

EXHIBIT F-7
STATION FORMS

LG&E AND KU ENERGY LLC
220 WEST MAIN ST.
LOUISVILLE, KY, 40202

LG&E and KU Energy LLC

Thermal Hot Work Permit Program

Authored By: _____

Jeffery O. Gilbert, CIH

Approved By:

Manager, Corporate Health & Safety _____

Barbara Hawkins, RN

Date: _____

Effective Date:

December 10, 2008

Next review to be completed by:

December 10, 2011

(signed copy on file in Corporate Health & Safety office)

TABLE OF CONTENTS

1. Purpose.....	1
2. Scope.....	1
3. Responsibility	1
4. Definitions.....	4
5. Thermal Hot Work Requirements.....	5
6. Thermal Hot Work Procedures	6
7. Special Precautions	7
8. Personal Protective Equipment	8
Appendix A: Example Thermal Hot Work Permit Form.....	9
Appendix B: Frequently Asked Questions about the Thermal Hot Work Program	10

THERMAL HOT WORK PERMIT PROGRAM

1. PURPOSE

The purpose of this program is to reduce or eliminate the potential for injury to people and damage to property that can result from fires or explosions that arise when thermal hot work is performed outside of a designated safe thermal hot work area.

This program establishes a permit authorization system to ensure that all hazards are evaluated and that appropriate safety measures and controls are taken prior to and during any operation involving open-flames or that produces heat and/or sparks.

This operating procedure is written in accordance with the Occupational Safety and Health Administration's (OSHA) workplace standard, 29 CFR 1910.252, Welding, Cutting and Brazing and the National Fire Protection Association (NFPA) code standard 51B, Fire Prevention in Use of Cutting and Welding Processes.

2. SCOPE

This program is applicable to all LGE/KU personnel and all contract personnel working at LGE/KU-owned properties and other locations where LGE/KU has control over the work to be performed.

3. Responsibility

All employees have responsibility for ensuring compliance with this program, including suspending thermal hot work if conditions become unsafe. Specific responsibilities are:

- 1) The Corporate Health and Safety Manager shall ensure that:
 - a) the written Corporate Thermal Hot Work Permit Program is reviewed and revised, as necessary,
 - b) the Business Units are provided assistance in evaluating the applicability and implementation of this program, and
 - c) reviews of the program's effectiveness are conducted and documented.
- 2) Business Unit managers shall:
 - a) designate one or more individuals with responsibility for authorizing thermal hot work in areas not specifically designed for such processes,
 - b) provide resources and enforcement toward the identification, implementation and evaluation of controls to protect workers potentially exposed to the hazards of thermal hot work in the workplace,

- c) provide necessary support to ensure documentation of required record keeping activities, and
 - d) provide necessary supports to ensure employees attend annual training classes.
- 3) Health and Safety Specialists and Technical Training Consultants are responsible for:
- a) reviewing and approving, in coordination with departmental representatives, the locations where thermal hot work permits are required. This can be accomplished by either designating areas where permits are required or identifying areas where permits would, under normal conditions not be required,
 - b) maintaining a list of areas that are specifically designed for thermal hot work,
- 4) Supervisor and/or Team Leader are responsible for:
- a) ensuring that fire watches are properly trained,
 - b) ensuring that the proper fire fighting equipment is in working condition, and is available to standby personnel,
 - c) determining whether combustible materials or other hazards are present or are likely to be present in the work location,
 - d) periodically monitoring designated areas to be sure that conditions have not become unsafe for thermal hot work,
 - e) preparing the workplace by:
 - i) moving the work to a designated safe thermal hot work area or a location free of combustibles and potentially explosive atmospheres, or
 - ii) if the work cannot be moved, having the combustibles moved to a safe distance (a minimum of 35 feet) from the work area, or
 - iii) having the combustibles properly protected against ignition, or
 - iv) ventilating the area to remove potentially combustible or explosive gases or dusts (**Note:** In areas where there is the possibility of a

release of an explosive gas, continuous monitoring of the area with an explosive meter is required.), or

- v) scheduling the thermal hot work during a time when combustible materials are not to be in the area.
 - f) obtaining a thermal hot work permit from an issuing authority for any work that is to be performed outside of a designated safe thermal hot work area.
 - g) ensuring that workers are provided with and use proper safety equipment, including personal protective equipment and fire extinguishing equipment.
 - h) when required, designating a properly trained person to serve as a fire watch.
- 5) The Contractor Proponent will be responsible for ensuring that the duties of the Supervisors and/or Team Leaders are properly executed for tasks involving contractors performing thermal hot work.
- 6) The Issuing Authority shall:
- a) review the permit request and verify that all necessary precautions have been properly taken. If necessary, a visual inspection may be conducted prior to final approval.
 - b) verify that the buildings fire sprinkler system is in service, where applicable. Determine if the work area has any fire alarm detectors that need to be disabled to prevent false alarms, and appropriately disable only those devices that could be accidentally activated.
 - c) verify the location, start time and duration of the thermal hot work operation. A thermal hot work permit shall only be valid for the time duration identified. No thermal hot work permit shall exceed the requestor's scheduled shift period unless the requester receives a written approval from the Issuing Authority for an extension.
 - d) determine whether a fire watch is required for the thermal hot work operation.
- 7) The Fire Watch shall be a properly trained person designated by the individual or department requesting the thermal hot work permit, but shall not be the actual employee who is performing the thermal hot work operation.
Specific responsibilities include:

- a) having fire extinguishing equipment readily available and be trained in its proper use and limitations.
 - b) being familiar with facilities and procedures for sounding an alarm in the event of a fire.
 - c) correcting or stopping any conditions which may lead to a fire and reporting conditions to their department at the earliest opportunity. Attempting to extinguish fires appropriate to the available equipment and level of training, or otherwise activate the fire alarm system.
 - d) remain at the work site to monitor for smoldering fires while work is in progress and for at least one half hour following job completion. If the fire watch must leave the work site, all thermal hot work must stop.
- 7) Employees performing thermal hot work shall obtain proper authorization to perform thermal hot work operations via the THERMAL HOT WORK PERMIT and shall handle the equipment safely and use it so as not to endanger lives and property. The employee performing thermal hot work is also responsible for:
- a) ensuring full compliance with the requirements of this procedure.
 - b) being fully qualified to perform required thermal hot work and verify that their equipment and tools are in good working order.
 - c) using appropriate safety equipment, including eye and face protection, hand protection, body protection, head protection, hearing protection and respiratory protection, as needed.
 - d) avoiding thermal hot work operations where conditions ARE NOT SAFE.
 - e) stopping work when conditions change from those set when the work was approved. If the designated fire watch must leave the work site, operations shall cease and the operator shall remain at the work site for at least one half hour following job completion to monitor for fires.

4. Definitions

Designated Safe Thermal Hot Work Areas are areas that have been designed and constructed for performing work involving open-flames or that produce heat or sparks.

Facility Manager is the senior manager responsible for the physical operations of the facility or his/her designee (i.e., a plant manager at a power generation station or a service center manager at an operations center).

Fire Watch is a person trained to monitor thermal hot work operations. The Fire Watch shall be present during the entire thermal hot work operation and are immediately available to extinguish a fire or take other effective action if needed.

Thermal Hot Work is any work using an open-flame, heat or spark-producing apparatus. Thermal hot work includes, but is not limited to, welding, cutting, burning, grinding, and any related heat-producing jobs that could ignite combustible materials or flammable atmospheres. **Note:** Bolt heaters, car thaw sheds, portable room heaters (where allowed) and thermal weatherization equipment are not considered thermal hot work and do not require permits under this corporate program.

Thermal Hot Work Permit is a special permit, issued by an issuing authority, which authorizes specified thermal hot work at a specific location and time.

Issuing Authority is a person trained and approved by the facility manager or Business Unit manager to issue thermal hot work permits.

5. Thermal Hot Work Requirements

- 1) Routine thermal hot work operations shall be allowed without the requirement of a permit only in areas that have been designated as a SAFE THERMAL HOT WORK AREA.
- 2) In areas where it is not practical to move the work to a designated SAFE THERMAL HOT WORK AREA, thermal hot work shall only be permitted once the area is made fire safe by removing combustibles or protecting combustibles from ignition sources.
- 3) Thermal hot work operations are strictly prohibited under the following conditions:
 - a) in areas not designated as SAFE THERMAL HOT WORK AREAS where a proper thermal hot work permit has not been obtained;
 - b) in sprinklered buildings while such protection is impaired;
 - c) in the presence of explosive atmospheres, such as mixtures of flammable gases, vapors, liquids, or dusts with air; on or in any drum, container or vessel that has not been properly cleaned to remove any possible explosive atmospheres that can develop inside from residual contents; or
 - d) in areas near the storage of large quantities of flammable or combustible materials that can readily ignite. Note: In coal yards and other coal storage areas, as well as when working on or within 35 feet of coal handling equipment, a thermal hot work permit will always be required and the coal must be adequately protected.

6. Thermal Hot Work Permit Procedures

- 1) Before a thermal hot work permit is approved and issued, the department or individual requesting the permit shall verify that:
 - a) all thermal hot work equipment to be used is in satisfactory condition and in good repair.
 - b) any combustible materials such as paper, wood, textiles, or coal on the floor are swept clear for a radius of 35 feet or protected against ignition by other means. Floors constructed of combustible materials are properly protected by either wetting the surface or covered by fire-resistant shields. Where floors have been wetted down, personnel operating arc welding or cutting equipment shall be protected from possible shock.
 - c) all combustible materials are relocated at least 35 feet from the work area. Where relocation is not practical, the combustible materials shall be adequately protected.
 - d) openings or cracks in walls, floors, or ducts and grating surfaces within 35 feet of the work area are tightly covered to prevent the passage of sparks to adjacent areas. Where thermal hot work is done near walls, partitions, ceilings or roofs of combustible construction, fire-resistant shields or guards are provided to prevent ignition.
 - e) if thermal hot work is to be done on a metal wall, partition, ceiling or roof, that precautions are taken to prevent ignition of combustible materials on the other side, due to conduction or radiation, such as relocation or covering the materials. If the combustible materials can not be relocated or protected, a fire watch shall be provided on the opposite side of the wall where the work is being performed.
 - f) no thermal hot work is attempted on a metal partition, wall ceiling or roof having a covering, or on walls or partitions of combustible sandwich-type panel construction.
 - g) thermal hot work is not undertaken on pipes or other metals that are in contact with combustible walls, partitions, ceilings or roofs, if the work is close enough to cause ignition by conduction.
 - h) nearby personnel are suitably protected against heat, sparks, slag, etc.
 - i) where thermal hot work is to be done in close proximity to a sprinkler head, that the head is covered by a wet cloth to prevent activation. The cloth must be removed immediately at the conclusion of the thermal hot work.

- 2) The department or individual requesting the thermal hot work permit is responsible for designating a fire watch. The fire watch shall:
 - a) have fire extinguishing equipment readily available and be trained in its use.
 - b) know how to activate the building's fire alarm system, if applicable, or who to notify in the event of a fire.
 - c) watch for fires in all exposed areas, and try to extinguish them first only when obviously within the capacity of the equipment available, or otherwise sound the alarm immediately.
 - d) monitor the work area for at least one half hour after completion of the thermal hot work to detect and extinguish any smoldering fires that may be identified.
- 3) Once the work area has been properly prepared, the department or individual requesting the thermal hot work permit shall complete the thermal hot work permit form (See *Appendix A* for an example of a thermal hot work permit, the Business Units may create their own form) and request final review and approval from an Issuing Authority. The requestor, Issuing Authority, Fire Watch (when required) and employees performing the thermal hot work shall sign and dated the permit. Once approved, the thermal hot work permit shall be posted in the area where the work is to be performed.

7. Special Precautions

- 1) When work is stopped for an extended period of time the equipment must be shut down and secured to prevent accidental release of sparks, heat or flames. If the work stoppage will exceed the original duration time of the thermal hot work permit, the requester must notify Issuing Authority to have the permit extended or to request issuance of a new permit.
- 2) When thermal hot work is to be performed in a permit-required confined space or in conjunction with other permits or tags (such as required by the Lockout/Tag Out Program), all of the permits shall be marked so that they are linked to the original work order and to each other.
- 3) When the operation of equipment would render the area unsafe for thermal hot work, this equipment must be locked and/or tagged out in accordance with the Lockout – Tag Out Program. Both the lockout – tag out documentation and the thermal hot work permit shall be marked so that they are linked to the original work order and to each other.

- 4) Drums, tanks, containers or any vessel that may have contained chemicals or materials that when heated may produce flammable, explosive or toxic atmospheres shall be thoroughly cleaned and prepared prior to performing any thermal hot work on them.
- 5) Thermal hot work that must be performed on any utility piping used for the transmission or distribution of flammable gases or liquids shall only be performed by a crew qualified to make hot taps.
- 6) Contractors shall perform all thermal hot work procedures in accordance with this operating procedure or be able to demonstrate that they have a comparable procedure that meets or exceeds the requirements of this operating procedure.

8. Personal Protective Equipment

Personal protective equipment for eyes, face, head, and extremities, respiratory protection and protective shields and barriers, shall be used and maintained in a sanitary and reliable condition. Selection of appropriate devices should be made in accordance with the Personal Protective Equipment Hazard Assessment Program.

LG&E C.E. & C.M. Dept

**Request for Location of Underground Facilities
Substation And Power Plants**

Location: _____ Date Requested: _____

Description of Work To be Done And Specific Areas Involved:

Date Work To Start: _____

Person requesting Location & Approval : _____

Location Checked and Approved by:

Cane Run Plant: _____ Date: _____

Mill Creek Plant: _____ Date: _____

Trimble County Plant: _____ Date: _____

Electric T & D: _____ Date: _____

Electric Underground: _____ Date: _____

Gas Department: _____ Date: _____

South Central Bell: _____ Date: _____

Other: _____ Date: _____

Specific Instructions (How Close To Dig By Machine/Hand)

Date Permission Given to Dig: _____

Person Notified If Different Than Person Requesting Approval: _____

Appendix A: Thermal Hot Work Permit Example

HOT WORK PERMIT

BEFORE INITIATING HOT WORK, CAN THIS JOB BE AVOIDED?
IS THERE A SAFER WAY?

This Hot Work Permit is required for any temporary operation involving open flames or producing heat and/or sparks. This includes, but is not limited to: Brazing, Cutting, Grinding, Soldering, Torch Applied Roofing and Welding.

