash over may occur. This includes assessing vehicle and crane access, if appropriate.

Excavations

The following steps must be taken before excavation/underground operations start to eliminate the potential for injury and minimize the risk of damaging underground electrical services.

- use drawings,
- use cable detection tools,
- follow safe digging practices, and
- execute the work in compliance with local standards/codes.

Dropping Fiber Optics, or TC Equipment in power distribution Poles and Grids

Adhere to safety rules stipulated by the grid operator.

Utilize approved tools and equipment appropriate to the grid voltage.

Follow approach distances described in Section 9.

7.1.2.6 Check/Verify Field Implementation

Electrical safety issues shall be included/addressed as part of Electrical Safety Risk Assessment. See Appendix A

Accident investigations must be conducted as a follow-up to electrical incidents/accidents
and near misses.

Corrective actions resulting from inspections and investigations must be followed until closure.

8 First Aid and Emergency Response

A site emergency response plan shall be implemented and maintained on all job sites.

Electrical Shock - In the event of electrical shock **do not** touch victims if the victim is still in contact with an electrical circuit. Call for professional medical assistance. If you can do it safely, turn off the power that's producing the shock.

If the victim is clear of the power source, trained personnel should administer first aid and/or Cardio Pulmonary Resuscitation (CPR) as appropriate until medical personnel arrive on the scene.

Electrical Burn – Personnel trained in first aid shall administer appropriate first aid procedures based on the degree of the burn. Medical attention should be obtained as soon as possible.

Electrical Fire - Notify firefighters immediately. Do not touch the burning object or use water to extinguish the flames. If you can do it safely, turn off the power. **Exit the area/building and wait for the professional firefighters to arrive at the scene.**

9 Approach Distances for Qualified Employees – Alternating Current (AC)

Distances Associated with Various System Voltages

	Limited Approach Boundary		Restricted Approach Boundary	
Nominal System Voltage Range, Phase to Phase	Exposed Movable Conductor	Exposed Fixed Circuit Part	Includes Inadvertent Movement	Prohibited Approach Boundary
0 to 50	Not specified	Not specified	Not specified	Not specified
51 to 300	3 mt..	3 ft. 6 in.	Avoid contact	Avoid contact
301 to 750	3 mt. t.	3 ft. 6 in.	1 ft.	0 ft. 1 in.
751 to 15kV	3 mt. .	5 ft.	2 ft. 2 in.	0 ft. 7 in.
15.1 kV to 36 kV	3 mt. t.	6 ft.	2 ft. 7 in.	0 ft. 10 in.
36.1 kV to 46 kV	3 mt. t.	8 ft.	2 ft. 9 in.	1 ft. 5 in.
46.1 kV to 72.5 kV	3 mt. .	8 ft.	3 ft. 2 in.	2 ft. 1 in.
72.6 kV to 121 kV	3.25 mt .	8 ft.	3 ft. 3 in.	2 ft. 8 in.
138 kV to 145 kV	3.35 mt..	10 ft.	3 ft. 7 in.	3 ft. 1 in.
161 kV to 169 kV	3.55 mt.	11 ft. 8 in.	4 ft.	3 ft. 6 in.
230 kV to 242 kV	3.96 mt..	13 ft.	5 ft. 3 in.	4 ft. 9 in.
345 kV to 362 kV	4.67 mt.	15 ft. 4 in.	8 ft. 6 in.	8 ft.
500 kV to 550 kV	5.8 ,mt..	19 ft.	11 ft. 3 in.	10 ft. 9 in.
765 kV to 800 kV	7.24 mt.	23 ft. 9 in.	14 ft. 11 in.	14 ft. 5 in.

End of Document Text

APPENDIX A - RISK ASSESSMENT ENERGIZED EQUIPMENT – ELECTRICAL SAFETY

Note: Risk Assessments are to be conducted at each site when the potential of contacting energized equipment exist and prior to each electrical intervention. Assessments must be repeated when additional hazards not previously addressed are caused by changing conditions. Completed forms must be maintained and provided to Customer Representatives upon request.

DATE: _____ PROJECT: _____ ADDRESS:
_____ PROVINCE: _____

TYPE OF OPERATION:

____ New Site/New Construction ____Existing Site/ Under Renovation
_____ O&M/ Supported by Managed Services

SITE:

___ Central Office ___ Wireless Site/Cell Hut ____ Outdoor Plant
___ Other (Specify): _____

WORKSITE CONDITIONS / OPERATIONAL DETAILS

TYPE OF EQUIPMENT/ENERGY SOURCE:

_____Bus Bar

_____Rectifier

_____ Back-Up Batteries

_____Back-Up Generator/Energy Source

_____ Defective/Damaged Electrical Equipment and Extension Cords

_____ Other (Specify)

_____

_____

TYPE OF ENERGY

___ AC Power - _____Voltage

___ DC Power - _____ Voltage

ENERGYCONTROL MEASURES:

_____ Qualified/Competent Person to Perform the Task

WARNING: Local rules and regulations must be followed for required qualifications.

