



# SAFETY PROGRAM

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## **Section 1- Management Safety Policy Statement**

It is the policy of BBC Electrical Services, Inc. to strive for the highest safety standards on our projects. Safety does not occur by chance. It is the result of careful attention to all company operations by those who are directly and indirectly involved. Employees at all levels must work diligently to execute the company's policy of maintaining safety and occupational health.

Our safety program has been developed to assure compliance with Federal, State and Local regulations, with particular emphasis on the Occupational Safety and Health Act of 1970 (OSHA), and the OSHA requirements that apply to our construction operations (29 CFR Part 1926). It is the obligation of all employees to be knowledgeable of the standards established by these agencies and to implement the rules and regulations contained therein on projects under their direction.

Regard for the safety of the general public, our own employees and the employees of our subcontractors, is a supreme responsibility of all levels of our organization. We intend to prevent all accidental injuries, property damage, fire damage and occupational illnesses. All could result in human suffering. Accidents, even minor ones, cause both physical and mental pain. Prevention of injury and illness is a goal well worth our achieving.

A safe operation is organized, clean, and efficient. If every employee views accidents in the same way we consider all other aspects of our operations, we will be in a better position to not only control accidents, but also to improve the total performance of our company. It is therefore of utmost importance that all aspects of our safety program be strictly adhered to and that the intent of this program be followed to the letter. Any recommendations to improve our safety program are encouraged.

Signature \_\_\_\_\_  
President

## **Section 2- Roles and Responsibilities**

### **Purpose**

To establish and assign specific safety and health responsibilities to all BBC Electrical Services, Inc.'s employees. To provide authority to our employees for developing, maintaining, administering, and implementing the BBC Electrical Services, Inc.'s Health and Safety Program.

### **References**

29 CFR 1926

### **Definitions**

Responsibility – an assigned task for which one is accountable, even if the actual performance is delegated to other capable and knowledgeable Individuals.

### **Responsibilities**

#### **President**

- Creates safety and health goals for the company.
- Directs and ensures effectiveness of the safety and health program.
- Reviews incident, accident and property damage.
- Establishes safety goals for the company, annually or as needed.

#### **Safety Officer**

- Establishes safety and health program according to standards of OSHA.
- Participates in injury and incident investigations.
- Develops, administers, implements, and enforces the company's safety and health program.
- Keeps OSHA Log and Summary Reports up to date.
- Responds to all employees' safety and health suggestions as appropriate.
- Communicates with regulatory agencies and the company's insurance representative.
- Coordinates safety-training programs for management and employees.
- Maintains and updates all company safety records and medical records.
- Reports directly to upper management.
- Conducts random safety inspections.
- Attends the OSHA 30 hour construction course.

#### **Managers**

- Provides materials, equipment, manpower, and additional resources as needed to support the program.
- Establishes and monitors the emergency action plans for project sites.
- Inspects regularly all job-sites and corrects or controls any safety hazards.
- Responds to all employees' safety and health suggestions as appropriate.
- Maintains knowledge of Federal and State OSHA Regulations for each work area.
- Provides periodic safety talks, proper personal protective equipment, first aid kits, regulation posters, and emergency action plans.
- Supports actively the company's safety and health program in verbal and written communication, training, meetings, and inspections and by personal compliance.
- Establishes and maintains a safe and healthful working environment for all employees and subcontractors.
- Inspects tools and equipment to ensure safe operating and arranges for their repair or replacement when needed.

- Stops and corrects all unsafe practices.
- Keeps work areas and emergency exits clean and orderly at all times.
- Corrects all safety hazards and conditions under his/her authority.

#### Employees

- Actively support the company's safety and health program in verbal and written communication, training, meetings, and inspections and by personal compliance.
- Learn and adhere to all safety regulations and policies.
- Keep work area and emergency exits clean and orderly at all times.
- Follow safe and proper usage of tools and machines used at all jobsites.
- Attend and participate in all safety training sessions.
- Submit safety suggestions and ideas to the Safety Officer.
- Anonymously submit safety hazards to the Project Managers and/or Safety Officer, without fear of reprimand or reprisal.
- Refrain from conducting any task for which he/she has not been trained. Read, understand and adhere to all safety regulations and policies.

## **Section 3- General Safety Policies**

### **Purpose**

To establish general company safety rules that is applicable to all employees and operations.

### **Definitions**

General Safety Rules - Rules that are applicable to employees, visitors, suppliers, and subcontractors who may be present on BBC Electrical Services, Inc. premises or jobsites, at company functions, or traveling between these locations on Company business. These rules are "common sense" rules and are not meant to replace more specific procedures applicable to specific operation covered by OSHA, EPA, and/or DOT regulations.

### **Responsibilities**

The Project Manager will ensure that subcontractors, suppliers, and visitors are aware of and comply with the General Safety Rules.

All employees are required to follow these rules. Project Managers will instruct and train their employees in the General Safety Rules.

The Safety Officer will instruct new employees in the General Safety Rules during New Hire Orientation.

### **Procedures**

Employees will use care in the performance of their assigned tasks and act in a manner that will assure maximum safety to themselves, fellow employees, and the general public.

All injuries and incidents must be reported immediately to the Project Manager. Proper forms will be completed, signed, and turned in to the Safety Officer.

Horseplay, trickery, scuffling, or other unsafe behavior is prohibited, and those responsible are subject to dismissal.

Power equipment, tools, and other equipment will not be operated without the manufacturer's safety guards or other protective devices in place.

All defective or unsafe equipment, tools, or machinery will be taken out of service and properly tagged.

All employees will regularly attend safety meetings.

The more stringent of Company regulations or Government regulations will be adhered to.