INSTRUCTIONS 1. Firesafety supervisor: A. Verify precautions listed at right (or do not proceed with the work). B. Complete and retain Part 1. (Part 1A is a copy for expanded hot work awareness). C. Issue Part 2 to person doing job. HOT WORK BEING DONE BY: <input type="checkbox"/> EMPLOYEE <input type="checkbox"/> CONTRACTOR DATE: LOCATION/BUILDING AND FLOOR: NATURE OF JOB: NAME OF PERSON DOING HOT WORK: I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for this work. SIGNED (Firesafety Supervisor/Operations Supervisor)	PART 1A REQUIRED PRECAUTIONS CHECKLIST <input type="checkbox"/> Available sparklers, hose streams and extinguishers are in service/operable. <input type="checkbox"/> Hot Work equipment in good repair. Requirements within 35 ft (11 m) of work <input type="checkbox"/> Flammable liquids, dust, lint and oily deposits removed. <input type="checkbox"/> Explosive atmosphere in area eliminated. <input type="checkbox"/> Floors swept clean. <input type="checkbox"/> Combustible floors wet down, covered with damp sand or fire-resistant mats. <input type="checkbox"/> Remove other combustibles where possible. Otherwise protect with fire-resistant tarpaulins or metal shields. <input type="checkbox"/> All wall and floor openings covered. <input type="checkbox"/> Fire-resistant tarpaulins suspended beneath work. <input type="checkbox"/> Protect or shut down ducts and conveyors that might carry sparks to distant combustibles. Work on walls, ceilings or roofs <input type="checkbox"/> Construction is noncombustible and without combustible covering or insulation. <input type="checkbox"/> Combustibles on other side of walls, ceilings or roofs are moved away. Work on enclosed equipment <input type="checkbox"/> Enclosed equipment cleaned of all combustibles. <input type="checkbox"/> Containers purged of flammable liquids/vapors. <input type="checkbox"/> Pressurized vessels, piping and equipment removed from service, isolated and vented. Fire watch/Hot Work area monitoring <input type="checkbox"/> Fire watch will be provided during and for 60 minutes after work, including any coffee or lunch breaks. <input type="checkbox"/> Fire watch is supplied with suitable extinguishers, and where practical, a charged small hose. <input type="checkbox"/> Fire watch is trained in use of equipment and in sounding alarm. <input type="checkbox"/> Fire watch may be required in adjoining areas, above and below. <input type="checkbox"/> Monitor Hot Work area for 3 hours after job is completed. Other Precautions Taken:	
PERMIT EXPIRES	DATE	TIME AM PM
NOTE: EMERGENCY NOTIFICATION ON BACK OF FORM. USE AS APPROPRIATE FOR YOUR FACILITY.		



F2330 (REV. 11/03)
PRINTED IN USA (11/03)
© 2003 Factory Mutual Insurance Company
All rights reserved.

WARNING!

HOT WORK IN PROGRESS WATCH FOR FIRE!

IN CASE OF EMERGENCY:

CALL: _____

AT: _____

WARNING!



Fuel Transfer Procedures

Prior to filling any tank, you must determine the ullage

The inadvertent overfilling of vessels and tanks accounts for a large percentage of petroleum releases each year. Prior to any fuel delivery, facility personnel must confirm the ullage (the unfilled volume) of the receiving vessel or tank. To determine the ullage, use one of the following methods: 1) stick smaller tanks; 2) obtain volume information from existing direct read gauges; 3) obtain volume information from sensors installed in the tank. The ullage is the amount of fuel that can be accepted by the tank. For example, a tank may have a total volume capacity of 1,000-gallons. If one of the approved methods above indicate that the tank contains 300 gallons, the ullage would be determined to be 700 gallons.

As a rule of thumb, tanks should not be filled to more than 90% of their total capacity. This 10% buffer allows for expansion of fuels during ambient heating and cooling cycles and as a safeguard against an overflow. Therefore, this 700 gallons would be reduced by 100 gallons (total tank volume multiplied by 10% or $1,000 \times 0.10 = 900$). Based on this information, a maximum of 600 gallons of fuel should be ordered from the vendor.

When the vendor arrives on site to provide fuel, the tank readings should be again re-taken and the ullage and the volume of fuel desired for delivery confirmed.

Transfer Procedure Checklist

Stage	Task
Prior to loading/ unloading	<input type="checkbox"/> Visually check all hoses for leaks and wet spots.
	<input type="checkbox"/> Verify that sufficient volume (ullage) is available in the storage tank.
	<input type="checkbox"/> Lock in the closed position all drainage valves of the secondary containment structure.
	<input type="checkbox"/> Secure the tank vehicle with wheel chocks and interlocks (as applicable).
	<input type="checkbox"/> Ensure that vehicle's parking brakes are set.
	<input type="checkbox"/> Verify proper alignment of valves and proper functioning of the pumping system.
	<input type="checkbox"/> If transferring fuel into a tank truck, inspect the lower most drain and all outlets.
	<input type="checkbox"/> Establish adequate bonding/grounding prior to connecting to the fuel transfer point.
<input type="checkbox"/> Turn off cell phone	

Transfer Procedure Checklist (cont.)

During loading/ unloading	<ul style="list-style-type: none"><input type="checkbox"/> Driver must stay with the vehicle at all times during loading/unloading activities.<input type="checkbox"/> Periodically inspect all system, hoses and connections.<input type="checkbox"/> When loading, keep internal and external valves on the receiving tank open along with the pressure relief valves.<input type="checkbox"/> When making a connection, shut off the vehicle engine. When transferring Class 3 materials, shut off the vehicle engine unless it is used to operate a pump.<input type="checkbox"/> Maintain communication with the pumping and receiving stations.<input type="checkbox"/> Monitor the liquid level in the receiving tank to prevent overflow.<input type="checkbox"/> Monitor flow meter to determine rate of flow and whether they are properly working.<input type="checkbox"/> When topping off the tank, reduce flow rate to prevent overflow. Tank should not be filled more than 90% of its total capacity.
After loading/ unloading	<ul style="list-style-type: none"><input type="checkbox"/> Make sure the transfer operation is completed.<input type="checkbox"/> Close all tank and loading valves before disconnecting.<input type="checkbox"/> Securely close all vehicle internal, external, and dome cover valves before disconnecting.<input type="checkbox"/> Secure all hatches.<input type="checkbox"/> Disconnect grounding/bonding wires.<input type="checkbox"/> Make sure the hoses are drained to remove the remaining oil before moving them away from the connection. Use a drip pan.<input type="checkbox"/> Cap the end of the hose and other connecting devices before moving them to prevent uncontrolled leakage. <p>Remove wheel chocks and interlocks.</p> <p>Inspect the lowermost drain and all outlets on tank truck prior to departure. If necessary, tighten, adjust or replace caps, valves, or other equipment to prevent oil leaking while in transit.</p>

Aerosol Cans and Proper Disposal

LGE-KU facilities use aerosol cans for several low volume applications.

Applications may be:

- Painting small objects or small areas;
- Touch up of existing painted areas;
- Application of lubricants;
- Application of zinc for cold galvanizing small areas or small objects;
- Application of cleaning fluids;
- Insect repellent;
- Other applications.

Aerosol can disposal is regulated by the USEPA. Aerosol cans must be properly characterized, managed, and disposed. Identification and listing of hazardous waste is regulated by 401 KAR Chapter 31 and 40 CFR Part 261.

Purchase products only in quantities that will be completely used without generating a waste. Use up the contents of an aerosol can entirely whenever possible. Cans still containing product should be properly stored for continued use.

Cans whose contents have not been used completely, and have been stored for an extended period of time, may arguably be considered discarded. Partially empty used aerosol cans should not be stored on site unless there is a reasonable opportunity for continued use.

If no valve is present, the can is not usable and must be disposed of properly.

When discarded, **empty and partially empty** used aerosol cans are deemed reactive hazardous waste since they could explode if heated under confinement. Place such cans in an appropriate container, label the container "Hazardous Waste, Aerosol Cans", and store it in a satellite accumulation area in accordance with the Environmental Procedures Manual. Consult the Material Safety Data Sheet(s) for specific information on the product(s). Notify Environmental Affairs for waste characterization and registration verification.

You may puncture aerosol cans **only** by using equipment specifically designed to safely do so. After the can has been punctured and the contents have been emptied into an appropriate container, the can carcass **must** be recycled as scrap metal. The collection container must then be labeled as hazardous waste and stored in a satellite accumulation area in accordance with the Environmental Procedures Manual. Consult the Material Safety Data Sheet(s) for specific information on the product(s). Notify Environmental Affairs for waste characterization and registration verification.

Only Conditionally Exempt Small Quantity Generators (CESQGs) may dispose of completely empty aerosol cans in the ordinary trash stream.

Feel free to contact Corporate Environmental Affairs with any specific questions.



General SPILL/RELEASE Reporting Form

For Facility & Field Operations

(rev. 4-07)

(Indicate Choices & Attach Papers if necessary)

Report Written By: _____ Report Date: _____
Reported/Discovered _____
By: _____ *Date/Time:* _____

Spill/Release

Date: _____
Start Time: _____ End Time: _____

Spill Location:

County: _____ Street Address: _____

Material Released:

Quantity: _____ <i>(gallons or #)</i>	Reportable	Quantity: _____ <i>(gallons or #)</i>
MSDS Checked: _____ <i>(yes/no)</i>	PCB-Oil Content:	_____ <i>(ppm PCB)</i>
Extremely Hazardous	Equipment/Serial	
Substance: _____ <i>(yes/no)</i>	No.	_____

Release Area (describe all affected media): _____ **Size:** _____ *(length x width)*

Contained? _____
Material Leave Property? _____ *(yes/no)* Raining and/or Freezing
Weather: _____
Spill into *waterway, pastureland, vegetable garden?* _____ *(yes/no explain)*

Damage, Injuries or Evacuation: _____

Source/Cause: _____

Corrective Action: _____

Cleanup-Disposal: _____

NOTIFICATIONS

"911"/Local Emergency Response Agency **(Site must call "911")** Date _____ Time _____
Name of Company Personnel Calling "911": _____
Name of Official Receiving "911" Call: _____

Environmental Affairs Personnel Contacted *(e.g., spill card personnel)* Date _____ Time _____
Name: _____

KY Dept of Environmental Protection *(KYDEP 800-928-* Date _____ Time _____

2380) _____
Name: _____
Agency Incident # _____

KY Div of Emergency Management (KYDEM 800-255-2587) _____
Date _____ Time _____
Name: _____
Agency Incident # _____

National Response Center (NRC 800-424-8802) _____
Date _____ Time _____
Name: _____
Agency Incident # _____

US EPA Region IV (404-562-8700) or Region III (215-814-9016) _____
Date _____ Time _____
Name: _____
Agency Incident # _____

KY-DOW/DWM – Regional Office (Courtesy Call) _____
Date _____ Time _____
Name: _____

Environmental Affairs (EA)
Spill-Release Reporting Card



Rev. 01/11

- A quick (15 minutes) and effective response includes:
1. Identify emission or spilled substance, source, affected area. Call supervisor
 2. Stop-Contain the release if trained or qualified to do so.
 3. Notify local emergency response contacts. Call "911" (or alternate #) if release exceeds a RQ (Reportable Quantity). Supervisor or dispatchers should make call within 15 minutes.
 4. Notify Corporate Environmental contacts and regulatory authorities. If contacted within 15 minutes, Corporate Environmental will make additional required notifications. Otherwise, site personnel must make notifications. (See regulatory agencies contact list.)

"911" and LG&E/KU Internal contacts. Spill-Release Info required

Supervisor, Local 911, Fire/Police	1. Your name, company name, plant or facility data, time of release
Trouble-Dispatch	2. Material — estimated qty. released
KU Central Dispatch 859-367-110	3. Release area description
LG&E Dispatch 502-627-3366	4. Release location, source, cause
Corp. Communications 502-627-2911	5. Corrective action taken
Risk Management 502-626-5900	

Regulatory Agencies Contact List

- Response-Assessment-Reporting Procedure**
1. Characterize failure & emission consequences
 2. Estimate (For air releases, use EA-Air Reporting Guide)
 3. Notify plant, internal and EA staff (on previous pages)
 4. Call 911 (The site must call "911" if > RQ release)
 5. Call state/federal regulatory contacts (see below)
 6. Make follow-up calls as necessary
- Environmental Regulatory Agencies**
- | | |
|---|------------------------|
| Kentucky Dept. for Environmental Protection..... | 800-928-2380 |
| <i>(If phone forwards to KYDEM, declare that call is for both notifications.)</i> | |
| Kentucky Division of Emergency Management (KYDEM, EHS & RQ)..... | 800-265-2587 |
| National Response Center (waterways, PCBs & 1 # haz. chem. & RQ)..... | 800-424-8802 |
| Indiana Dept. of Environmental Management..... | 888-623-7475 |
| IDNR Oil & Gas Division (report saline water or oil within 48 hrs)..... | 812-469-4875 |
| Virginia Dept. of Emergency Management..... | 800-468-6892 |
| USEPA Region IV (PCBs >1 # PCB or into water/pasture/crops) | |
| III (No.): 215-814-9014 | IV (Ky.): 404-562-8700 |
| V (Ind.): 317-953-2118 | |

Air Release Reporting (see EA — Air Reporting Guide)

- Plant air pollution control equipment failures may require:
- CERCLA-EPOLA Air Release Reporting: **good**
 - Start-up/Shutdown/Malfunction Reports (separate reporting & submit to)
- RQs for potential reporting scenarios (for 24-hour time period):**
- SCR failures: NO_x RQ > 1000 lbs., ammonia (EHS) RQ > 100 lbs.
 - ESP failures: Stack particulates (RQ): arsenic > 1 lb., selenium > 10 lbs.
 - FGD failures: SO₂ RQ > 500 lbs., SO₃ RQ > 1000 lbs.
 - Misc. substances: Chlorine (EHS) RQ > 10 lbs.; Asbestos RQ > 1 lb.

- If > RQ released — CERCLA-EPOLA phone calls required:**
 The site must make calls if EA staff not contacted within 15 minutes.
1. Call "911" (Call must originate from site — EA staff can't access local 911)
 2. Call the Ky. Dept. for Environ. Protection (or KYDEM if off or business hours)
 3. Call the NRC if > RQ for CERCLA chemicals

EA Staff	Work	Cell	Home
Jason Wilkinson.....	502-627-4040	502-216-7298	502-249-2777
Gary Ravitt.....	502-627-4621	502-409-1299	502-523-2957

Water-Land Release Reporting

- Spills/Releases/Bypasses to water or land may require:**
- SPOC spill reporting: oil spills > 25 gal. or stream/sewer water sheens
 - RPDES bypass reporting: regulated pollutants not managed as per permit
 - PCB reporting: spills > 500 ppm, or > 50 ppm and to water/sewer/pasture/crops
 - Hazardous chemicals reporting: spills > RQ (Reportable Quantity)
- The site must make calls if EA staff not contacted within 15 minutes.**

1. Call "911" (Call must originate from site — EA staff can't access local 911)
2. Call the KY-IN-VA Dept. for Environmental Protection
(for Kentucky, call KYDEM if off or business hours)
3. Call the NRC if spill > RQ for CERCLA chemicals; or if oil into water
4. Call the USEPA Region III-IV-V (as appropriate) if PCB > 1 lb.