_____ Safe Disconnecting Procedures Identified

_____ Equipment Shut Down / Approved by Customer
Yes___ WARNING: Lockout/ Tagout procedures must be implemented.
No ____ DANGER: All the following steps must be in place if unable to shut down equipment/energy source:

_____ Procedures for work on live equipment must be documented and approved by customer and reviewed by a competent person
_____ Insulated tools must be used
_____ Necessary Personal Protective Equipment must be available and used:

- Electrical gloves
- Non-conductive hard hats
- Non-conductive safety shoes
- Non-conductive safety glasses (required for all tasks)

_____Other necessary equipment must be available and used as necessary.

- Voltmeter
- Protective Sheeting
- Floor Rubber Mat
- Ladders with non-conductive tops

- Ground Fault Circuit Interrupters

_____Necessary Work practices:

- Ensure ground is in place prior to start
- No jewelry
- Proper clothing (i.e., long sleeve, long pants)
- Control access to work area
- No drinking or smoking in work area
- Another qualified employee must be at the site
- Personnel at the site must be First Aid/CPR certified
- Observe Safe Approach Distances
- Ensure all other electrical tools and extension cords are in good working conditions or placed "Out of Service" when defective

Potential Hazards

___ Electrocution
___ Electrical Shock
___ Burns (Electrical, Arc or Thermal Contact)
___ Falling from ladders/platforms due to electrical shock
___ Service Interruption
__ Fire
__ Explosion

Weather Condition

___ Snow*
___ Extreme Temperatures*
___ Rain*
___ Fog*
___ Strong Winds*
___ Lightning*
___ Flooding*

*Outdoor Plant operations will be suspended due to weather conditions: ____Yes ____ No

Hazardous Animals (e.g., bees, snakes, spiders, etc.)

Yes ____ No ____

Adequate Illumination

Yes ____ No ____

RF Radiation : All work will take place outside of the "hazard zone"/"standoff distance" from active antennas

Yes ____ No ____

If the answer is No, which controls will be implemented?

___ Monitor of RF Radiation

___ Antenna will be turned off

___ Antenna is a "Receive Only" antenna (will not transmit)

___ Other

Laser /Optic Fiber Communications System (OFCS) Safety

Connectors of Fiber Optics cables are:
____exposed

____energized

DANGER: The following work practices must be followed when the potential for exposure to a laser beam exist.
A laser hazard exists when an OFCS access panel is opened and invisible laser emissions are viewed with an optical instrument from an optical connector, optical port, fiber break, or un-terminated optical fiber. DO NOT VIEW INVISIBLE LASER EMISSIONS WITH OPTICAL INSTRUMENTS (e.g., microscope objectives, fiberscope and magnifying glasses).

___ verify that all sources of laser emissions are turned off. Implement Lockout/Tagout procedures.

___ do not view the un-terminated OFCS directly with optical instruments

___only use approved equipment/methods to test and view un-terminated fiber optic

___only competent/trained individuals to work on an unenclosed OFCS

___don't touch un-terminated fiber optics

__ exclude unauthorized personnel from the immediate area of an unenclosed optical fiber optic source

___ personnel working on equipment must be familiar with equipment specifications and conditions that will create a potential for injury (e.g., unavailability of Automatic Power Reduction, fiber disconnected or broken, specific distance at which a fiber end or open connector is considered to be too closed to the body)

Dangerous Neighborhood

Yes _____ No _____

If dangerous, which precautions will be necessary?

___ Notify applicable authorities of our presence, location and nature of work.

___ Maintain the gate closed to avoid access by unauthorized individuals to the site.

___ Other (specify)

_____

_____

List of Minimum Equipment/Supplies

___ Insulated Tools

___ Other Needed Equipment

____Voltmeter

____Protective Sheeting

____Floor Rubber Mat

____Ladders with non-conductive tops

____Ground Fault Circuit Interrupters

___ First Aid Supplies

___ Personal Protective Equipment

___ 2-way radio / Cellular Phone

___ Personal Identification

___ Proof of necessary/applicable licenses or certificates

Have the identified hazards been properly controlled?: ____ Yes _____ No

Important: If the answer is "Yes", the operation may proceed.

APPENDIX B -SAFETY INSPECTION -ELECTRICAL WORK

Note: Safety inspections are to be conducted daily to evaluate implementation of safe work practices. Completed forms must be maintained and provided to Customer Representatives upon request.

DATE: PROJECT:

ADDRESS: PROVINCE:

GENERAL

____ EMERGENCY PLAN COMPLETED

____ SAFETY MEETING CONDUCTED AND DOCUMENTED

____ NECESSARY FIRST AID SUPPLIES WERE AVAILABLE AND COMPLETE

____NECESSARY NOTIFICATIONS TO ACCESS EQUIPMENT AND SITE COMPLETED (IN ACCORDANCE WITH CUSTOMER'S AND TOWER OWNER's PROTOCOL)

ELECTRICAL WORK

____ QUALIFIED EMPLOYEES AT THE SITE HAVE PROOF OF APPLICABLE LICENSES/PERMITS

____ RISK ASSESSMENT COMPLETED

____NECESSARY PERSONAL PROTECTIVE EQUIPMENT (e.g., Non-metallic Safety Glasses, electrical insulated gloves, electrical rated hardhat):