Leather-type work boots are mandatory. Athletic shoes, soft-soled shoes, sandals, open-toed or open-heeled shoes are not permitted. (See Personal Protective Equipment)

The use of drugs, alcohol, or any mind-altering substance will not be tolerated under any circumstances. (See Substance Abuse)

A one-day supply of prescription medicine may be carried. The employee's immediate Project Manager is to be made aware of this situation when it occurs.



No employee will operate machinery or tools that have been locked/tagged out.

All employees will familiarize themselves with the Emergency Response Plan. (See Emergency Response Plan)

Prior to using ladders, the employee must ensure the ladders are in good condition, firmly placed and anchored. Only one employee at a time is to be on the same ladder. All ladders are to conform to OSHA and state regulations.

Employees are not to drop or throw anything from an elevated area without warning persons below.

Employees must learn to lift properly, with the legs and not the back. Employees must get help with heavy loads.

Firearms, explosives, or unlawful weapons are prohibited on company property and in company vehicles of BBC Electrical Services, Inc. Violation of this rule are grounds for immediate dismissal.

Fighting and personal harassment will not be tolerated on company premises, and may result in immediate termination.

Employees must observe and obey all Non Smoking areas, offices and buildings.

Employees must observe and obey all caution and danger signs/tape, barricades and safety permits.

Rings and/or other jewelry should be removed while working with or around machinery, moving parts, or belts.

Loose or ragged clothing will not be worn while working with or around machinery, moving parts, belts, or mechanical tools.

Shirts are to be worn at all times and must have sleeves.

Good housekeeping is to be practiced at all times. Waste materials will be disposed of properly, and will not be allowed to accumulate in the work area. Disposal of hazardous materials will be done in accordance with the manufacturer's recommendations and local/state regulations. (See Hazard Communication)

Approved safety containers are to be used for storage and transporting of flammable liquids in quantities of one gallon or more. These containers will be properly labeled at all times. All hazardous material containers must be labeled. (See Hazard Communication)

All personal hand and power tools are required to be in proper working order. This includes strain relief on plugs, ground prongs, proper polarity, cords without cuts or splices, and handles without cracks or splinters.

Specific Rules: Additional safe work practices will be developed and implemented for special case operations and tasks. These special cases may require development of special rules and/or procedures. Trade associations, government agencies, professional societies, or academic resource centers may also be sources of help in development of these specific rules.

### **ACCESS 1926.34**

In every building or structure, exits will be arranged and maintained to provide free and unobstructed egress from all parts of the building or structure at all times when it is occupied. Access to exits will be marked by readily visible signs in all cases where the exit or way to reach it is not immediately visible to the occupants. Means of egress will be continually maintained free of all obstructions or impediments to allow full and instant use in the case of fire or other emergency.

### **ATTITUDE**

All company employees are required to treat safety as the number one priority. As such, they are expected to report to work in good mental and physical condition to safely perform their assigned duties. Before starting any task, employees must consider the possible effects of their actions on themselves and others and take appropriate protective measures.

### **COMPRESSED AIR AND GAS**

Compressed air used for cleaning shall not exceed 30 PSI pressure and only then with effective chip guarding. Do not use compressed air to blow debris off clothing. Air under pressure must never be permitted to contact any part of the body.

### **ERGONOMICS**

Understanding ergonomics is to understand the anatomy, physiology and the psychology of people and design the workplace accordingly.

By fitting the job to the person, we can improve both employee well-being and workplace efficiency. BBC Electrical Services, Inc. employee complaints or suggestions are welcome without reprisal. Employees should promptly and accurately report signs of workplace discomfort, aches, pains or carpal tunnel syndrome symptoms so they can be evaluated, and if needed, treated. All workstations will be designed to accommodate the employee who actually works on given tasks at that station. Proper and correct lifting techniques and proper body mechanics should be used when lifting or moving all material.

To assist in preventing ergonomic concerns, BBC Electrical Services, Inc. personnel are requested to consider the following when performing work activities:

- Do limbering exercises before starting a task.
- Take frequent breaks while performing a continuous task.
- Don't repeat the same motion hour after hour.
- Keep yourself physically fit.

### **FIRE PROTECTION 1926.150 -.155**

Designated employees will be trained on the use of fire extinguishers and the hazards involved in incipient stage fire fighting. Training will be provided before initial assignment and annually thereafter. All firefighting equipment will be conspicuously located and readily accessible to all personnel. Fire extinguishers must be inspected monthly and certified once per year.

A fire extinguisher rated 2A must be provided for each 3000 square feet of building space. The travel distance to the nearest fire extinguisher will not exceed 100 feet. At least one fire extinguisher will be located adjacent to each stairway on each floor. This applies to both the BBC Electrical Services, Inc. facility office and the jobsite. On-site contractors must ensure that fire extinguishers are readily available and that employees are trained, a fire protection program has been developed, and that an alarm system for evacuation purposes is in place for the jobsite.

Classifications of fires include the following:

- Class A: Fire involving ordinary combustible materials such as wood and paper can be extinguished with water or solutions containing large percentages of water.
- Class B: Fire involving flammable materials such as greases and oils can be extinguished by smothering or eliminating air.
- Class C: Fire in or near electrical equipment, a nonconductive extinguishing agent will be of first importance, such as dry chemical.
- Class D: Fire involving flammable materials such as magnesium can be extinguished with dry powders.

A jobsite may also contain flammable liquids or gases that have a flash point below 199.4 degrees Fahrenheit. Flammable liquids will be stored in and dispense from approved containers. Adequate ventilation for storage and use of flammable liquids will be provided. Containers will have the appropriate label.

Adequate ventilation and elimination of all ignition sources is mandatory when dealing with flammable vapors. All open flames and sparks will be eliminated when flammable liquids are used.