EA Staff	Work	Cell	Home
Sherry Pryor.....	859-367-5335	502-558-4464	859-366-4237
Paul Puckett.....	502-627-4659	502-648-7842	502-225-0022
Roger Medina.....	502-627-2997	502-558-4027	502-228-7295

LG&E KU Power Production

Lockout / Tagout Written Policy

INDEX

<u>Section Title</u>	<u>Page Number</u>
Introduction	3
Definitions	4
Scope and Responsibility	8
Description of Operating Cards and MTCM	10
A. Hold Card	10
B. Caution Card	11
C. Information Card	12
D. Master Tag Control Mechanism	12
Lockout/Tagout Procedure Sequence of Events	14
1. CLEARANCE request	14
2. The CLEARANCE request is prepared by:	14
3. The CLEARANCE request is completed by:	14
4. Ordering CLEARANCE	15
5. Standards for placing Hold Cards on devices for LOTO	15
6. Procedure for verifying CLEARANCE on electrical breakers	16
7. Checking CLEARANCE	17
8. Procedure for releasing CLEARANCE AND removing CARDS on devices for LOTO	20
Training and Competencies	22
Isolation for Electrical Testing of Low Voltage MCC Control Circuits	24
Grounding for the Protection of Employees	25
Lockout Of Non-Generation Equipment	26
New Construction Carding	29
 <u>Appendices</u>	
APPENDIX A - Operational Control and Lock-Out/Tag-Out Authority at Generating Stations	30
APPENDIX B - Lockout/Tagout Procedure Acknowledgement / Person In Charge	33
APPENDIX C - Periodic Inspection Form	34
APPENDIX D - Lockout/Tagout of Radiation Sources to Prevent Employee Exposure	35
APPENDIX E – LGE KU Power Production Lockout/Tagout Variance	36
APPENDIX F - Lock Identification	37

LG&E KU Power Production Lockout/Tagout Written Policy

Introduction

This policy is drawn from the combination of KOSHA 1910.269, KOSHA 1910.147, and Federal OSHA 1917, 1918, & 1919 in regard to LOCKOUT/TAGOUT (LOTO) requirements. Elements of all these standards apply to specific areas, equipment, and NORMAL PRODUCTION OPERATIONS at one or more of our LG&E KU Power Production facilities. For operational control and Lockout/Tagout authority for Transmission/Distribution systems, refer to “Operational Control and Lockout/Tagout Authority at Generating Stations”, Appendix A.

Operating conditions, maintenance and construction activities require periodic isolation of electric and mechanical equipment from hazardous energy sources. Hazardous energy may include, but is not limited to, voltage, current, pressure and temperature. Hazardous energy isolation shall be applied to provide for personnel safety, protection of equipment and/or when operating conditions require it. These LOCKOUT/TAGOUT (LOTO) Procedures have been implemented to ensure the safety of personnel and equipment during these activities.

DEFINITIONS:

ADMINISTRATIVE AUTHORITY (AA) is the individual who shall ENSURE proper ENERGY SOURCE isolation consistent with the requirements of these LOTO PROCEDURES. The following shall be recognized as designated AA.

KU

- Shift Supervisors
- Designated Unit Operators
- Coal Yard Supervisors and Assistant CY Supervisors
- Designated Combustion Turbine (CT) Site personnel for CT's and Ice plant
- Others designated in special circumstances as outlined in these procedures

LGE

- Production Leaders
- Designated Operators
- Fuels Leaders and designated Material Handling Operators
- Turbine Operators at Ohio Falls
- Lab Leaders and designated Lab Technicians
- Others designated in special circumstances as outlined in these procedures

AFFECTED PERSON is an employee or contractor whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

AUTHORIZED PERSON is a QUALIFIED employee or contractor who locks out or tags out equipment or performs maintenance on that equipment. An AFFECTED PERSON becomes an AUTHORIZED PERSON when that person's duties include performing maintenance or LOTO of said equipment.

CERTIFIED refers to an employee who has been trained and demonstrated proficiency in performing the required LOTO PROCEDURES.

CLEARANCE pertains to the holding of a section of line or piece of equipment out of service for each individual so that work may be safely performed. CLEARANCE may only be issued by an AA after:

1. The appropriate ENERGY SOURCE ISOLATION has been applied to the line or piece of equipment by an AUTHORIZED PERSON, and
2. The requester has checked to see that a Hold Card has been applied to the appropriate ENERGY SOURCE and verified that the equipment is properly isolated and

3. The requester has checked the CERTIFICATE NUMBER at the top of the Hold Card against the CERTIFICATE NUMBER at the top of the MTCM, and
4. Signed in the "CLEARANCE requested and checked by" column of the MTCM.

CERTIFICATE NUMBER is the number that formally relates each Hold Card to its own MTCM sheet.

DE-ENERGIZED means free from any electrical connection to a source of potential difference and from electric charge. (Free from any and all forms of hazardous energy.)

ENERGIZED means connected to an electrical source or containing residual or stored energy.

ENERGY ISOLATING DEVICE means a physical device that prevents the transmission or release of hazardous energy including, but not limited to, the following: a manually operated electrical circuit breaker, a disconnect switch, a slide gate, a slip blind, a line valve, blocks, and similar devices with a visible indication of the position of the device. (Push buttons, selector switches, and other control circuit type devices are not considered energy isolating devices.)

ENERGY ISOLATING PROCEDURES are procedures that set forth the specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control ENERGY SOURCES.

ENERGY SAFE POSITION means the position of an isolation device in which no possible re-accumulation of energy can occur.

ENERGY SOURCE is any electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy sources that could cause injury to personnel.

ENSURE means to be responsible for the completion of an action or a task. A person who ENSURES that something is done guarantees that the action or task will be performed, whether they personally perform the task or assign it to someone else.

GENERATION EQUIPMENT is all equipment used to generate power except those specifically identified as NON-GENERATION EQUIPMENT.

LOCKOUT/TAGOUT (LOTO) is the placement of a lock or Hold Card on the ENERGY ISOLATING DEVICE in accordance with an established procedure, indicating that the ENERGY ISOLATING DEVICE shall not be operated until removal of the lock or Hold Card in accordance with the established procedure. The terms "lockout" and "tagout" are interchangeable and allows the use of a lock or tag or a combination of both.

LOCKOUT/TAGOUT PROCEDURES are specific procedural steps for the placement, removal and transfer of locks or Hold Cards and the responsibilities for them.

MASTER TAG CONTROL MECHANISM (MTCM) is the sheet maintained and controlled by the AA. It is the formal control that links all personnel holding CLEARANCE on a piece of equipment to the single Hold Card on the prescribed ENERGY ISOLATING DEVICE.

NON-GENERATION EQUIPMENT includes, but is not limited to:

- Elevator
- Lighting
- Heating
- Ventilation
- Air Conditioning Equipment
- Receptacle Feeds
- Fire Protection Equipment

NORMAL PRODUCTION OPERATIONS means the utilization of a machine or equipment to perform its intended production function.

PERIODIC INSPECTIONS are inspections conducted and documented for the purpose of identifying employee compliance with the LOTO requirements and must be conducted annually as described in *Training and Competencies* within this LOTO procedure and Appendix C.

PERSON IN CHARGE is an AUTHORIZED PERSON designated to be supervising and responsible for a work group.

QUALIFIED PERSON refers to a person knowledgeable in the construction or operation of electric power generation, transmission, or distribution equipment and the hazards involved.

REMOTE SITES are facilities designated by Management as remote for the purposes of LOTO.

RESIDENT CONTRACTOR is an employee of a contract firm that normally reports to the generating station on a routine basis (non-project / non-outage).

SAFETY TAGGING SYSTEM (STS) is a computer system utilized to record and track LOTO activities at our generating stations.

SUBSHEET is a document maintained by the contractor or crew leader for those AUTHORIZED PERSONS who are assigned CLEARANCE under their direct responsibility.

SWITCH is a device for opening and closing or for changing the flow of energy to a piece of equipment. A switch is understood to be either manually operable or a computer screen graphic symbol.

Scope and Responsibility

This Lockout/Tagout policy is applicable to all personnel at LG&E KU Power Production sites where the potential release of energy from any form of ENERGY SOURCE could cause injury to personnel, damage to equipment or where employees must perform any type of ENERGY ISOLATION PROCEDURE.

Management is responsible for:

- a) Providing resources necessary for the implementation of the policy.
- b) Providing necessary support to ENSURE employees are trained and QUALIFIED as required.
- c) ENSURING compliance with each element of the written program and training requirements.

Supervisors/Leaders/Chiefs/Engineers/Planners/Contract Coordinators/Project Coordinators/Contract Proponents and others as assigned are responsible to ENSURE that:

- a) AUTHORIZED and AFFECTED PERSONS have been trained, QUALIFIED and/or CERTIFIED per the requirements of this written policy and associated ENERGY ISOLATION PROCEDURES.
- b) AUTHORIZED and AFFECTED PERSONS conduct their work in accordance with this written policy and ENERGY ISOLATION PROCEDURES.
- c) PERIODIC INSPECTIONS are conducted, identifying employee compliance with the LOTO policy and ENSURING subsequent retraining is completed and documented.
- d) A copy of the LG&E KU Power Production LOTO PROCEDURES (i.e. this document) is provided to contractors under their direction.

Health & Safety personnel are responsible for:

- a) Assisting management in ENSURING compliance with the written policy.
- b) Observing work activities, maintaining PERIODIC INSPECTION records, identifying employee compliance with the LOTO program and ENSURING that subsequent retraining is completed and documented.
- c) Conducting audits to determine level of overall program compliance.
- d) Working with Management to identify any changes to the procedures that would enhance the safety of all personnel within the constraints of the applicable standards.
- e) Coordinating LOTO training for all station personnel.

AUTHORIZED and AFFECTED PERSONS are responsible for:

- a) ENSURING compliance with this program.
- b) ENSURING they are knowledgeable of the specific hazards to which they are exposed.

Description of Operating Cards and MTCM

A. Hold Card

1) Physical Characteristics:

- a) This is a red card bearing the word "HOLD" in bold black letters across the back of the card. The words "DANGER DO NOT OPERATE" are printed across the front top of the card. The Hold Card shall also include provisions for the following:
 - Each Hold Card shall have its own unique CERTIFICATE NUMBER
 - Equipment Name
 - Name of individual performing CLEARANCE
 - Date and Time equipment cleared
- b) Hold Cards shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.
- c) Hold Card attachment means shall be of a non-reusable, self-locking, and non-releasable type with a minimum unlocking strength of no less than 50 pounds.

Notes:

Hold Card attachment on push buttons, selector switches, and other control-circuit-type devices are exempt from the before mentioned minimum lock and strength requirements.

Push buttons, selector switches, and other control-circuit-type devices are not considered to be energy isolating devices and shall not be used as the main source of isolation. Although, they are included as part of the energy isolating process for LOTO.

2) Use:

- a) The Hold Card is the formal registered card in the Lockout/Tagout Program.
- b) Hold Cards shall be used for all CLEARANCES of ENERGY SOURCES.
- c) The Hold Card shall have a unique Certificate Number which matches its related MTCM.
- d) Hold Cards are placed only at the direction of the ADMINISTRATIVE AUTHORITY (AA).
- e) Hold Cards shall be applied to the ENERGY ISOLATING DEVICE.
- f) Equipment shall be carded in the ENERGY SAFE POSITION **only**. Additional safety measures such as, but not limited to, securing a valve in the ENERGY SAFE POSITION, blocking of a control switch, opening of an extra disconnecting device, removal of an isolating circuit element or

removal of the valve handle shall be used to reduce the likelihood of inadvertent energizing.

3) Registration:

- a) For GENERATION EQUIPMENT: Hold Cards and MASTER TAG CONTROL MECHANISM (MTCM) shall be required for all CLEARANCES.
- b) For NON-GENERATION EQUIPMENT: Locks (where they can be installed), Hold Cards and MTCMs shall be required for all CLEARANCES. Locks shall be identified as in Appendix F.
- c) All Hold Cards shall be registered in the STS or approved log book.
- d) Hold Cards shall have a unique CERTIFICATE NUMBER printed on the top of the card. This number is specific and is generated by the STS. This number must also be printed in the CERTIFICATE NUMBER section of the MTCM.

4) Authority:

- a) Hold Cards with MTCMs have absolute CLEARANCE authority. A device having a Hold Card attached shall **never** be operated.
- b) The Hold Card provides CLEARANCE authority for safety to personnel and/or equipment.
- c) All registered Hold Cards carry equal CLEARANCE authority.

B. Caution Card

1) Physical Characteristics:

- The caution card is yellow in color with the word "CAUTION" printed across the top. Ruled horizontal lines are provided where information such as which station, what equipment, who put the card on, the date and the reason for the card can be written.

2) Use:

- a) The caution card provides information relating to an unusual condition associated with the operation of the device or system.
- b) The caution card shall only be placed or removed with the approval of a Supervisor/Leader/Chief as deemed prudent and necessary. The card shall remain in force until such time as the unusual condition has been corrected or returned to its normal status.

3) Registration:

- The caution card is not required to be registered.

4) Authority:

- The caution card does not imply CLEARANCE authority and shall not be used for such purpose.

C. Information Card

1) Physical Characteristics:

- The information card is white in color with the word “INFORMATION” printed across the top. Ruled horizontal lines are provided where information can be written.

2) Use:

- The purpose of the information card is to provide status information, general information, or instructions.

3) Registration:

- The information card is not required to be registered.

4) Authority:

- The information card does not imply CLEARANCE authority and shall not be used for such purpose.

D. Master Tag Control Mechanism

1) Physical Characteristics:

- a) Document that is maintained and controlled by the AA. This document can be electronic or paper.
- b) This document shall include:
 1. Requestor
 2. Requested date & time
 3. Cleared by personnel (when available)
 4. Clearance verification signature (written or electronic acknowledgement)
 5. Purpose
 6. Clearance release signature (written or electronic acknowledgement)
 7. Release date & time
 8. Unique certificate number

9. Certificate/Equipment name

2) Use:

- Formal register for AUTHORIZED PERSONS holding clearance.

3) Registration:

- a) The personnel performing the work, maintenance activities, inspections, etc. **SHALL** sign or electronically acknowledge the MTCM for the specific equipment.
- b) As each clearance request is released a record of this action shall be made on the appropriate MTCM.
- c) A copy of completed MTCMs should be kept on file for a minimum of 90 days.

4) Authority:

- MTCMs with Hold Cards have absolute CLEARANCE authority.

Lockout/Tagout Procedure Sequence of Events

1. CLEARANCE request

- The carding CLEARANCE request is prepared for the associated equipment so proper ENERGY SOURCE isolation can be applied in preparation for anticipated work.
- This request may be completed electronically or by filling out a CLEARANCE Request Form.
- Walk-in/verbal CLEARANCE requests will be processed on an as needed basis.
- Any CLEARANCE performed for the System Operations Dispatching Center shall be in accordance with the System Operations Dispatching Center's policies and the "Operational Control and Lockout/Tagout Authority at Generating Stations".