___ AVAILABLE ___ INSPECTED BY USER BEFORE USE ___ USED

____ OTHER NEEDED EQUIPMENT AVAILABLE AT THE SITE:

___GROUND FAULT CIRCUIT INTERRUPTER (GFCI) ____LOCKOUT/TAGOUT KIT ____INSULATED TOOLS

___MULTIMETER ____INSULATED RUBBER FLOOR MAT ____INSULATEDS PROTECTIVE SHEETING

___CANVAS (NOT AN INSULATOR, ONLY USED FOR PADDING)

____ ALL PORTABLE ELECTRICAL EQUIPMENT AND EXTENSION CORDS IN GOOD CONDITION

____ ALL JEWELRY AND OTHER METALLIC/CONDUCTIVE ITEMS REMOVED FROM IMMEDIATE WORK AREA (e.g., ladder with metal tops, metal tape measures)

WHEN ABLE TO SHUT DOWN:

____ SHUT DOWN COORDINATED WITH THE CUSTOMER AND LOCKOUT/TAGOUT PROCEDURES IMPLEMENTED

____ ALL EMPLOYEES WORKING ON EQUIPMENT THAT HAS BEEN SHUT DOWN HAVE APPLIED THEIR OWN LOCK AND TAG

____ OTHER EMPLOYEES AT THE SITE NOTIFIED OF: ____ EQUIPMENT SHUT DOWN AND ____ PRIOR TO POWERING-UP EQUIPMENT

____COVERS PLACED BACK ON EQUIPMENT PRIOR TO POWERING-UP (ENERGIZING EQUIPMENT)

____ADDITIONAL PRECAUTIONS HAVE BEEN TAKEN WHEN UNABLE TO USE LOCKOUT DEVICES (e.g., removing an isolating circuit element, blocking control switch; opening extra disconnect, etc.)

WHEN UNABLE TO SHUT DOWN EQUIPMENT:

____ SECOND QUALIFIED PERSON AT THE SITE

____ BOTH QUALIFIED EMPLOYEES ARE TRAINED ON FIRST AID/CPR

____ ELECTRICAL SAFETY PROCEDURES IMPLEMENTED

____SAFE APPROACH DISTANCES OBSERVED

Items that were found in need of improvement must be properly addressed.

NAME AND SIGNATURE OF INSPECTOR:

_____

APPENDIX C - SITE EMERGENCY PLAN

DATE: **PROJECT:** **SITE NAME(s) OR ID(s):**

ADDRESS: **PROVINCE:**

CLOSEST HOSPITAL / MEDICAL SERVICES:

CLOSEST FIRE DEPARTMENT:

CLOSEST POLICE DEPARTMENT:

NAMES OF EMPLOYEES PRESENT AT THE SITE:

STEPS TO TAKE IN CASE OF AN EMERGENCY:

Depending on the incident, steps # 2, #3 and #5 must be taken if necessary.

___ #1 Assist the injured employee <u>if able to do so safely</u>.

<u>Electrical Incidents</u>

If an employee has sustained severe electrical shock, burns, and/or electrocution:

- ✓ Never touch the victim until the electrical source is cut off.
- ✓ Turn off the electricity at the fuse or circuit breaker box.
- ✓ If unable to turn off the source, be careful and use a non-conductive object (e.g., wood stick) to separate the victim.
- ✓ Keep bystanders well away from any source of live current.
- ✓ Be aware that electrical burns carry a strong possibility of cardiac arrest. Call Emergency Medical Services.

___ #2 Contact the Fire Department or local equivalent (e.g., Civil Protection).

___ #3 Provide First Aid/Cardio Pulmonary Resuscitation (CPR).

___ #4 Ensure medical attention is provided in accordance with the incident.

- ✓ **Contact the closest hospital, or**
- ✓ **Transport the victim to the closest hospital or clinic if recommended.**

___ #5 Contact the Police Department.

___#6 Notify management as soon as possible to report the incident with details.

___ #7 Collect equipment involved in the accident, and place out of service to ensure affected components are replaced after being evaluated by a competent person.

Important:

- ✓ **Cellular phones must be maintained with adequate charge.**
- ✓ **Must know the location of the closest phone in advance when cellular phone service is not available in the area.**
- ✓ **Any surfaces contaminated with biohazards must be properly decontaminated by an individual trained in Bloodborne Pathogens.**

APPENDIX D - SAFETY MEETING

Note: Safety meetings are to be conducted daily before initiating project activities. Completed forms must be maintained and provided to Customer Representatives upon request.

DATE: **PROJECT:** **ADDRESS:**

PROVINCE:

TOPICS DISCUSSED

___ Emergency Plan

___ Availability and Inspection of required equipment (e.g., Personal Protective Equipment, insulated tools)

___ Results of Risk Assessment

___ Access control to Work Area **___ Plan for today's activities**

ELECTRICAL

___Identification of existing electrical hazards at the site

___ Lockout/Tagout Procedures

___ Approach Distances

We have participated in today's safety meeting and agree with the topics discussed and the way necessary safety measures have been taken into consideration in the planning of today's activities.

Employees

Name	Signature