To prevent spontaneous combustion at the jobsite, flammable waste must be stored in airtight containers. Flammable waste material containers must be emptied daily. To prevent static electricity, flammable liquid dispensing vessels must be grounded. Containers must be bonded when transferring flammable liquids to prevent an arc from occurring.

When welding and cutting is performed at the jobsite, fire surveys must be performed prior to the inception of work. Combustible materials must be removed or covered prior to welding or cutting and a fire extinguisher must be present. Hot work permits may be issued before any welding or cutting is performed. Combustibles and flammable materials must be kept away from hot surfaces.

### **FLAMMABLE LIQUIDS 1926.152**

Only approved containers (i.e. metal safety cans with self-closing lids) and portable tanks will be used for storage and handling of flammable and combustible liquids.

No more than 25 gallons of flammable liquids may be stored in a room outside of an approved storage cabinet.

No more than three storage cabinets may be located in a single storage area. Inside storage for flammable and combustible liquids must be of fire-resistive construction, with self-closing fire doors, 4-inch sills or depressed floors, a ventilation system of at least six air changes per hour, and electrical wiring and equipment approved for Class 1, Division 1 locations.

Storage in containers outside of buildings may not exceed 1,000 gallons in any one pile or area. Storage areas must be graded to divert possible spills away from buildings or other exposures, or surround storage areas with a curb or dike. Storage areas must be located at least 20 feet from any building and keep free from weeds, debris, and other combustible materials. Flammable liquids must be kept in closed containers when not in use.

#### **FLOOR OPENINGS, OPEN SIDES, HATCHWAYS, ETC. 1926.500**

Openings will be guarded with a standard guardrail and toeboards or cover. Railing will be provided on all exposed sides, except at entrances to stairways. Guardrails will be constructed to withstand 200 lbs. of force.

Every open-sided floor or platform, 6 feet or more above adjacent floor or ground level, must be guarded by a standard railing or equivalent, on all open sides except where there is entrance to a ramp, stairway, or fixed ladder.

Runways 6 feet high or more need standard railings on all open sides.

Ladderway floor openings or platforms will be guarded with standard guardrails and standard toeboards on all exposed sides, except at entrance to openings, with passage through the railing provided by a swinging gate or offset so a person cannot walk directly into openings.

Temporary floor opening will have standard railings or effective covers. Floor holes into which persons can accidentally walk will be guarded by either a standard railing with standard toeboard on all exposed sides, or a standard floor hole cover. While the cover is not in place, a standard railing will protect the floor hole.

#### **GASES, VAPORS, FUMES, DUST AND MISTS 1926.55**

Exposure to toxic gases, vapors, fumes, dusts, and mists at a concentration above those specified in the "Threshold Limit Values of Airborne Contaminants" of the ACGIH should be avoided.

When engineering and administrative controls are not feasible to achieve full compliance, protective equipment or other protective measures will be used to keep the exposure of employees to air contaminants within the limits prescribed. A technically qualified person must review any equipment and technical measures used for the purpose for each particular use. Employees will wear all furnished equipment at all times.

#### **HEATING DEVICES, TEMPORARY 1926.154**

Fresh air must be present in sufficient quantities to maintain the safety of workers. Solid fuel salamanders are prohibited in buildings and on scaffolds.

#### **HORSEPLAY**

All disruptive activities usually referred to as "horseplay" is forbidden.

#### **HOUSEKEEPING 1926.25**

Form and scrap lumber with protruding nails and other debris will be kept clear from work areas. All combustible scrap and debris must be removed at regular intervals. Containers will be provided for collection and separations of all refuse. Covers are required on containers used for flammable or harmful substances.

At the end of each phase of work, all tools and excess materials must be returned to proper storage. All debris must be cleaned up before moving on to the next phase. Employees are responsible for keeping their work areas clean.

### **ILLUMINATION 1926.26**

Construction areas should be lit to not less than minimum illumination intensities listed while work is in progress.

Illumination of general construction areas: General intensity – 5 foot-candles for construction areas, concrete placement, active storage areas, loading platforms, refueling and field maintenance areas and stairways.

### **INJURIES**

All injuries, even those that appear to be slight, will be reported immediately to your Project Manager and/or the Safety Officer.

When approved by attending physician, BBC Electrical Services, Inc. will attempt to assign the employee to light duty work.

### **LADDERS**

Ladders will be inspected frequently for visible defects and those which have developed defects will be withdrawn from service for repair or destruction. (Defective ladders must be tagged or marked as "Dangerous, Do Not Use") The inspection includes but is not limited to the following:

- Cracked or missing rungs
- Cracked side rails
- Rotted and decaying wood
- Missing or damaged non-slip feet
- Construction requirements for job-built ladders
- Tie-off requirements
- 3-foot extension requirements

When transporting, ladders should be carried in the horizontal position to avoid contact with overhead electrical conductors.

If a ladder does not pass inspection, it should be removed until the necessary repairs can be made. If for some reason the ladder cannot be removed, it must be "TAGGED-OUT" of service until the necessary repairs can be made. **DO NOT USE AN UNSAFE LADDER!** Ladders will only be used for the purpose for which they were designed.

A ladder will be provided at all personnel points of access when there is a break in elevation of 19" or more to gain access to different levels of the building structure, and no ramp, runway, sloped embankment, or personnel hoist is provided.

- Each ladder will be capable of supporting 4 times its maximum intended load.
- Ladder rungs, cleats, and steps will be parallel, level, and uniformly spaced.
- Ladder components will be surfaced so as to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.

Ladder side rails will extend 3 feet above the landing surface to which the ladder is used to gain access, or when such an extension is not possible the ladder will be secured from movement at its top to a rigid support that will not deflect, a grasping device, such as a grab rail, will be provided to assist employees in mounting and dismounting the ladder.