2. The CLEARANCE request is prepared by:

The Maintenance Service Leader, Chief, Planner, Scheduler, or alike will prepare the CLEARANCE request at the time the work (or Work Order) is planned.

- The CLEARANCE request may become part of a work package or work plan.
- All sections of the requests shall be completed prior to the delivery of the request to the AA.
- Plants with electronic capabilities may request CLEARANCE via computer.

3. The CLEARANCE request is completed by:

The AA completes the following, as applicable, on the specific type of request used:

- CLEARANCE request complete: Signed by the on-duty AA at the time the carding is completed. Date and time are also entered.
- After the AA has completed all applicable paperwork, the CLEARANCE request is placed in the CLEARANCE request box.

Then:

- The CLEARANCE request shall be made available to either the employee or issuer upon request.
- If the CLEARANCE cannot be granted, the AA will check this space and write the reason for not granting CLEARANCE.

4. Ordering CLEARANCE

- The AA shall originate all energy isolation orders.
- ENERGY ISOLATION PROCEDURES shall be conducted only by properly designated AUTHORIZED PERSONS.
- The AA shall ENSURE proper ENERGY SOURCE isolation is consistent with the requirements of these LOTO PROCEDURES and any equipment specific energy isolation procedures.
- All oral orders pertaining to energy isolation and CLEARANCES shall be repeated back to each other to guard against a misunderstanding.

5. Standards for placing Hold Cards on devices for LOTO

- The LOTO of control devices (where applicable) shall occur before electrical isolation, and electrical isolation shall be completed prior to the non-electrical isolation of equipment.
- If software control systems exist and the systems will allow the application of a “red tag” (or other software inhibiting logic) and associated CERTIFICATE NUMBER, a CERTIFICATE NUMBER shall be generated and entered into the system or posted in a central location.
- On medium and low voltage switchgears, control fuses shall be removed (or disconnects opened) from the circuit prior to the isolation of the breaker unless removing the fuse constitutes a greater danger of electrical exposure.
- When confronted with an equipment condition that prevents the completion of the isolation procedure, the qualified employee applying the energy isolation procedure shall stop and report the problem to the AA for further review.
- When confronted with a clearance condition that requires deviation from the written procedure a variance must be approved by the General Manager or his/her designee before proceeding. The active variance form will be submitted to the Administrative Authority once the appropriate signatures are attained and routed to the Safety Specialist upon completion of the defined work. See Appendix E.
- The proper location for attaching the Hold Card is at the same point on the ENERGY ISOLATING DEVICE to which a lock would be attached and in such a manner that the card cannot be inadvertently detached. If the ENERGY ISOLATING DEVICE is not equipped to receive a lock, then the card shall be attached as near as practicable to the device providing CLEARANCE and in a position that will be immediately obvious to anyone attempting to operate the device.
- Should an isolated device be removed from service for maintenance, repair or replacement, the employee performing said work shall notify the AA requesting relocation of the Hold Card to a location as near as practicable to the original device’s location. If relocation of the card is approved by the AA, relocation of the tag shall **only** be performed by an AUTHORIZED PERSON. When the new or repaired device is placed back in to service, the employee performing said work shall again notify the AA that the procedure has been completed and the Hold Card shall be relocated to the new device. As an example, if a medium voltage breaker

requires maintenance, the breaker shall have its Hold Card relocated to the cubicle from which it came and the breaker may be physically removed from the cubicle and repaired, having no card applied.

- Crews performing work at REMOTE SITES may provide their own CLEARANCES. CLEARANCES shall be visually verified by at least two (2) people.

6. Procedure for verifying Energy Isolation on electrical breakers

To verify that power has been disconnected the following procedure shall be followed:

A visual inspection is the recommended technique to verify electrical isolation. In cases where it is impossible to make a positive visual determination of the isolation, such as low voltage molded case circuit breakers, an electrical test shall be made to ENSURE that isolation is complete. For three phase power systems, the minimum checks to be made are as follows:

1. Check the voltage between L1 and L2. The test instrument should show voltage. This shows that the test instrument works.
2. Check the voltage between the following terminals:
 - L1 to T2
 - L1 to T3No voltage should be shown in any test in this step.
3. Check the voltage between terminals L1 and L2. The test instrument should show voltage. This ENSURES that the test instrument kept its integrity during the test and allows for establishing a positive test connection to L2.
4. Check the voltage between the following terminals:
 - L2 to T1No voltage should be shown in any test in this step.
5. Check the voltage between terminals L1 and L2. The test instrument should show voltage. This ENSURES that the test instrument kept its integrity during the test.
6. If any of the above steps (#1-#5) do not test as specified, the breaker should be left in the racked out or off position. CLEARANCE should not be given and the breaker should be immediately reported to the AA as a case of trouble.
7. It is expected that due to the various designs of equipment, application of the above procedure may not be possible in all cases. One example would be the case of a molded case circuit breaker with permanently affixed terminal guards. In these cases, it shall be the responsibility of that location's Operations/Production team to develop and implement an alternative testing procedure for that specific gear which positively establishes electrical isolation consistent with 1910.269 and 1910.147.

NOTE: At no time shall anyone perform voltage checks across a breaker or other isolation device once a Hold Card has been affixed.

7. Checking CLEARANCE

a) For LG&E KU Power Production Employees and RESIDENT CONTRACTOR employees

- **Before** an employee is granted CLEARANCE, the employee shall check and ENSURE that all Hold Cards are in place at all ENERGY ISOLATION DEVICES listed and sign on to the associated MTCM(s). Any Hold Cards in place on associated SWITCHES **may** be checked if so desired. However, an employee is not required to ENSURE that all Hold Cards are in place on all associated SWITCHES before CLEARANCE is granted but must sign on to the MTCM. If any AUTHORIZED PERSON requesting the Hold Card cannot assure him/herself that the equipment is properly isolated, he/she shall seek assistance from the AA.

b) For Sizable LG&E KU Power Production Work Groups and Contractors working under the direct supervision of an LG&E KU Power Production Employee

This is an optional procedure allowing the use of an MTCM SUBSHEET. It may be applied by any designated PERSON IN CHARGE where:

- The work to be completed is a job that involves a “sizable work group”.
- The Maintenance Manager of the facility has approved the application of the MTCM SUBSHEET for this job.

The designated PERSON IN CHARGE shall obtain CLEARANCE on the necessary equipment to provide proper energy isolation for the employees and/or contractors involved.

- **Before** a “PERSON IN CHARGE” is granted CLEARANCE, the employee shall check and ENSURE that all Hold Cards are in place at all ENERGY ISOLATION DEVICES listed and sign on to the associated MTCM(s). Any Hold Cards in place on associated SWITCHES **may** be checked if so desired. However, an employee is not required to ENSURE that all Hold Cards are in place on all associated SWITCHES before CLEARANCE is granted. If any person (AUTHORIZED PERSON) requesting the Hold Card cannot assure him/herself that the equipment is properly isolated, he/she shall seek assistance from the AA.

The AA shall issue MTCM SUBSHEETS to the designated PERSON IN CHARGE who shall ENSURE that all employees for whom they are responsible have signed

on the MTCM SUBSHEET and shall inform the employees that they **may** check the CLEARANCE for which they are signing.

The designated PERSON IN CHARGE shall not release CLEARANCE on the MTCM until each of the persons signed on to the MTCM SUBSHEETS have signed off for the specific equipment.

The MTCM SUBSHEET shall be controlled by the designated PERSON IN CHARGE at all times and **must** be returned to the AA prior to the designated PERSON IN CHARGE being allowed to release CLEARANCE on the AA's MTCM(s). The AA shall verify the accuracy of the MTCM SUBSHEET and shall dispose of the sheet at his/her discretion.

c) For Resident or Non-Resident Contractors with a designated PERSON IN CHARGE

The contractor shall ENSURE that all employees receiving a CLEARANCE have completed training on the LG&E KU Power Production LOTO PROCEDURES specific to LG&E KU Power Production facilities.

- **Before** a "PERSON IN CHARGE" is granted CLEARANCE, the employee shall check and ENSURE that all Hold Cards are in place at all ENERGY ISOLATION DEVICES listed and sign on to the associated MTCM(s). Any Hold Cards in place on associated SWITCHES **may** be checked if so desired. However, an employee is not required to ENSURE that all Hold Cards are in place on all associated SWITCHES before CLEARANCE is granted. If any person (AUTHORIZED PERSON) requesting the Hold Card cannot assure him/herself that the equipment is properly isolated, he/she shall seek assistance from the AA.

The LG&E KU Power Production job proponent responsible for the contractor's work shall ENSURE that LOTO programs are exchanged and agreed to between the contractor and the facility's management prior to the initiation of any work that will require a CLEARANCE.

The LG&E KU Power Production job proponent shall hold CLEARANCE, as deemed necessary by Management, on all necessary equipment for these contractors until the contractor's work is completed and inspected to ENSURE the safety of the employees and the equipment.

The contractor shall designate a PERSON IN CHARGE who shall hold CLEARANCE on all necessary equipment.

- In addition, the contractor shall provide a "Lockout/Tagout Procedure Acknowledgement" to the appropriate LG&E KU Power Production Health and Safety Specialist listing the employees that have the authority to

request clearances for their company. These contractor employees are the only personnel that will be permitted to request CLEARANCE on the MTCM. See Appendix B. A 24-hour telephone number must be provided by the contractor for the PERSON IN CHARGE. Only contractor employees identified on Appendix B will be added to the users list or added to the MTCM. The contractor's name shall be promptly removed from the users list after the effective date given on the "Lockout/Tagout Procedure Acknowledgement".

After performing the proper clearance checks and receiving CLEARANCE, the PERSON IN CHARGE shall receive MTCM SUBSHEETS on the equipment necessary to provide adequate CLEARANCE as specified by the AA.

The PERSON IN CHARGE shall administer the MTCM SUBSHEETS as required within these LOTO PROCEDURES and ENSURE the security of the MTCM SUBSHEETS at all times.

Where the contractor is not QUALIFIED and CERTIFIED, an escort shall be provided through the AA or E.ON U.S. job proponent where electrical exposures require proper inspection of CLEARANCE devices.

The PERSON IN CHARGE shall ENSURE that all workers who require clearance for whom they are responsible have signed on the applicable SUBSHEET before work begins and shall inform the employees that they **may** check the CLEARANCE for which they are signing.

The PERSON IN CHARGE shall not release CLEARANCE on the MTCM until each of the persons signed on to the MTCM SUBSHEETS have signed off for the specific equipment. These sheets will not be returned to the AA.

8. Procedure for releasing CLEARANCE and removing CARDS on devices for LOTO

Where MTCMs are in place, electrical energy isolation orders shall not be initiated for the removal of the electrical isolation until equipment is properly aligned for service. This would not apply for uncoupled motors being bumped to confirm rotation.

CLEARANCE TRANSFER – If transfer of CLEARANCE is required before the completion of a job, the employee shall ensure continuity of CLEARANCE by notifying the AA and ensuring transfer of CLEARANCE to another employee before the release of CLEARANCE.

CLEARANCE RELEASE (NORMAL) – Upon completion of maintenance, all persons holding CLEARANCE (AUTHORIZED PERSON) shall release their CLEARANCE and personally notify the AA if he/she was the last employee holding CLEARANCE.

CLEARANCE RELEASE (TELEPHONE) – If Hold Carded equipment is needed for service and the individual who holds CLEARANCE is offsite or at a REMOTE SITE, and has not performed a CLEARANCE release, attempts shall be made to contact him/her by phone. If the individual is contacted by phone, and the piece of equipment is capable of operation, the AA shall request CLEARANCE from the employee. This transaction shall be verified by a third party. The AA shall note in the comment section of the MTCM that the release was made by phone and the employee's supervisor shall be notified.

CLEARANCE RELEASE Where the Requester Has Not Received CLEARANCE – If Hold Carded equipment is needed for service and the requester does not hold CLEARANCE, attempts shall be made to contact him/her by phone. If the individual is not available by phone, and the piece of equipment is capable of operation, the AA can, at his/her discretion, perform the CLEARANCE release. The AA shall note in the comment section of the MTCM that the release was made and the employee's supervisor shall be notified.

CLEARANCE RELEASE (GENERAL MANAGER) – If the individual whose name appears on the MTCM cannot be contacted and a CLEARANCE check has been performed, and the equipment is required for service, the station General Manager or his/her designee shall have the authority to release the MTCM in question. This will only be done after a complete and thorough check-out. The AA shall ENSURE that the person is notified that their CLEARANCE has been released as soon as possible, but not later than the initiation of work on the person's next scheduled work day.

Training and Competencies

Level of Training

In general, the level of training provided must be adequate for the tasks involved in order to insure that work is performed in a safe manner:

QUALIFIED and AUTHORIZED PERSONS shall be trained and knowledgeable of the construction and operation of the equipment and the hazards involved.

NON-QUALIFIED and AFFECTED employees shall be trained in any safety-related practices necessary to ENSURE their safety, but are not authorized to work on or near ENERGIZED parts nor have exposures to the potential release of energy from any form of ENERGY SOURCE.

The Employer shall determine that each employee is complying with the safety-related work practices required here-in through:

- a) Regular Supervision, **and**
- b) PERIODIC INSPECTIONS (Appendix C)

Employees shall receive LOTO training annually and shall receive additional training if:

- a) Either supervision or PERIODIC INSPECTIONS identify a deficiency.
- b) New technology or equipment is applied or if procedures are changed.
- c) The employee must apply LOTO PROCEDURES not normally used during his/her regular job duties.
- d) Employees performing LOTO PROCEDURES less than once a year should be retrained before performance of work.

LOTO training shall be either of class room type or on the job and must be documented in either case.

LOTO training shall:

Establish the employee's proficiency in the LOTO PROCEDURES. The employer shall CERTIFY the employee performing ENERGY ISOLATION PROCEDURES clearly understands the scope, purpose, authorization, rules and techniques to be utilized for the control of the ENERGY SOURCE.

Records of training shall be maintained on each AUTHORIZED PERSON.

- A. Training shall be provided annually for all LG&E KU Power Production employees to ensure that the purpose and function of the energy control program are understood and the knowledge and skills required for the safe application and usage are acquired by the employees. The training shall be documented and shall consist of:

1. The Lockout/Tagout procedures including:
 - Scope
 - Clearance request & requestor procedures
 - Clearance steps & application
 - Clearance documentation
 - Testing & inspection
 - Definitions
2. The type and magnitude of the energy available in the workplace
3. The limits and functions of the different LOTO devices
4. Safety related work practices involved in performing work task

New employees or employees transferred from other areas shall receive training specific to the sections above before the employee participates in any activities detailed therein.

Affected employees shall be instructed about the procedure and about the restrictions relating to attempts to restart or re-energize machines or equipment which is locked out or Hold Carded.

B. In addition:

- Qualified employees shall complete the requirements of LG&E KU Power Production Electrical Safe Work Practices Employee Training on an annual basis.
- Qualified employees applying electrical and non-electrical isolation procedures shall be trained, qualified and certified in the application of those procedures.