- Ladders will be maintained free of oil, grease, and other slipping hazards.
- Ladders will only be used on level stable surfaces, unless secured to prevent accidental displacement.
- Ladders placed in passageways, doorways, or driveways will be completely secured, or the area will be completely barricaded to keep activities away from the ladder.

The areas around the top and base of the ladder will be kept clear.

- Ladders will not be moved, shifted, or extended while occupied.
- The top or top step will not be used for a step on a stepladder.
- Ladders with defects **WILL BE PLAINLY MARKED - "DO NOT USE" AND REMOVED FROM SERVICE.**
- Employees will use at least one hand to grasp the ladder when ascending or descending.
- Employees will not carry any objects or loads that could cause the employee to lose balance and fall.

### **Portable Ladder Safety Rules**

Ladders must always be inspected before using or tagged out if defective. Inspection includes:

- Broken or damaged cleats or grippers.
- Rungs not tightly joined to the side rails.
- Broken or split side rails.
- Loose or damaged hinge spreaders.
- Angle brackets must not be broken.

Straight ladders will be equipped with cleats or grippers. When in use, the ladder will be lashed at the top and secured at the bottom whenever possible. The manufacturer's rated capacity will not be exceeded.

Ladders placed in doors or aisle ways of hazardous areas will be guarded by barricades or a watch person. Warning signs will be posted.

Straight ladders will be placed at the proper angle using the 4:1 ratio. The distance from the wall to the base of the ladder will be one fourth of the working length of the ladder.

Straight ladders used for accessing an upper landing surface will have the side rails of the ladder extended at least three feet above the landing.

Stepladders higher than ten feet will be secured or held by another person. Do not stand on the top step or cap of the ladder.

Anyone using the ladder must always face the ladder when ascending and descending, using both hands. All tools or equipment will be hauled up or down by the use of a hand line.

When on the ladder, persons must not overreach and must keep their belt buckle inside the side rails. Ladders will not be moved, shifted, or extended while occupied by anyone.

Employees will be trained in the proper use of ladders.

Ladders must not be spliced together to make them longer. Ladders must not be left unattended unless they are secured in place. Ladders will be used for the purpose for which they were designed.

Grease, oil, and other debris must be removed from your hands and feet before climbing. Only one person will be on a ladder at any given time.

### **LIFTS 1926.453**

Articulating boom lifts are to be operated by only trained and certified individuals. Fall protection (safety harnesses) will be worn during operations of the articulating boom lifts. "Deadman" safety switches will not be altered.

When using vertical lifts, such as hi-jacks or scissors lifts, fall protection is recommended but not mandated. Manufacturer safety recommendations will be followed while operating lift equipment.

Powered industrial trucks are to be operated by only trained and certified individuals.

Equipment will be inspected before each use. Equipment inspections will be documented on the provided company form.

### **LIQUIFIED PETROLEUM GAS (LPG) 1926.153**

Each system will have containers, valves, connectors, manifold valve assemblies, and regulators of an approved type. Each container and vaporizer must be provided with one or more approved safety relief valves or devices. Containers will be placed upright on firm foundations or otherwise firmly secured.

Portable heaters must be equipped with an approved automatic device to shut off the flow of gas in event of flame failure. Storage of LPG within buildings is prohibited. Storage locations must have at least one approved portable fire extinguisher, rated not less than 20-B.C.

### **LOADING, UNLOADING, AND SECURING OF LOADS**

When a truck has a load with a closed tailgate, it is necessary to secure the load or equipment for safe transportation. Small chock blocks typically work themselves loose due to the ride and weight transfer and should not be used.

Loads can be secured by using tie-down straps, chains, or rope. Also, make sure that the tailgate is properly latched before travel begins. Other safety practices to be performed:

- When climbing into or out of a truck bed, use both hands to hold on to the side of the rails or tailgate. Be sure to have a good footing. Maintain three-point contact with the side of the truck. Do not carry tools or other materials when climbing in or out of a truck.
- Never jump out of a truck bed; this practice can lead to sprains, twists or even broken bone injuries.
- Avoid throwing tools into the back of the truck. Keep track of all tools you are using and make sure they return to their proper storage area at the end of the day.
- Make sure not to bury tools under debris. Tools can become lost when unloading or dumping debris.

- If you must load a heavy object by hand, follow all safe lifting techniques. Whenever possible use tailgate lifts to load heavy equipment. Do not ride tailgates unless it is absolutely necessary to stabilize a load or piece of equipment.

## **PEDESTRIANS AND DRIVING SAFETY**

Working trucks must frequently stop in high traffic areas to perform off-loading of material. This activity frequently requires our trucks to stop in lanes that carry traffic. If work is in these areas or ones with similar traffic patterns, you should set out florescent cones behind the truck to let people know the truck is stopped.

When driving a truck, the driver must exercise greater caution than when driving a car. Not only must all traffic laws be obeyed, but frequently the driver may need to drive slower than the actual speed limit. This is especially true if the truck is heavily loaded.

## **POTABLE WATER 1926.51**

An adequate supply of potable water will be provided at all jobsites. Portable containers used to dispense drinking water will be capable of being tightly closed, labeled, and equipped with a tap. Water will not be dipped from containers.

Any container used to distribute drinking water will be clearly marked as to the nature of its contents and not used for any other purpose. Where single service cups (to be used but once) are supplied, both a sanitary container for the unused cups and a receptacle for disposing of the used cups will be provided.

## **PROTECTION OF THE PUBLIC**

All company personnel are charged with aiding in the protection of the public including, as each job description dictates, installation and maintenance of signs, signals, lights, fences, guardrails, ramps, temporary sidewalks, barricades, overhead protection, etc. as may be necessary.

## **RECORDKEEPING 29 CFR 1904**

The OSHA 300 Log is used for recording and classifying recordable occupational injuries and illnesses, and for noting the extent and outcome of each case.

The log shows when the occupational injury or illness occurred, to whom, what the injured or ill person's regular job was at the time of the injury or illness exposure, the department in which the person was employed, the kind of injury or illness, how much time was lost, and what the case resulted in.

The Safety Officer is responsible for the preparation and maintenance of the OSHA 300 Log.

## **SIGNS 1926.200**

For the protection of all, warning signs such as "No Smoking," "Keep Out", "Eye Protection Required", "Out of Order-Do Not Use", and "Authorized Personnel" will be posted. All employees will obey these directions and aid in maintaining the signs.

## **STAIRS 1926.1052**

Flights of stairs having four or more risers will be equipped with standard stair railings or handrails as specified below. Stairways less than 44 inches wide with one side open must have at least one stair railing on the open side. Stairways less than 44 wide having both sides open must have one stair railing on each side.



Stairways more than 44 inches wide by less than 88 inches wide must have one handrail on each enclosed side and one stair railing on each open side.

Raise height and tread width will be uniform throughout any flight of stairs.

### **STORAGE 1926.250**

All materials stored in tiers will be secured to prevent sliding, failing, or collapse. Aisles and passageways will be kept clear and in good repair. Stored materials will not obstruct exits. Material stored in buildings under construction will not be placed within 6' of any hoist way or inside floor openings, nor within 10 feet of an exterior wall that does not extend above the top of the material stored. Materials will not be stored on scaffolds or runways in excess of supplies needed for immediate operations.

### **Work Permits**

BBC Electrical Services will comply with all customer requirements in regards to completing site work permits (i.e. site specific confined space entry permits, hot work permits, energized work permits, etc.).

## **Section 4- Accident Investigation**

### **Purpose**

To ensure proper documentation of accidents, injuries, and near misses and to determine contributing factors with corrective actions, which will lead to the prevention of future incidents.

This policy is applicable to all BBC Electrical Services, Inc. employees. An investigation will be performed on any accident or incident involving the following:

- Recordable Occupational Injury or Illness
- Medical Expense
- Property Damage
- Near Miss

### **References**

29 CFR 1904 – Recording and Reporting Occupational Injuries and Illnesses

### **Definitions**

Reportable Accident - Any accident that incurs a medical or property expense.

Near Miss Incident - Occurrence that could have resulted in an OSHA Recordable Injury, or property damage.

Recordable Accident - Any occupational death, or nonfatal occupational illness or injury which involves one or more of the following: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment (other than first aid).

Lost Time - Amount of time the employee is unable to perform his/her normal job duties over a normal work shift regardless of whether or not the employee was scheduled to work on those day(s). Weekend days, holidays, vacation days or other days off are included in the total number of days recorded if the employee would not have been able to work on those days because of a work-related injury or illness.

### **Reporting Procedures**

- An employee must notify his/her Supervisor as soon as possible after the incident occurs.
- Injuries and illnesses where one employee is hospitalized, an amputation or loss of an eye must be reported to OSHA within 24 hours of the incident. When a fatality occurs, OSHA requires notification within 8 hours. The notification will be the Safety Coordinator's responsibility. If reporting for an accident or fatality after normal business hours or on a holiday, call the federal OSHA hotline at 800-321-OSHA or (800) 321-6742 and speak with the duty officer.
- Supervisors will be responsible for conducting accident investigation interviews with employees and witnesses that were involved in the incident.
- The Accident Investigation forms will be used for all written reports of investigation.
- These completed forms will be submitted to the Safety Officer within 24 hours following the accident.
- All accident reports will be reviewed by the President and Safety Officer.

Investigation equipment may include some or all of the following items; writing equipment such as pens/paper, measurement equipment such as tape measures and rulers, cameras, small tools, audio recorder, PPE, marking devices such as flags, equipment manuals, etc. All evidence collected will be preserved and collected through notes, photographs and witness statements. Documents and equipment may be subject to impoundment.

### **Accident Investigation Procedures**

Initial identification of evidence immediately following the incident will be collected, this may include a listing of people, equipment, and materials involved and a recording of environmental factors such as weather, illumination, temperature, noise, ventilation, etc.

The investigation will be made as soon as possible after an incident. The extent of such investigation shall reflect the seriousness of the incident utilizing a root cause analysis. The report will be completed and submitted to the persons listed below within 24 hours after the incident occurs. The report will include the basic cause of the incident, as well as the corrective action taken to prevent a future similar incident.

Witness statements will be taken in a location where the witness feels he/she can give an honest statement privately. Interviewers will be trained in the process. If determined necessary, follow-up interviews may be conducted.

The Accident Investigation and Employer First Report of Injury/Illness forms will indicate exactly what caused the accident and describe the type of corrective action taken. Written incident reports will be prepared and include an incident report form and a detailed narrative statement concerning the events. The format of the narrative report will include an introduction, methodology, summary of the incident, narrative of the event, findings and recommendations. Photographs, witness statements, drawings, etc. may be included.

A copy of the investigation report is to be sent to:

- President
- Safety Officer

Required incidents must be verbally reported to OSHA within 8 hours of their discovery. Incidents will be reported to the owner client as soon as possible, or in a timely manner (within 24 hours of incident).

After the persons listed above have reviewed the investigation report, a brief description of the incident and the corrective actions taken to avoid a similar incident will be communicated to all employees during BBC Electrical Services, Inc. Toolbox Talks.

All documentation is forwarded to management to conduct an accident analysis.