Appendix B Isolation for Electrical Testing of Low Voltage MCC Control Circuits

Appendix C It is recognized that:

- Instrument/Electrical (I/E) personnel will need to complete electrical testing on 480 control circuits fed from MCCs (buckets) during the course of normal maintenance procedures or subsequent to new construction or renovation.
- In this case, the “Primary Disconnect” (the molded case circuit breaker located in the MCC bucket, etc.) will need to be closed in order to energize the controls and test the circuit. This must be achieved without voiding CLEARANCE integrity for those who are protected from the potential release of hazardous energy by the isolation of the “Primary Disconnect”.
- For this situation, CLEARANCE may be transferred from the original point of isolation to the disconnected circuit leads. The requester must contact and satisfy all other personnel who currently have CLEARANCE applied to the equipment that testing may be completed in a safe manner that will not void their CLEARANCE and that the point of electrical isolation is being transferred to the disconnected leads from the breaker. Each of these personnel must contact the AA to accept the testing under their CLEARANCE before the requester may be allowed to conduct the testing.
- Documentation of this activity shall be accomplished through use of the “Lockout/Tagout Variance” form in Appendix E.

Temporary Grounding for the Protection of Employees

In general, only QUALIFIED Instrument/Electrical (I/E), or Substation Maintenance Personnel responsible for the application of grounds and grounding devices shall apply grounds at LG&E KU Power Production facilities. **Grounding practices shall be consistent with the Health and Safety Manual.**

Grounding for Electrical Protection:

- a) Hold Cards shall be applied to the grounds.
- b) Operations personnel shall be responsible for installation or removal of grounds only when ground application is made with a switching device such as ground disconnects or switchgear ground and test device. When safety grounds cannot be applied with a switching device, appropriate QUALIFIED maintenance personnel will apply and remove the safety grounds.

Static Grounds:

- a) Any personnel specifically QUALIFIED may complete specific grounding operations on tools and equipment for the purpose of grounding for static protection.
- b) Hold Cards shall not be required for the purpose of grounding for static protection.

Lockout of Non-Generating Equipment

Appendix D

Appendix E If an energy isolating device of non-generation equipment is capable of being locked, then it shall be locked. Tracking of locked equipment shall be accomplished per section Hold Card Description – A.3.b. Isolation tracking of locked, non-generation equipment by means of the MTCM may be waived by the plant management for maintenance shop tools used on a routine basis. The energy isolation procedures outlined herein do not preclude any requirements under NFPA-70E.

This procedure establishes specific Lockout criteria for hazardous energy isolation of **non-generation**, transmission and distribution equipment. Specifically, it applies to the control of energy during servicing and/or maintenance of non-generation machines and equipment that can be locked out, i.e., machines or equipment in which the unexpected energization or start-up, or release of stored energy could cause injury to employees.

NOTE – Exception to the above: If an energy isolating device is not capable of being locked out, the Hold Card procedure shall be followed. Any non-generation equipment that is replaced undergoes major repairs, renovation, or modification shall be designed to accept a lockout device.

Routine operation of non-generating equipment, i.e. servicing and/or maintenance, are not covered by this procedure unless:

- a. An employee is required to remove or bypass a guard or other safety device, or
- b. An employee is required to place any part of their body into the point of operation or where an associated danger zone exists during a machine operating cycle.

NOTE – Exception to the above: Minor tool changes and adjustments, and other minor servicing activities that take place during normal operations of the affected component are not covered by the procedure if they are routine, repetitive, and integral to the use of the equipment for operation, provided that the work is performed using alternative measures which provide effective protection.

Work on 120/220 volt cord and plug connected electric equipment for which exposure to the hazards of unexpected energization or start-up is controlled by unplugging the equipment from the energy source does not require lockout as long as the plug is under the exclusive control of the employee performing such work (line of site).

CAUTION – Cord and plug connectors greater than 220 volts cannot be disconnected unless the energy source to the plug has been isolated and locked out per the procedures stipulated by this document

Employee Responsibility

- 1) AUTHORIZED PERSONS are required to lockout and tagout machinery and equipment and restore it to service in accordance with OSHA requirements and LG&E KU Power Production Lockout and Tagout procedures.
- 2) No employee shall attempt to start, energize, or use any machine or piece of equipment that is locked or tagged out.
- 3) Each employee must comply at all times with provisions of this lockout, tagout program, the OSHA lockout, tagout standards, and all rules, regulations and orders that are applicable to their own actions and conduct.

Lock Identification: See Appendix F.

Lockout Procedures

Electrical Lockout

- 1) Request
 - a. Requester contacts the “Administrative Authority” and requests electrical clearance on **non-generation** equipment.
 - b. Requester shall give a reason for the clearance request of this equipment.
- 2) Order
 - a. Only the major points of isolation shall have a lock applied. For example, the 480 volt breaker will be locked, but the control switch would not be locked.
 - b. If the equipment or device can be removed from service, the Administrative Authority will have equipment isolated and locked with Operation’s lock and Hold Card. The lock shall be applied to a safety lockout hasp.
 - c. An Operation’s lock, when used, will be first on and last off. While the Operation’s lock is on an energy isolating device, the lock’s key shall be maintained by the AA in a designated area and shall have a hold card affixed to the lock as a means of identification.
- 3) Order Complete
 - a. After the designated AUTHORIZED PERSON has performed the necessary functions and the Operation’s lock is in place, they shall report to the AA that the equipment has been locked and carded.
- 4) Request Granted
 - a. After the card is logged in the appropriate log, the AA will issue clearance authority to the requester that they may now hang their lock.
 - b. The requester will hang their individual lock.

NOTE – If more than one individual is required to service or maintain machinery or equipment, each employee shall follow the above procedure and request clearance and hang their lock.

Mechanical Lockout

- Shall be the same as Electrical Lockout.
- Valves for water, hydraulic pressure, or other sources of energy shall be locked when applicable. When there are double valves, at least one shall be locked.

Restoring Equipment To Service

When the job is completed and the equipment is all clear, the holder of the clearance authority shall remove their identified lock and notify the “Administrative Authority”. The AA may then order the Operation’s lock to be removed if appropriate.

Inspect the work area to ensure that:

- all non-essential items have been removed
- the machine or equipment components are operationally intact
- no personnel are exposed to any hazards

After all locks have been removed and the area has been inspected, the MTCM (if required) may be restored and equipment made ready for testing and/or normal service.

New Construction Lockout Procedures and Authority

Turn Key Projects

This shall be defined as projects such as the addition of a new generation unit, large pollution control retrofit project, or other large scale projects not managed by the Stations. This option may be applied with the approval of the Plant General Manager and the Director of the department managing the Turn Key Project and requires the approval of both.

- 1) The General Contractor for the major project shall act as the Lockout Authority and shall supply CLEARANCE AUTHORITY, SWITCHING AUTHORITY and QUALIFIED PERSONS consistent with this LG&E KU Power Production Lockout Tagout Policy.
- 2) All contract employees and LG&E KU Power Production personnel shall request and receive clearance on equipment through lockout procedures from the general contractor's Administrative Authority until the Facility Manager has accepted the transfer of authority over the equipment or system from the general contractor.
- 3) A specific list of the equipment transferred to the authority of the Plant General Manager shall be maintained by the facility's Administrative Authority, the department managing the Turn Key Project, and the general contractor's Administrative Authority to ensure that effective Energy Isolation and Lockout Authority is maintained for all equipment during the entire project.

APPENDIX A
Appendix F

Appendix G Operational Control and Lock-Out/Tag-Out Authority
Appendix H at Generating Stations

Appendix I Purpose

Generating Stations generate power into the Transmission/Distribution Systems and receive auxiliary power from the Transmission/Distribution Systems. The purpose of this document is to define Operational Control and Lock-Out/Tag-Out Authority (LOTA) of assets needed to generate power into the Transmission/Distribution Systems and receive auxiliary power from the Transmission/Distribution Systems. This document will also define additional requirements for LOTA of assets/operating equipment at generating stations.

Operational Control and Lock-Out/Tag-Out Authority

Transmission System Control Center (TSCC) shall have operational control and lock-out/tag-out authority of all assets at or above 69KV. Generation shall have operational control and lock-out authority of generation owned assets below 69KV.

Operational control does not necessarily define who actually operates the asset. Operational control defines control responsibility. TSCC has, for example, operational control of the Mill Creek 345KV generator primary circuit breakers. TSCC grants Mill Creek the permission to close a 345KV breaker during the synchronization of a generating unit to the Transmission System.

TSCC and Generation shall have joint operational control and joint lock-out authority of all Transmission interface assets and some Distribution interface assets. An interface asset in this document is defined as a Transmission or Distribution assets that when carded provides clearance and isolation of generation assets from the Transmission or Distribution System. Appendix A lists Transmission interface assets with shared operational control and shared lock-out authority.

Some generating plants have auxiliary loads that are powered from Distribution lines. Distribution Dispatch have sole operational control and sole lock-out/tag-out authority of the last overhead Distribution lines disconnect (interface assets) feeding a Generation load. Generation and Distribution Dispatch will have joint operational control and joint lock-out authority of non-overhead interface assets disconnects.

All interface assets can only be operated after notification of Generation and TSCC or Generation and KU/LG&E Distribution Dispatch. If an interface asset can be energized from both Generation and Transmission/Distribution, clearance must be given from both Generation and Transmission/Distribution before maintenance can begin on an interface asset.

Employees and/or contractors that are performing work on an asset and require clearance from the lock-out/tag-out authority for that asset shall follow the policy and procedures of the respective lock-out/tag-out authority. When the work involves an asset that has energy sources under the responsibility of multiple lock-out/tag-out authorities, the PERSON IN CHARGE of the work shall obtain clearance from each authority before starting work. When more than one department (Generation/Transmission/Distribution) requests clearance for the same asset at the same time, the PERSON IN CHARGE from each department will request and obtain separate clearance from each authority involved. For example, a Distribution employee in charge of work on Transmission interface assets during a unit outage will request and obtain required clearance from the TSCC and the local plant authority. That Distribution employee will not work under the clearance obtained by a Generation employee. Personal grounds can only be added while having clearance on an asset. Personal grounds must be removed before releasing clearance back to the lock-out/tag-out authority.

Exceptions or clarification to the operational control and lock-out authority definition presented above are:

- TSCC currently has and will continue to have operational control and lock-out authority of the three Distribution feeders at the Cane Run Plant (1420, 1421, & 1422).
- TSCC currently has and will continue to have operational control and lock-out authority of the Paddys Run GEN 11-A and GEN 12-B 14KV oil circuit breakers. These breakers tie PR11 and PR12 to the Paddys Run 14KV Bus.
- TSCC currently has and will continue to have sole operational control and sole lock-out authority of the Mill Creek 345 disconnects: MC-501 Line, MC-501Bus, MC-501 Line Tie, MC-531 Line Tie, MC-502 Line, MC-502Bus, MC-502 Line Tie, MC-532 Line Tie, MC-503 Line, MC-503Bus, MC-503 Line Tie, MC-533 Line Tie, MC-504 Line, MC-504Bus, MC-504 Line Tie, & MC-534 Line Tie.
- TSCC currently has and will continue to have sole operational control and sole lock-out authority of the Trimble County 345 disconnects TC-501 Line, TC-501 Bus, TC-501 Line Tie, & TC-531 Line Tie.

The TSCC has two centers that handle operational control and lock-out authority responsibilities. These centers are Waterside and Dix Dam. Waterside is normally responsible for the LG&E plants and Dix Dam is responsible for the KU plants.

The Distribution operational control and lock-out authority responsibilities are handled by KU/LG&E Distribution Dispatch.

The Generation operational control and lock-out authority responsibilities are handled locally at each of the generating plants. Contact numbers for the two TSCC centers, Distribution, and each of the generating plants are listed below.

Waterside	502 627 4704
Dix Dam	859 748 5221
Brown Control Rm 1&2	859 748 4631
Brown Control Rm 3	859 748 4633
Brown CTs	859 748 4433

LG&E/KU

Cane Run Generating Station
Natural Gas Combined Cycle Project

Engineering, Procurement and Construction

Issue: For Contract
Section Revision: 1

Cane Run	502 449 8031
Ghent 1&2	502 347 4126
Ghent 3&4	502 347 4128
Green River	270 757 3122
Mill Creek	502 933 6701
Ohio Falls	502 627 2855
Trimble County	502 627 6230
Tyrone	859 879 3505
KU Distribution Dispatch	859 367 1358
LG&E Distribution Dispatch	502 627 3401

APPENDIX B

**LOCKOUT/TAGOUT PROCEDURE ACKNOWLEDGMENT
For Contractors to designate "PERSON IN CHARGE"**

I, _____, affirm that I am the duly

AUTHORIZED _____ of

_____ ; (hereinafter the "Independent Contractor") and as such, have full authority to bind the Independent Contractor. On behalf of the Independent Contractor, I acknowledge that the Independent Contractor is fully aware of the LOCKOUT/TAGOUT Procedure and will strictly observe its requirements. In the event that the Independent contractor should ever breach this procedure, such breach will provide E.ON U.S. with a right to immediately terminate any contract or agreement relating to goods or services being supplied by the Independent Contractor at the

_____ Generating Station. In the event the Independent Contractor uses subcontractors in supplying such goods or services, the Independent Contractor shall be jointly and severally responsible for compliance by such subcontractors with the LOCKOUT/TAGOUT Procedure.

LIST BELOW THOSE PERSONS AUTHORIZED TO HOLD CARD:

Name	24hr Phone Number	Signature
Name	24hr Phone Number	Signature
Name	24hr Phone Number	Signature
Name	24hr Phone Number	Signature
Name	24hr Phone Number	Signature

Work dates from _____ to _____

APPENDIX C

Periodic Inspection Form

QUALIFIED Person performing the inspection:

Name _____ E# _____

Date: _____ Station _____

QUALIFIED employee being inspected:

Name: _____ E# _____

Procedure performed during inspection (be specific)

Variances identified during the inspection (be specific)

Detail retraining and proper performance of the procedure (be specific)

(Use the back side of the form if additional space is required.)

Inspector's signature:

_____ Date: _____

Maintain a copy of this document and send or deliver the original to the station Health & Safety Specialist.

APPENDIX D

Lockout / Tagout of Radiation Sources to Prevent Employee Exposure

1. The facility's RSO (Radiation Safety Officer), or in their absence, a QUALIFIED User, shall be contacted before beginning work on or around nuclear devices where it is possible for any portion of an individual's body to receive exposure to the radiation beam from the device.
2. Where the RSO determines that exposures are possible during the proposed work process, the RSO (or designated QUALIFIED User under the radiation Safety Standard) shall switch the radiation source to its closed or off position and apply any specific testing required under the Radiation Safety Requirements to ENSURE its isolation.
3. An AUTHORIZED PERSON shall apply a lock or a Hold Card to the closed and tested radiation source for the AA.
 - a. Tagout shall be applied to radiation sources associated with GENERATION EQUIPMENT.
 - b. Lockout shall be applied to radiation sources associated with NON-GENERATION EQUIPMENT and all Marine Standard related equipment.
4. All workers with potential exposures must request CLEARANCE through established procedures. Then and only then will the employees be allowed to start that portion of their work where exposures have been deemed possible by the RSO.
5. When the workers have completed their tasks and released their CLEARANCES through established procedures the AA shall inform the RSO/QUALIFIED User that the job is complete. The AA shall then designate an AUTHORIZED PERSON to remove the Hold Card and lock.

APPENDIX E

**LG&E KU Power Production
Lockout/Tagout Variance**

Location: _____
Work task: _____

Unit: _____
Date: _____

Description of work:

Reason for variance:

Description of variance and duration requested:

Project manager requesting variance

Department Supervision

Safety Specialist

Senior crew member on equipment

Senior crew member on equipment

Senior crew member on equipment

Senior crew member on equipment

Senior crew member on equipment

Shift Supervisor / Production Leader

General Manager/Appointed Designee

APPENDIX F

Lock Identification

1. Physical Description

- a) Only locks designed for the purpose of LOCKOUT shall be used. Any person who is aware of any lock being used for lockout that does not satisfy the following requirements must immediately report the finding to their Supervisor. That Supervisor shall take immediate steps to ENSURE that the lock in question meets the proper requirements or that a suitable replacement lock is provided.
- b) These locks have been determined to be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.
- c) These locks are of such construction as to prevent removal when in place by any means (other than the regular key) without the use of excessive force or unusual techniques (such as with the use of bolt cutters or other metal-cutting tools).

2. Identification

- a) Each person's lock(s) shall be uniquely keyed.
- b) There shall be **no** master key.
- c) Locks are identified as:
 - Operation's locks shall be uniform in color.
 - Locks for the Maintenance Groups (Mechanical, Instrument, Electrical, Coal Handling, Limestone or Building) can be any color as determined by the facility.
 - All personal locks shall be identified by having the employee's name on the lock.
- d) Each facility will maintain an ample number of locks, and supply as needed to their AUTHORIZED PERSONS.

It is required that whenever locks are used to provide energy isolation, that Hold Cards with MTCM s be issued first. Persons placing their personal lock(s) must first have signed on the MTCM and received CLEARANCE.

*LG&E and KU Services Company
 Contractor Safety Management
 Project Specific Hazard Analysis*

This Hazard Analysis and the required subsequent Hazard Mitigation Plan shall be completed by the contractor's designee and shall be submitted to The Company's authorized representative and forwarded to their Health and Safety Specialist/Consultant prior to the initiation of any work. It is an expectation that the contractor will identify specific hazards related to the scope of work.

Work description and location:

LG&E and KU Services Company Proponent:

Estimated Total Work Days:

Estimated Work Force #:

Equipment Related Compliance and Safety

Will the contractor use any of the following or be exposed to its use?

Will use it or be exposed to its use?

Abrasive Wheel Machinery	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Aerial Work Platform Operation	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Barricades	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Excavation Equipment	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Cranes: Overhead <input type="checkbox"/> Mobile <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Overhead Power Lines?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes specify voltage:		
Forklift Operation	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Ground Fault Protection (GFI's/GFCI's)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Grounding devices and processes (static)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Hand Tools / Power Tools	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Specific Hazardous Substances Compliance and Safety

Anhydrous Ammonia	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Arsenic	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Asbestos	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Bloodborne Pathogens (Applies to all)	Yes <input type="checkbox"/>	
DOT Hazardous Materials	Yes <input type="checkbox"/>	No <input type="checkbox"/>
EPA Hazardous Waste	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Explosive Gasses, Vapors, or dusts	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Hazard Communication (Applies to all)	Yes <input type="checkbox"/>	
Hexavalent Chromium (Hot Work)	Yes <input type="checkbox"/>	No <input type="checkbox"/> (Mandatory contact with H&S Rep.)
MSDS's supplied on all materials	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Radiation	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Lead or other toxic metal concerns	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Natural Gas Yes No
 Hydrogen Sulfide Yes No
 Other / Specify Yes No

Personal Protective Hazard

Which of the following PPE will be required?

Electrical protective equipment Yes No
 Low voltage gloves (Class 0, 50-600 volts) Yes No
 Boundary Distances Established and Enforced Yes No
 Arc Flash PPE Yes No
 Class 2 600 -15kv gloves/sleeves Yes No
 Rubber insulated blankets/hoses Yes No
 What will the exposed voltage level be?
 Eye Protection with side shields (at all times) Yes
 Goggles: directly vented indirectly vented Cutting Yes No
 Welding Hood Yes No
 Face Shield Yes No
 Fall Protection or Prevention Yes No
 Gloves (Appropriate to the specific task) Yes No
 Life lines (horizontal or vertical) Yes No
 Foot Wear: steel toes electrical hazard rated Yes No
 Hard Hats (Applies to all) Yes No
 Hearing Protection (Reduction to <85db. required) Yes No
 Natural Gas Exposure PPE
 Fire Suit Yes No
 Positive Pressure Respirator Yes No
 Hood Yes No
 Harness Yes No
 Life Line Yes No
 Gloves Yes No
 PFD (personal flotation device) Yes No
 Traffic Vest Yes No
 Respiratory Protection Yes No
 Portable ventilation equipment Yes No

Identify the respiratory hazard

Will the contractor have exposure to:

Total dust Yes No Has air monitoring been arranged? Yes No
 Silica Yes No
 Arsenic / Flyash Yes No Has air monitoring been discussed with the
 Asbestos Yes No H & S Specialist/Consultant? Yes No
 Hexavalent Chromium Yes No
 Flammable Atmosphere Yes No
 Lead Yes No
 Oxygen Deficient
 Atmosphere Yes No
 SO₂ Yes No
 Others / specify Yes No

Work/Safety Procedural Requirements *Will use it or be
exposed to its use?*

Bulk Chemical Unloading Yes No
Compressed Gas Cylinders Yes No
Confined Space Entry Yes No
Specify:

CPR & First Aid (under 1910.269, > 50 volts) Yes No
CPR & First Aid qualified person on site Yes
Mobile Crane Operator Physicals (3 yr req) Yes No
DOT Commercial Driver's License Yes No
Excavation / Trenching and Shoring Yes No
Explosion Hazard (Deslagging / Blasting) Yes No
Fire Protection (Hot work, welding & alike) Yes No
Gas Repair Procedures Yes No
Lifting and Rigging Yes No
Lockout/Tagout Yes No
Grounding Procedures Yes No
Equipment required to be isolated (list):
Marine Standard Yes No

Scaffold Competent Builder **Yes** **No**
Scaffold Competent User Yes No
Suspended Scaffolding Yes No
Work Zone Traffic Safety Yes No
Others / specify Yes No

Permits
Are there any permits indicated with outside agencies? Yes No
Asbestos removal, building permits, work zones, RR crossing, environmental impact, etc.)
Detail:

Are there any OSHA related permits? Yes No
(Permit Required Confined Space Entry, Dig permits and alike)
Detail:

Work Area Lighting
Additional lighting devices will be needed Yes No
Type of lighting:

Specify Additional Hazards:

Further instructions:

For each Yes box checked or additional hazards identified, a Hazard Mitigation Plan must be submitted along with this Hazard Analysis prior to the initiation of any work.

Name of the contracted firm:

Name of the contractor's Health & Safety designee completing this Hazard Analysis:

Date:

Phone number:

***LG&E and KU Services Company
 Contractor Safety Management
 Hazard Mitigation Plan***

This Hazard Mitigation Plan shall be filled in by the contractor's designee and must be submitted to The Company's authorized representative or their designee and forwarded to their Health and Safety Specialist/Consultant prior to the initiation of any work.

Description of the general job activity (e.g.: replacing duct work, building SCR):

Contractor's site supervisor:

Contractor's site Health and Safety Representative:

Date:

What is the work, what are the hazards, and how will we specifically protect our employees?

***LG&E and KU Services Company
 Contractor's Hazard Mitigation Plan***

<p align="center">Work Task Sequence Identify the principal steps and the sequence of work activities. (e.g.: Entry into an excavation)</p>	<p align="center">Identify and Analyze the Hazards Analyze each step for hazards. (e.g.: cave in, falls, confined space entry)</p>	<p align="center">Hazard Controls Develop specific controls for each hazard identified. (e.g.: bench or slope or shore, air monitor, barrier, PPE. Be specific)</p>

LG&E and KU Services Company
Contractor's Hazard Mitigation Plan

Work Task Sequence Identify the principal steps and the sequence of work activities.	Identify and Analyze the Hazards Analyze each step for hazards.	Hazard Controls Develop specific controls for each hazard identified.

***LG&E and KU Services Company
 Contractor Safety Management
 Job Performance Monitoring Tool***

This form shall be filled in by LG&E and KU Services Company contract proponent or designee. The form shall be forwarded to the Health and Safety Specialist/Consultant and the results discussed with contractor management.

Monitoring performed by:

Employee #:

Date:

Location:

Check One

Job Briefing conducted Yes No
 Tools 2 and 3 are in the hands of the crew Yes No

Housekeeping

Job site clean and free of excess trash and debris Yes No N/A
 Walkways and passages are clear Yes No N/A
 Material or equipment properly stored Yes No N/A
 Electrical cords, hoses, welding, leads, and alike (Elevated and protected to prevent hazards.) Yes No N/A
 Scrap material free of protruding nails or other puncture hazards Yes No N/A
 Trash receptacles are provided for work area Yes No N/A
 Barricades installed, maintained, and disassembled if job completed Yes No N/A
 Break areas, offices, trailers and like areas are specific to the contractor Yes No N/A

Equipment

Abrasive Wheel Machinery (Proper use / wheels adjusted) Yes No N/A
 Aerial Work Platform Operation (Inspected and operated as required) Yes No N/A
 Barricades (Installed as required) Yes No N/A
 Excavation Equipment (Inspected and operated as required) Yes No N/A
 Compressed Gas Cylinders (Stored, connected and used properly) Yes No N/A
 Cranes (Area control, powerline safety, inspected daily and documents retained) Yes No N/A
 Forklift Operation (Proper seat belts, speed & loading) Yes No N/A
 Ground Fault Protection (Proper GFI's/GFCI's) Yes No N/A
 Grounding devices and processes (Properly applied) Yes No N/A
 Hand Tool / Power Tools / Wood Working Machinery (Proper use & guards) Yes No N/A

No safety features by-passed or defeated on any equipment? Yes No N/A

Hazardous Substances

Anhydrous Ammonia (related requirements and work practices complied with) Yes No N/A

Arsenic (Complying with required procedures) Yes No N/A

Asbestos (Complying with required procedures) Yes No N/A

Bloodborne Pathogens (Applies to all) (Complying with required procedures) Yes No

DOT Hazardous Materials (Complying with required procedures) Yes No N/A

EPA Hazardous Waste (Complying with required procedures) Yes No N/A

Flammable Atmosphere Yes No N/A

Hazard Communication (Applies to all) (MSDS's available) Yes No N/A

Radiation (Complying with required procedures) Yes No N/A

Lead and other toxic metals concerns (Complying with required procedures) Yes No N/A

Natural Gas Yes No N/A

Hydrogen Sulfide Yes No N/A

Oxygen Deficient Atmosphere Yes No N/A

Other / Specify: Yes No N/A

Personal Protective Equipment

Low voltage gloves (Class 0, 50-600volts) Yes No N/A

Arc Flash PPE Yes No N/A

Class 2, 600-15kv gloves/sleeves Yes No N/A

Rubber insulated blankets/hoses Yes No N/A

Eye Protection (Required at all times.) Yes No

Directly or Indirectly vented goggles; cutting goggles (Applied as required) Yes No N/A

Welding Hood Yes No N/A

Fall Protection or Prevention (guards, guard rails, body harnesses properly worn, (lanyards and 5400# anchorage, perimeter guarding, static lines and rat lines installed) Yes No N/A

Foot Wear (with steel toes) (Applied as required) Yes No N/A

Foot wear (Electrical Hazard rated at > 50 volts) (Applied as required) Yes No N/A

Gloves (Applied as required) Yes No N/A

Hard Hats (Applies to all) Yes No

Hearing Protection (Applied as required) Yes No N/A

Natural Gas Exposure PPE

- Fire Suit Yes No N/A
- Positive Pressure Respirator Yes No N/A
- Hood Yes No N/A
- Harness Yes No N/A
- Lifeline Yes No N/A
- Gloves Yes No N/A

- PFD (personal flotation device) Yes No N/A
 Traffic Vest Yes No N/A
 Respiratory Protection (Change schedule, proper storage and disposal) Yes No N/A
 Portable ventilation equipment (Air monitoring as required to substantiate) Yes No N/A

Specific Work Requirements

- Bulk Chemical Unloading (Proper barricades, communication, PPE, showers) Yes No N/A
 Confined Space Entry (Air monitoring, permit-if required, hot work permit, non-entry rescue) Yes No N/A
 Permit Required Yes No N/A
 CPR First Aid qualified person on site Yes No
 Cranes / Powerlines (proper clearances maintained by ASME B30.5 standards) Yes No N/A
 DOT Commercial Driver's License (Applied as required) Yes No N/A
 Excavation/Trenching and Shoring (sloped and shored, access every 25ft., daily inspections) Yes No N/A
 Fire Protection (Hot work, welding, housekeeping, flammable materials & alike) Yes No N/A
 (Oxygen and combustibles separated, containers labeled, fire extinguisher)
 (Hot work and welding screens, flammable storage cabinets)(Explosive Hazards)
 Gas Operator Qualifications Yes No N/A
 Gas Repair Procedures Yes No N/A
 Ladders (Proper angles, secured, exceeds landing by 3 ft.) Yes No N/A
 Lead work (abatement, personal protection, disposal, control of the area) Yes No N/A
 Lifting and Rigging (Slings tagged, softeners as required, area controlled) Yes No N/A
 Lighting (proper work area lighting) Yes No N/A
 Lockout/Tagout 147/269 (clothing, restricted areas at > 50 volts) Yes No N/A
 Marine Standard (Decks clear, equipment stored, life preservers, access/egress) Yes No N/A
 Scaffold Competent Builder (Proper access and egress, tagged, inspected prior to each shift) Yes No N/A
 Scaffold Competent User (Scaffolds inspected by each user) Yes No N/A
 Suspended Scaffolding (Inspected daily or at the start of each shift, torqued J clips) Yes No N/A
 Permits (air, water, environmental, asbestos, building, etc) Yes No N/A
 Permits (OSHA related: Dig permits, hot work, and alike)(Applied as required) Yes No N/A
 Traffic control/Work zone hazards properly marked Yes No N/A
 Vehicles (Speed, lights working, seat belts, properly maintained, licenses and certificates as req.) Yes No N/A

Contractor Firm Name:

Employee(s) Name:

Valid Passport(s) presented?