### ***First Aid Only Cases***

Any on-the-job accident that results in an injury or requires first aid treatment, regardless of the severity, must be reported by the employee to his/her supervisor. If first aid is provided at the time of the incident, or an onset of pain occurs and the injury is not referred to a physician, a record of the event and/or injury shall be recorded on the First Aid Report form. The report should be accurately completed by the employee, and if applicable, will include the names of other employees who witnessed or had knowledge of the accident.

The report should be given to the employee's supervisor for signature and distribution as soon as practical following the reported incident. The form should be faxed to BBC Electrical Services, Inc. at (620)-389-2860.

The First Aid Report will be retained for two (2) years as reference in the event future medical services are required, or as documentation if a workers' compensation claim is later filed by the employee. First aid only cases do not require OSHA recording, but are an important information source for hazard awareness and future accident prevention.

### ***OSHA Recordable Cases***

In the event professional medical treatment is needed for an on-the-job injury, BBC Electrical Services, Inc. office personnel must be immediately notified by telephone after contacting emergency medical services (911). The office will coordinate the initial and follow-up medical care of all work-related injuries requiring medical services or hospitalization. Depending upon the nature or severity of the injury, the services of specialized medical practitioner, or the services of a medical case manager may be requested.

In cases of injuries requiring professional medical treatment beyond first aid, the First Report of Injury form must be completed. It is the responsibility of the employee through his/her supervisor to accurately complete all items on the First Report of Injury form and to provide a detailed accounting of the accident and causes leading to the injury or illness. This must be done as soon as possible and no later than 24 hours after the incident occurs. After receiving the First Report of Injury forms BBC Electrical Services, Inc. HR personnel will contact the injured employee and supervisor to do a follow up Accident Investigation Report interview. Upper management will receive a copy of the accident/investigation report within 72 hours for review.

The BBC Electrical Services, Inc. office should be notified of the injury as soon as practical following the initial medical treatment. The BBC Electrical Services, Inc. office personnel will be responsible for determining final OSHA log record ability and will assign a file number to each recordable case.

The Medical Care form, which evaluates the employee's ability to return to normal duties, must be taken to the medical appointment and completed by the attending physician. A copy of the form is to be forwarded to the BBC Electrical Services, Inc. office, along with other applicable treatment records immediately following the employee's return from the physician's office or hospital facility. Each subsequent visit to a medical care facility will require an updated status if any work restrictions indicated by the physician have changed. Prompt notification and completion of the Medical Care form is important because it provides the information needed to determine the criteria for OSHA recording on the injury/illness Summary Log. The BBC Electrical Services, Inc. office is responsible for monitoring the employee's medical treatment process and will notify the appropriate supervisor when as employee's work status has been changed.

### **Medical Treatment-OSHA Recordable Cases**

The first concern when an injury occurs is to ensure that the injured employee receives prompt medical treatment. Supervisor, not the employee, arranges for the medical treatment. Ordinarily this treatment is coordinated by the BBC Electrical Services, Inc. office personnel upon notification that medical treatment is required. The medical services used will depend upon the employee's work location and the availability of the physician selected.

All consultation with outside professional case management services will be coordinated through the BBC Electrical Services, Inc. office.

Generally, under non-emergency situations, medical treatment care for any work-related injury/accident will be administered by the company approved medical facility most convenient to the employee's work location. After normal working hours, the supervisor on duty or on call will be consulted to coordinate the medical care needed. All emergency medical treatment will be initially provided by the nearest medical facility, or the closest air or ground ambulance service available.

### **Lost Time Authorization and Notification**

Lost workdays related to an on-the-job injury will be granted only at the direction of a physician. The employee must deliver to his/her supervisor written authorization from the physician prior to being absent from work. He/she must also bring a written release to return to work signed by the treating physician prior to returning to work. Every time an injured employee is seen by a physician, he/she must bring a written authorization to his/her supervisor showing current work status and/or duty restrictions. The Work Status/Restrictions Report form is to be used for this record.

The BBC Electrical Services, Inc. office must be notified by telephone when a lost workday injury occurs. This notification must be made on the first day the employee is absent from work because of an on-the-job injury.

### **Return to Work – Regular/Restricted Duty**

It is the responsibility of the supervisor to notify the BBC Electrical Services, Inc. office when an employee returns to work from a lost time injury. The completed Work Status/Restrictions form must indicate whether the employee is returning to regular duty or light (restricted) duty. If the employee is returned to light duty a final medical report must be sent to the BBC Electrical Services, Inc. office on the date the physician releases the employee to regular work status. All physician or other medical notes relating to the employee's duty status or medical treatment and progress are to be forwarded to the BBC Electrical Services, Inc. office.

It is the company's policy to return injured employees to their pre-accident duty status at the earliest opportunity. In those cases where a physician has approved a return to work under light or restricted duty conditions, the supervisor must be mindful of the employee's physical limitations as indicated on the physician's notes. Meaningful light duty of a nature consistent with the employee's normal job duties must be within the limits of the work restrictions before an injured employee can be returned to duty.

### **Medical Expenses**

All bills, drug receipts and other expenses relating to an on-the job injury are to be sent to the BBC Electrical Services, Inc. office for payment consideration. Before purchasing drug prescriptions, employees are encouraged to have their pharmacist contact the BBC Electrical Services, Inc. office to make arrangements to have the services charged to the company worker's compensation account.

### **Accident Notification**

The Workers' Compensation Act and current company policy provides that employees shall make a written report of any accident within 24 hours.

Failure to promptly and accurately report an accident may nullify the benefits available under state statutes and may result in disciplinary proceedings. The company is not obligated to pay for any medical treatment under workers' compensation that an employee selected on his/her own without management's prior knowledge and consent.

### **Workers' Compensation Cases**

When considering the application of workers' compensation benefits to a work-related injury or illness the below listed criteria shall apply as a general policy to all work locations of BBC Electrical Services, Inc.