Time:

Specific location:

Detail the specifics of any performance correction cited.

Detail:

What contractor Leadership / Management representative was notified and by whom?

**LG&E and KU Services LLC
Contractor Safety Management
Quality Assurance Closure Form for Contractors**

At the completion of any project the contractor's representative must inspect and attest to each of the following and shall return this form to their contract proponent prior to departure from the job site. The contract proponent will then forward a copy of the Job Closure Form to their Health and Safety Specialist/Consultant.

Work description and location:

Print the name of your LG&E and KU Services LLC Contract Proponent:

- 1. Has the technical scope of work been completed? Yes No

- 2. Has the job site been cleaned and returned to original or better condition?
 Yes No

- 3. Have all materials been properly disposed of and documented as required?
 Yes No

- 4. Have all Lockout and Tagout clearances been removed / released.
 Yes No

- 5. Have all required statistics been entered into the Contractor's Safety Database?
 Yes No

Details on each of the five specific requirements may be added to the reverse side of this form. If a "No" box is checked, specific details are required for submission of this job closure document.

Name of the contractor firm:

Name of the contractor's representative completing this form (print):

Representative's telephone number:

Contractor representative's signature:

Date:

NOTE: List, by number, on the following page, an explanation of any item that was check NO

Welding and Cutting Fume Decision Job Aid

This job aid has been designed to assist employees in the proper selection of fume controls (ventilation and/or respiratory protection) for welding and cutting operations.

For steps 1 through 4, select the Safety Rating that matches the work to be performed. Add these Safety Rating numbers together, then divide the sum by the Duration of Work Adjustment from Step 5. The resulting number is the Composite Safety Rating for the task. Compare this number to the Fume Control Requirements Chart to determine the appropriate controls for the task.

If the tasks to be performed are not included in this job aid, contact the Site Health and Safety Specialist for fume control guidance.

Step 1: Process		Safety Rating
GTAW, Oxy-fuel Welding, or GMAW short-circuit transfer		1
SMAW (3/32" & 1/8" diameter electrodes), Oxy-fuel Cutting, Oxy-fuel Brazing, or GMAW spray or pulse transfer		2
SMAW (5/32" diameter and larger electrodes), FCAW		3
Air Arc Cutting or Gouging with round electrodes 1/4" diameter and smaller, or Plasma arc Cutting or Gouging		4
Air Arc Cutting or Gouging with flat or round electrodes larger than 1/4" diameter		5
Step 2: Filler Metal/Base Metal		
Welding	Safety Rating	Thermal Cutting
GTAW using steel, stainless steel, nickel, copper, or cobalt filler rods	0	n/a
GTAW and GMAW on aluminum, ER4043, ER5554, or ER5556	1	n/a
E7018, E6010, E6013, E71T-1	0	P#1 carbon steel (A36, SA-106 Gr. B)
E7018-A1, E8018-B2, E6013, E81T1-B2	1	P#3 and P#4 alloy steel (T1a, T11, F11)
E9018-B3, E91T1-B3	2	P#5A alloy steel (T22, P22, F22)
E9018-B7, E9018-B9 (old E502 and E505)	3	P#5B alloy steel (T5, T7, T9, T91)
E3xx-15, E3xx-16, E3xxT-1	4	P#8 stainless steel (304, 316, 347)
Nickel electrodes, ENiCrFe-2, ENiCrFe-3, ENiCrMo-10, Eni-CI, ENiFe-CI	5	P#43 and similar nickel alloy (iconel alloys 622, 625, nickel Hastelloys)
ECu, ECuNi, ECuSi, ECuSn, ECuAl	5	Copper, Bronze, Brass
ECoCr-A, ECoCr-B	5	Cobalt (Stellite 6, Stellite21)
Carbide and alloy steel hardfacing rods (see manufacturers' literature for details)	5	Chrome carbide hardfacing alloys, mill rolls, mill bowls, breaker bars, breaker hammers
Austenitic manganese electrodes (see manufacturers' literature for details)	4	Manganese 'Hadfield' steel, non-magnetic railroad rails, frogs, wear pads

n/a	0	Aluminum (1100, 3003, 5054, 6061, 7075)
-----	---	---

Step 3: Paint, Plating, or Other Coatings on Workpiece	Safety Rating
None or coating removed prior to thermal cutting or welding	0
Ash deposits containing sulfur (rotten egg odor when heated)	2
Known or Suspect Zinc or Chromate - based paints	3 (4 if paint layer is 1/16" or thicker)
Electroplated coatings (electro-galvanized, chromated, etc.) including EMT conduit and electro-galvanized Unistrut	4
Hot-dip galvanized	5
Cadmium plated (dull silver bolts, nuts, washers, all-thread)	6
Step 4: Position and Local Ventilation Use	Safety Rating
Outdoors where worker can keep head out of fume plume most of the time	0
Inside buildings where all of the following are true: 1. Building/room volume is over 10,000 cubic feet per fume source (such as turbine and boiler buildings and large fuel handling garages) 2. Worker can keep head out of fume plume most of the time 3. Nearby workers are not exposed to concentrated fume plume	
Inside buildings where all of the following are true: 1. Building/room volume is less than 10,000 cubic feet per fume source 2. Fume capture and removal system is used (exhaust trunk or hood) 3. Worker can keep head out of fume plume most of the time	
Large confined spaces (boiler firebox, backpass, windbox, hydro spiral case, tanks over 10,000 cubic in volume (condensers, long tunnels) where all of the following are true: 1. Natural draft or mechanical ventilation creates perceptible air flow that is not swirling in the space 2. Worker can keep head out of fume plume most of the time 3. Nearby workers are not exposed to concentrated fume plume	
Small confined spaces that are difficult to ventilate (feed water heater hemispherical heads, mud and steam drums, tanks less than 10,000 cubic feet in volume, underground vaults)	3
Any location (including outdoors) where the worker cannot keep head out of fume plume most of the time	
Step 5: Duration of Work Adjustment	Divide By
Less than one (1) hour of fume-generating activity per eight (8) hours of work, and no individual Safety Rating equals 4 or higher	8
Less than four (4) hours of fume-generating activity per eight (8) hours of work, and no individual Safety Rating equals 4 or higher	2
More than four (4) hours of fume-generating activity per eight (8) hours of work	1 (no reduction)
Any duration if an individual Safety Rating equals 4 or higher	1 (no reduction)

Safety Ratings from Steps 1 - 4				Subtotal	Divide by Duration of Work Adjustment (Step 5)	Composite Rating
0	0	0	0	0	1	0
Fume Control Requirements*						
Composite Rating	Required Ventilation or Minimum Required Respiratory Protection					
Less than 3	Natural ventilation is sufficient.					
3 to 5	Use capture hood or airhorn positioned to draw/blow fume plume away from worker, if feasible. If mechanical ventilation is not feasible, use half-face, N100 or P100 filtered respirators.					
over 5 to 7	Use capture hood or airhorn positioned to draw/blow fume plume away from worker, if feasible, <u>and</u> use half-face, N100 or P100 filtered respirators. If mechanical ventilation is not feasible, use powered-air purifying respirator with N100 or P100 filters.					
over 7 to 14	Use capture hood or airhorn positioned to draw/blow fume plume away from worker and powered-air purifying respirator with N100 or P100 filters.					
over 14	Consider alternate work methods to reduce or eliminate fume creation. Supplied air respirators required.					

*Note: Per 1910.252 (c) (2), mechanical ventilation (supply or exhaust) is required regardless of the "Composite Rating" calculated for the following situations:

- (1) In a space less than 10,000 cubic feet per welder;
- (2) In a room having a ceiling height of less than 15 feet; or
- (3) in confined spaces or where the welding space contains partitions, balconies, or other structural barriers to the extent that they significantly obstruct cross ventilation.

Example Calculations:

Example 1:

A welder is assigned to place a safety valve body (F11 - alloy steel) on a steam line (P22 - alloy steel) using E9018-B9 and TIG welding in a large open space of the plant, with little perceptible air movement. The job is expected to take no more than four hours.

Step 1	Step 2	Step 3	Step 4	Subtotal	Divide by Duration of Work Adjustment (Step 5)	Composite Rating
1	3	0	0	4	2	2

Using the Fume Control Requirements Chart, the composite Rating of 2 specifies that natural ventilation is sufficient for this task.

Example 2:

Three welders are assigned to torch cut boiler tubes (T11 & T22) in the superheat section of the boiler using oxy-fuel torches. The FD fans have been locked out, but there is perceptible air movement in the space. The job is expected to take eight hours.

Step 1	Step 2	Step 3	Step 4	Subtotal	Divide by Duration of Work Adjustment (Step 5)	Composite Rating
2	2	2	3	9	1	9

Using the Fume Control Requirements Chart, the composite Rating of 9 specifies that for this task, a capture hood or airhorn positioned to draw/blow fume plume away from workers and powered-air purifying respirator with N100 or P100 filters is required. Note - also that since the work is in a confined place, mechanical ventilation would be required, regardless of the Composite Rating.

Name: _____

Company: _____

Job Task: _____

	Job Tasks at 1000 volts and less including 600 volt and less specific equipment related requirements	Voltage Exposure?	Arc Flash Hazard Yes or No	Switchgear Yes or No	Breaker or motor starter racked in? Yes or No	Shutters present. Yes or No? Open or closed?	Breaker is in the cubicle? Yes or No	Racking the breaker? Yes or No	Racking with the door open or closed?	Required Hazard Risk Category
1	Exposure to exposed energized conductors between 600 and 1000 volts would require:	600 to 100 volts	Yes	No	N/A	N/A	N/A	N/A	N/A	2/2* see specific task
2	<u>Entering any area or room containing switchgear energized at 600 volts or less.</u> (No exposed conductors)	None	None	Yes	N/A	N/A	N/A	N/A	N/A	0
3a	Racking 600 volt and less switchgear breakers with the door closed and secured.	None	Yes	Yes	In process	N/A	Yes	Yes	Closed	2
3b	Racking 600 volt and less switchgear breakers with the door open.	None	Yes	Yes	In process	N/A	Yes	Yes	Open	4
4a	<u>Opening any 600 volt or less switchgear breaker door</u> (front or rear) for any reason.	600 volts or less	Yes	Yes	Yes	No	Yes	—	—	2*
4b	<u>Opening any 600 volt or less switchgear breaker door</u> (front ONLY) for any reason.	50-135 v	Yes	Yes	No	No	Yes	—	—	1

4c	<u>Opening any 600 volt or less switchgear breaker door (front ONLY) for any reason.</u>	600 volts or less	Yes	Yes	No	No	No	—	—	2*
	Job Tasks at 1000 volts and less including 600 volt and less specific equipment related requirements	Voltage Exposure?	Arc Flash Hazard Yes or No	Switchgear Yes or No	Breaker or motor starter racked in? Yes or No	Shutters present. Yes or No? Open or closed?	Breaker is in the cubicle? Yes or No	Racking the breaker? Yes or No	Racking with the door open or closed?	Required Hazard Risk Category
5	<u>POT Transformer / Opening any 600 volt or less POT Transformer door and/or drawer for any reason.</u>	600 volts or less	Yes	Yes	—	—	—	—	—	2*
6	<u>Placing or removing grounds on any 600 volt or less switchgear equipment through any front, rear, or side access panels or doors.</u>	600 volts or less	Yes	Yes	—	—	—	—	—	2*

7	<p>To complete <u>exposed voltage checks at 600 volts or less but greater than 240 volts, or to adjust linkages</u> with energized conductors in the same voltage range. Opening any 600 volt or less switchgear door with the breaker in the racked out position to complete energized, exposed voltage checks at 600 volts or less but greater than 240 volts, or to adjust linkages with energized conductors in the same voltage range.</p>	600 volts or less	Yes	Yes	---	---	---	---	---	2*
	<p>Job Tasks at 1000 volts and less including 600 volt and less specific equipment related requirements</p>	<p>Voltage Exposure?</p>	<p>Arc Flash Hazard Yes or No</p>	<p>Switchgear Yes or No</p>	<p>Breaker or motor starter racked in? Yes or No</p>	<p>Shutters present. Yes or No? Open or closed?</p>	<p>Breaker is in the cubicle? Yes or No</p>	<p>Racking the breaker? Yes or No</p>	<p>Racking with the door open or closed?</p>	<p>Required Hazard Risk Category</p>

8	<p><u>To complete control voltage checks, repairs, adjustments with the shutters closed</u> and no exposed conductors energized at greater than 130 volts. Opening any 600 volt or less switchgear door with the breaker in the racked out position to complete control voltage checks, repairs, adjustments with the shutters closed and no exposed conductors energized at greater than 135 volts.</p>	50-135v	No	Yes	No	Yes /Closed	N/A	No	No	1
9A	<p><u>Operating (tripping or closing)</u> any 600 volt or less switchgear breaker from its local switch. (Door closed)</p>	None	Yes	Yes	Yes	---	---	---	---	0
9B	<p><u>Operating (tripping or closing)</u> any 600 volt or less switchgear breaker from its local switch. (Door open)</p>	50-135 v	Yes	Yes	Yes	N/A	Yes	No	No	2
	<p>Job Tasks at 1000 volts and less including 600 volt and less specific equipment related requirements</p>	Voltage Exposure?	Arc Flash Hazard Yes or No	Switchgear Yes or No	Breaker or motor starter racked in? Yes or No	Shutters present. Yes or No? Open or closed?	Breaker is in the cubicle? Yes or No	Racking the breaker? Yes or No	Racking with the door open or closed?	Required Hazard Risk Category

10A	<u>Opening any 600 volt or less switchgear hinged panels, or hinged doors</u> on any equipment with exposed energized parts at greater than 240 volts.	>240v	Yes	Yes	N/A	N/A	N/A	N/A	N/A	2
10B	<u>Opening any 600 volt or less switchgear Non-hinged panels, Non-hinged doors, or removing any bolted non-hinged covers</u> on any equipment with exposed energized parts at greater than 240 volts.	>240v	Yes	Yes	N/A	N/A	N/A	N/A	N/A	4
11	For visual inspection only / <u>Opening 480/460 volt MCC hinged doors or covers</u> with parts energized at greater than 240 volts for <u>visual inspection only</u> .	>240v	Yes	No	N/A	N/A	N/A	N/A	N/A	1
	Job Tasks at 1000 volts and less including 600 volt and less specific equipment related requirements	Voltage Exposure?	Arc Flash Hazard Yes or No	Switchgear Yes or No	Breaker or motor starter racked in? Yes or No	Shutters present. Yes or No? Open or closed?	Breaker is in the cubicle? Yes or No	Racking the breaker? Yes or No	Racking with the door open or closed?	Required Hazard Risk Category