### ***Occupational Injury Coverage:***

An accident is an unexpected or unforeseen identifiable event or series of events happening suddenly and violently, with or without employee or company fault, and produces at the time objective symptoms of an injury. An injury is covered under workers' compensation if it is clearly work-related. An injury is clearly work-related if work was a substantial factor in the cause of the resulting medical condition or disability. An injury may not be covered merely because work was a triggering or precipitating factor. The application of workers' compensation benefits will be determined by the BBC Electrical Services, Inc. office.

A reported injury at work will be covered under the workers' compensation laws if any the following conditions exist:

- 1) It is reasonably apparent, upon consideration of all circumstances, that the employment is a substantial factor in causing the injury, and
- 2) It can be seen to have followed as a natural incident of the work, and
- 3) It can be fairly traced to the employment as a proximate cause, and
- 4) It does not come from a hazard or risk unrelated to the employment to which employees would have been equally exposed in normal, non-employment life.

### ***Occupational Illness Coverage***

Ordinary illnesses to which the general public is exposed outside of employment are not covered under the laws of workers' compensation. Occupational illness may be covered under workers' compensation if it is clearly work-related, an identifiable disease or illness and meets the same requirements of a covered injury as stated in paragraph (1-4) above.

### **Training Requirements:**

All employees will receive awareness level training to ensure proper reporting procedures are followed.

Supervisors will receive incident investigation training which includes what forms are to be completed and basic investigation procedures addressed above.

## **Section 5- Aerial Work Platforms**

### **Purpose**

To define minimum requirements and responsibilities for the safe use of aerial work platforms.

### **Scope**

This section applies to all BBC Electrical Services, Inc. subcontractors, employees and job classifications that may involve the use and operation of any vehicle mounted device that telescopes, articulates, or is used to position personnel in an elevated work position. This includes bucket trucks and platforms fitted to fork trucks.

### **Definitions**

Aerial Work Platforms - Aerial lifts include vehicles mounted aerial devices used to lift personnel to job sites above ground. For example, extensible boom platforms, aerial ladders, articulating boom lifts, vertical towers, or a combination of these.

### **Responsibilities**

The Superintendent will act as the competent person for safe work practices during the use of aerial work platforms. And will ensure all employees who may be required to use an aerial lift as part of their normal job requirements are adequately trained.

### **Procedures**

General Requirements:

Only trained and authorized personnel will operate an aerial work platform.

Aerial lift will be designed and constructed in conformance with applicable requirements of the American National Standards for Vehicle Mounted Elevating and Rotating Work Platforms. Modifications to the equipment must be certified in writing by the manufacturer or by any equivalent entity.

A pre-operational check meeting the manufacturer's requirement will be performed. A checklist shall be used to document the inspection. At a minimum, the check shall include the following:

- Operating controls and associated mechanisms for:
  - Conditions interfering with proper operation.
  - Excessive component wear and contamination of materials.
  - Visual and audible safety devices for malfunction.
  - Hydraulic or pneumatic systems for observable deterioration or excessive leakage.
  - Fiberglass and other insulating components for visible damage or contamination.
  - Electrical apparatus for malfunction, signs of excessive deterioration, dirt, and moisture accumulation.
  - Lift controls operations

Do not operate a machine that is not functioning properly.

Before operating the equipment, review the written operating procedures including all pertinent safety sections.

Comply with rated load capacity of the equipment.

At least 10 feet of clearance will be maintained when operating aerial work platforms near exposed electrical conductors.

Loads will be guided by tag lines and not by pulling on the rigging.

**Equipment Operation:**

Only trained and authorized personnel will operate an aerial work platform.

Safe operation of aerial work platforms may require the presence of two or more persons. If backup alarm is not available or not loud enough for the surrounding noise, a spotter may be used while backing.

A ground person will be required during the usage of any lift or platform when the following conditions exist:

- Welding or burning is performed from the work platform.
- Work is performed around vehicular traffic.
- Work is being performed adjacent to or over railroad tracks.

Maintain a clear visual site line with the ground observer at all times.

Materials and/or tools can be carried within the confines of the bucket or basket to the extent that they do not impede the mobility of the operator, and do not result in exceeding the weight limitations of the device.

Use flagging and barricades to isolate the area below an overhead work area.

Personal fall protection equipment will be worn by all occupants of an aerial work platform. A full body harness and adjustable lanyard is required.

Personal fall protection equipment will not be secured to an adjacent structure while the person remains in the aerial work platform.

Anchorage points for elevated work outside the lift will be elevated and tested prior to leaving the lift. (Anchorage points must be capable of supporting 5000 pounds per person attached.)

Be aware of operating clearances required before initiating any machine functions. Always look in the direction that the bucket is moving and at any object in the path of the boom.

Do not mechanically block the foot switch.

Do not lean out of the equipment. Stand firmly on the floor and do not climb on the rails or the edge of the basket.

Mechanical equipment will be operated so that the minimum approach distances required are maintained from exposed energized lines and equipment. The insulated portion of an aerial lift operated by a qualified employee in the lift is exempt from this requirement if the applicable minimum approach distance is maintained between the uninsulated portions of the aerial lift and exposed objects having a different electrical potential.



## Testing

Electrical Test of insulating Aerial Device will adhere to the following:

1. Certification Test are made to demonstrate that the final equipment assembly has performance characteristics to permit safe employment of the insulating aerial device at the designed line or electrical nameplate voltage. Certification test shall be performed prior to use:

- A) when new, modified, or reconditioned aerial devices are first delivered for service.
- B) after repair or replacement of major components of an insulating section such as a new arm, leveling rods, arm painting, hydraulic oil lines or oil, interior cleaning, and silicon replacement.
- C) Every two years on aerial lifts which are in service.
- D) When aerial devices are classified for use at higher voltages.