12	<u>To take voltage readings or perform any type of repair, adjustment, or replacement.</u> / Opening 480/460 volt MCC cubicles panels, doors or covers with parts energized at greater than 240 volts to take voltage readings or perform any type of repair, adjustment, or replacement.	>240v	Yes	No	N/A	N/A	N/A	N/A	N/A	2*
13A	<u>Operating breaker handles on 480/460 volt MCC cubicles</u> doors, with the <u>door closed</u> and fully bolted or latched with evidence of problem, malfunction, or overcurrent tripping.	None	Yes	No	N/A	N/A	N/A	N/A	N/A	2
13B	<u>Operating breaker handles on 480/460 volt MCC cubicles</u> doors, with the <u>door closed</u> , fully bolted or latched, and no evidence of problem, malfunction, or overcurrent tripping.	None	No	No	N/A	N/A	N/A	N/A	N/A	0
	Job Tasks at 1000 volts and less including 600 volt and less specific equipment related requirements	Voltage Exposure?	Arc Flash Hazard Yes or No	Switchgear Yes or No	Breaker or motor starter racked in? Yes or No	Shutters present. Yes or No? Open or closed?	Breaker is in the cubicle? Yes or No	Racking the breaker? Yes or No	Racking with the door open or closed?	Required Hazard Risk Category

14	<u>For visual inspection only.</u> Opening any non MCC / non switchgear related 240 through 600 volt hinged covers with exposed parts energized at greater than 240 volts for <u>visual inspection only.</u>	240-600v	Yes	No	N/A	N/A	N/A	N/A	N/A	1
15	<u>To take voltage readings or perform any type of repair, adjustment, or replacement. /</u> Opening any non MCC / non switchgear related 240 through 600 volt panels, doors or covers with exposed parts energized in this range to take voltage readings or perform any type of repair, adjustment, or replacement.	240-600	Yes	No	N/A	N/A	N/A	N/A	N/A	2*
	Job Tasks at 1000 volts and less including 600 volt and less specific equipment related requirements	Voltage Exposure?	Arc Flash Hazard Yes or No	Switchgear Yes or No	Breaker or motor starter racked in? Yes or No	Shutters present. Yes or No? Open or closed?	Breaker is in the cubicle? Yes or No	Racking the breaker? Yes or No	Racking with the door open or closed?	Required Hazard Risk Category

16A	Un plugging or plugged / For any plug which is supplied by an energy source at greater than 240 volts. The energy source for the plug <u>shall be de-energized and carded or locked out</u> before it is unplugged or plugged. (Category N/A)	If not LOTO 240-600 LOTO is Required	If not LOTO yes LOTO is Required	No	N/A	N/A	N/A	N/A	N/A	0
16B	Un plugging or plugged / For any plug which is supplied by an energy source at 240 volts or less. This plug may be unplugged or plugged while energized. Ensure that the plug is fault current rated.	0	No	No	N/A	N/A	N/A	N/A	N/A	0
	Job Tasks at 1000 volts and less including 600 volt and less specific equipment related requirements	Voltage Exposure?	Arc Flash Hazard Yes or No	Switchgear Yes or No	Breaker or motor starter racked in? Yes or No	Shutters present. Yes or No? Open or closed?	Breaker is in the cubicle? Yes or No	Racking the breaker? Yes or No	Racking with the door open or closed?	Required Hazard Risk Category
17A	<u>For all lighting panel or power distribution panels</u> where <u>covers are to be removed</u> or voltage readings are to be made. (Greater than 240 volts but less than 280)	>240 & < 280	Yes	No	N/A	N/A	N/A	N/A	N/A	2

17B	For all <u>lighting panels or power distribution panels</u> energized at 240 volts and less, where <u>covers are to be removed</u> and exposed energized components exist at greater than 50 volts.	240 v and less. 110/220v	Yes	No	N/A	N/A	N/A	N/A	N/A	1
17C	For all <u>lighting panels or power distribution panels</u> where <u>covers have not been removed</u> and no exposed components energized at greater than 50 volts exist within 4 feet of the employee.	0	No	No	N/A	N/A	N/A	N/A	N/A	0
18	In regard to disconnects with their primaries energized at less that 1 K.V. These disconnects may be fused or not. Your specific lockout/tagout procedures cover their isolation. Each disconnect shall be labeled with a specific label to designate the barrier, arc flach, and electrical PPE required.	see label	Yes	No	N/A	N/A	N/A	N/A	N/A	See the Label on the dis-connect

<u>General descriptions of the Hazard Risk Categories and the associated requirements.</u>	<u>Boundary Requirements</u>	<u>Electrical Protective Gloves (Class "0" & P (Protectors) or Class 2 & P)</u>	<u>Electrical Protective Sleeves</u>	<u>Electrical Protective Mats</u>	<u>Uniform (FR cotton shirt rated at 8.2 calories)</u>	<u>40 Calorie Switching Hood</u>	<u>Full 40 cal. (or equiv) Switching Garment, Hood, & Leggings</u>	<u>Arc Protective Face Shield with chin guard.</u>
Category 0 No electrical exposures above 50 volts. No arc flash exposures.	NR	NR	NR	NR	Uniform	NR	NR	NR
Category 1 Electrical exposures Arc Flash Exposures	4 foot	Class 0 & P	NR	NR	Uniform	NR	NR	NR
Category 2 Electrical exposures Arc Flash Exposures	8 foot for the Category 2 restrictions, however, the label on the equipment door takes precedence.	Class 0 & P Exception (Class 2 gloves and sleeves are required when operating disconnects at greater than 600 volts)	Class 0 & P Exception (Class 2 gloves and sleeves are required when operating disconnects at greater than 600 volts)	See note #1	Uniform	NR	NR	R
Category 2* Electrical exposures Arc Flash Exposures	8 foot for the Category 2 restrictions, however, the label on the equipment door takes precedence.	Class 0 & P Exception (Class 2 gloves and sleeves are required at greater than 600 volts)	NR Exception (Class 2 gloves and sleeves are required at greater than 600 volts)	See note #1	Uniform	R for Category 2*, however, the label on the equipment door takes precedence.	NR	NR

Category 4 Electrical exposures Arc Flash Exposures	8 foot for the Category 2 restrictions, however, the label on the equipment door takes precedence.	Class 2 & P	R	See note #1	Uniform	R for Category 4, however, the label on the equipment door takes precedence.	R for Category 4, however, the label on the equipment door takes precedence.	NR
Note # 1: Regarding electrical Mats	Mats used as an electrical insulating barrier. Mats must be applied when employees are exposed to energized parts where the employee may make contact with the energized parts or where the employee must kneel, sit or make contact with any conductive surface in proximity to energized parts. DRAFT							

	Job Task 1 K.V. and greater Equipment Related	Voltage Exposure?	Arc Flash Hazard Yes or No	Switchgear Yes or No	Breaker or motor starter racked in? Yes or No	Shutters present. Yes or No? Open or closed?	Breaker is in the cubicle? Yes or No	Racking the breaker? Yes or No	Racking with the door open or closed?	Required Hazard Risk Category
1	Entering any area or room containing energized 1 K.V. or greater switchgear or motor starters.	None	—	—	—	—	—	—	—	0
2	Opening any 1K.V. or greater breaker or motor starter door (front or rear) for any reason.	50 to 135	Yes	Yes	Yes	—	—	NO	Open	2
3	Racking in or out any 1 K.V. or greater breaker or motor starter with the door open .	50 to 135	Yes	Yes	Racking	—	—	YES	Open	4
4	Racking in or out any 1 K.V. or greater breaker or motor starter with the door closed and latched or fully bolted .	50 to 135	Yes	Yes	—	—	—	YES	Closed	2
5A	Inserting or removing any 1 K.V. or greater breaker to or from a cubicle where shutters are not present or where the shutters are designed to open or close as the breaker is inserted or removed.	50 to 135	Yes	Yes	No	Yes/No Will be open during insertion or removal	Yes/No	No	No	4
5B	Inserting or removing any 1 K.V. or greater breaker to or from a cubicle where shutters are present and are designed to remain closed as the breaker is inserted or removed.	50 to 135	Yes	Yes	No	Yes Closed	Yes/No	No	No	1

6	Opening any 1K.V. or greater POT Transformer door and/or drawer for any reason.	1KV or greater possible	Yes	Yes	—	—	—	—	Open	4
	Job Task 1 K.V. and greater Equipment Related	Voltage Exposure?	Arc Flash Hazard Yes or No	Switchgear Yes or No	Breaker or motor starter racked in? Yes or No	Shutters present. Yes or No? Open or closed?	Breaker is in the cubicle? Yes or No	Racking the breaker? Yes or No	Racking with the door open or closed?	Required Hazard Risk Category
7	Placing or removing grounds on any 1K.V. or greater switchgear-related equipment or motor starter through any front, rear, or side access door.	1KV or greater possible	Yes	Yes	—	—	—	—	Open	4
8	Voltage checks at 1K.V. or greater or To adjust linkages	1KV or greater	Yes	—	—	—	—	—	Open	4
9a	For Visual Inspection Only / Opening any 1 K.V. or greater breaker or motor starter door with the breaker in the racked out position. In recognition of the 130 v exposure.	50 to 135	No	Yes	No	Yes / Closed	—	—	Open	1
9b	For Visual Inspection Only / Opening any 1 K.V. or greater breaker or motor starter door with the breaker in the racked out position.	50 to 135	No	Yes	No	No	Yes	—	—	1
9c	For Visual Inspection Only / Opening any 1 K.V. or greater breaker or motor starter door with the breaker in the racked out position.	1KV or greater	Yes	Yes	No	No	No	—	—	4

	Job Task 1 K.V. and greater Equipment Related	Voltage Exposure?	Arc Flash Hazard Yes or No	Switchgear Yes or No	Breaker or motor starter racked in? Yes or No	Shutters present. Yes or No? Open or closed?	Breaker is in the cubicle? Yes or No	Racking the breaker? Yes or No	Racking with the door open or closed?	Required Hazard Risk Category
10a	For control voltage checks, repairs, adjustments and no exposed conductors energized at greater than 135 volts / Opening any 1 K.V. or greater breaker or motor starter door to complete these tasks.	50 to 135	No	Yes	No	Yes / Closed	—	—	—	1
10b	For control voltage checks, repairs, adjustments and no exposed conductors energized at greater than 135 volts / Opening any 1 K.V. or greater breaker or motor starter door to complete these tasks.	50 to 135	No	Yes	No	No	Yes	—	—	1
10c	For control voltage checks, repairs, adjustments with exposed conductors energized at greater than 1 KV ./ Opening any 1 K.V. or greater breaker or motor starter door to complete these tasks.	1KV or greater	Yes	Yes	No	No	No	—	—	4
11A	With the door closed / Operating (tripping or closing) any 1 K.V. or greater breaker or motor starter from its local switch on its door.	None	Yes	Yes	Yes	—	—	—	—	2

	Job Task	Voltage Exposure?	Arc Flash Hazard Yes or No	Switchgear Yes or No	Breaker or motor starter racked in? Yes or No	Shutters present. Yes or No? Open or closed?	Breaker is in the cubicle? Yes or No	Racking the breaker? Yes or No	Racking with the door open or closed?	Required Hazard Risk Category
11B	With the door open / Operating (tripping or closing) any 1 K.V. or greater breaker or motor starter from its local switch on its door.	None	Yes	Yes	Yes	—	—	—	—	4
12A	Locally operating any disconnect energized at greater than 1 K.V. (example: Unit High Side Disconnects or line tie MOD's). where the disconnect is greater than 8 feet from the employee.	1KV or greater possible	Yes	—	—	—	—	—	—	2
12B	Locally operating any disconnect energized at greater than 1 K.V. (example: Unit High Side Disconnects or line tie MOD's). where the disconnect is less than 8 feet from the employee.	1KV or greater possible	Yes	—	—	—	—	—	—	4
13A	<u>With the door closed / Operating any 1 K.V. or greater disconnect.</u>	1KV or greater possible	Yes	—	—	—	—	—	—	2
13B	<u>With the door open / Operating any 1 K.V. or greater disconnect.</u>	1 KV or greater	Yes	—	—	—	—	—	—	4
14	<u>Opening any panels, doors, or removing any bolted covers on any equipment with exposed energized parts at greater than 1 K.V.</u>	1 KV or greater	Yes	—	—	—	—	—	—	4

Critical Lift Plan

Location:	Date of Lift:
Load Description:	
Lift Description:	

LOAD

Weight of Load _____ lbs.
 Weight of Aux. Block _____ lbs.
 Weight of Main Block _____ lbs.
 Weight of Lifting Beam _____ lbs.
 Weight of Slings/Shackles _____ lbs.
 Weight of Jib (erected/stowed) _____ lbs.
 Weight of Hoist Rope (extra) _____ lbs.
 Other? _____ lbs.

Gross Load	lbs.
------------	------

Source of Load Weight Info (Drwgs, Calcs, etc.) _____

Load Weight Confirmed by: _____

CRANE

Type of Crane _____

Max Crane Capacity _____

Boom Length at Pickup _____ ft.	Boom Length at Set-down _____ ft.
Radius at Pickup _____ ft.	Set-down _____ ft.
Angle at Pickup _____ °	Set-down _____ °

Crane Gross Capacity at Pickup _____

Crane Gross Capacity at Set-down _____

Lowest Gross Capacity for this lift is _____ lbs.

Gross load on crane is _____ lbs.

Lift is _____ % of the crane's rated capacity
 (% = Gross Load divided by Gross Capacity)

JIB

Erected _____ Stowed _____

If Jib to be used: Length _____ Angle _____

Rated capacity of Jib from chart _____ lbs.

HOIST ROPE

Rope diameter _____ Number of parts _____

Lift capacity based on parts _____ lbs.

RIGGING

Hitch type _____

No. of slings _____ Size _____ Type _____

Sling assembly rated capacity _____ lbs.

Shackle size _____ No. of shackles _____

Shackle rated capacity _____ lbs.

CRANE PLACEMENT

Deviation from smooth solid foundation? Yes / No
 If Yes describe measures to be taken _____

High voltage or electrical hazards? Yes / No
 If Yes list line voltage _____
 If Yes, then a **"Mobile Crane Power Line Clearance Worksheet"** must be completed

Obstacles/obstructions to lift or swing? Explain. _____

Travelling with load (Pick and Carry)? Yes / No

Swing direction? _____

PRE-LIFT CHECKLIST – Completed Prior To Lift

- | | |
|---|---|
| <input type="checkbox"/> Crane inspected | <input type="checkbox"/> Rigger qualified |
| <input type="checkbox"/> Rigging inspected | <input type="checkbox"/> Signal system |
| <input type="checkbox"/> Crane setup | <input type="checkbox"/> Tag lines |
| <input type="checkbox"/> Swing room | <input type="checkbox"/> Wind/Temp. |
| <input type="checkbox"/> Hoist Height | <input type="checkbox"/> Designated spotter |
| <input type="checkbox"/> Head room | <input type="checkbox"/> Traffic |
| <input type="checkbox"/> Operator qualified | <input type="checkbox"/> Site control |
| <input type="checkbox"/> Signatures | |

NOTES/COMMENTS

Supervisor Signature _____ Date _____

Crane Operator Signature _____ Date _____

Signalperson Signature _____ Date _____