2. Periodic Test is designed to test the integrity of the arm insulation. A periodic test shall be administered at 12-month intervals, or after any maintenance, repair, or replacement work has been performed and any insulating system component(s) of an aerial device other than the items covered under the Certification Test. This test shall be performed prior to returning the aerial device to service.

3. Before Work Electrical Test, when required, the before work electrical leakage current test shall be performed on the insulated aerial lift device and successfully passed. This test shall be performed prior to the start of the job.

If, during operation of the mechanical equipment, that equipment could become energized, the operation also must follow one of the following practices:

- 1) The energized lines or equipment exposed to contact will be covered with insulating protective material that will withstand the type of contact that could be made during the operation.
- 2) The mechanical equipment will be insulated for the voltage involved. The mechanical equipment shall be positioned so that its uninsulated portions cannot approach the energized lines or equipment any closer than the minimum approach distances, required by the 1910.269 standard.
- 3) Each employee will be protected from hazards that could arise from mechanical equipment contact with energized lines or equipment. The measures used will ensure that employees will not be exposed to hazardous differences in electric potential. Unless BBC Electrical Services can demonstrate that the methods in use protect each employee from the hazards that could arise if the mechanical equipment contacts the energized line or equipment, the measures used will include all of the following techniques:
  - A) Using the best available ground to minimize the time the lines or electric equipment remain energized,
  - B) Bonding mechanical equipment together to minimize potential differences,
  - C) Providing ground mats to extend areas of equipotential, and
  - D) Employing insulating protective equipment or barricades to guard against any remaining hazardous electrical potential differences.

**Training Requirements**

Only qualified and/or competent operators will be permitted to operate aerial work platforms.

## **Section 6-Asbestos Awareness**

### **Purpose**

To protect the health and safety of BBC Electrical Services, Inc. employees from accidental exposure to asbestos during construction, salvage, alteration, roofing repair, maintenance and/or demolition operations.

### **Scope**

This section applies to all BBC Electrical Services, Inc. employees and operations.

### **Definitions**

Asbestos - Includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that has been chemically treated and/or altered.

Employee Exposure - Means that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

Regulated Area - Means an area established by the employer to demarcate areas where airborne concentrations of asbestos exceed or can reasonably be expected to exceed the permissible exposure limit. The regulated area may take the form of (1) a temporary enclosure, or (2) an area demarcated in any manner that minimizes the number of employees exposed to asbestos.

Demolition - Means the wrecking or taking out of any load-supporting structural member any related razing, removing, or stripping of asbestos products.

Removal - Means the taking out or stripping of asbestos or materials containing asbestos.

Renovation - Means that modifying of any existing structure, or portion thereof, where exposure to airborne asbestos may result.

Repair - Means overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates where asbestos is present

### **Requirements**

Reporting employees of BBC Electrical Services, Inc. generally are not required to perform any work involving asbestos or asbestos-like materials. However, if workers suspect the presence of such materials at any work site, they should immediately inform their supervisor. Workers should not touch, remove, demolish, or in any other manner disturb materials that are suspected to contain asbestos. Supervisors should inform the safety director immediately if asbestos is suspected to be present at a job site. The safety director will determine methods to identify and if necessary control or abate the material prior to further operations.

Multi Employer Site - When a supervisor determines that another employer onsite is performing asbestos abatement, measures should be taken to prevent BBC Electrical Services, Inc. employees from entering regulated areas. This may be accomplished by using barricades, "danger" tape, and signs.

Supervisors should know or be trained in recognition and avoidance of asbestos containing materials. It is important to realize that asbestos containing materials have been used in insulation, floor tiles, ceiling tiles, fire proofing, mastic, roofing materials, boilers, and pipe insulation. The asbestos fibers become hazardous when they become airborne and are inhaled.

Asbestos fibers enter the body by inhalation of airborne particles or by ingestion and can become embedded in the tissues of the respiratory or digestive systems. Years of exposure to asbestos can cause numerous disabling or fatal diseases. Among these diseases are asbestosis, an emphysema-like condition; lung cancer; mesothelioma, a cancerous tumor that spreads rapidly in the membranes covering the lungs and body organs; and gastrointestinal cancer.

Asbestos is a widely used, mineral-based material that is resistant to heat and corrosive chemicals. Depending on the chemical composition, fibers may range in texture from coarse to silky. The properties that make asbestos fibers so valuable are its high-tensile strength, flexibility, heat and chemical resistance, and good frictional properties.

Pre-job planning includes a review of possible Asbestos Containing Materials.

### **Training**

BBC Electrical Services, Inc. will provide awareness level training to employees during New Hire Orientation. The training will be documented. Employees are instructed to follow warning signs and required not to disturb the suspected material.

Our projects where asbestos products are likely to be a component of existing building materials, the superintendent must communicate to BBC Electrical Services, Inc. employees the location and nature of such materials. For instance, asbestos material is often found in pipe insulation, fire proofing material, and roofing materials in older buildings. In this example, workers should be informed of this type of information before commencement of operations on pipes, structural steel, or roofs.

## **Section 7-Benzene Awareness**

### **Introduction**

Benzene exposure has been associated with aplastic anemia and blood cancer. The Occupational Safety and Health Administration (OSHA) has promulgated an expanded Benzene Standard (29CFR 1910.1028), which outlines the regulatory requirements for the safe handling and use of benzene.

### **Purpose**

The intent of this Benzene Awareness Program is to protect employees against harmful over-exposures to benzene through inhalation, skin contact or eye contact. Exposure activities may include:

- Field maintenance
- Petroleum Refining Sites
- Tank gauging

### **Exposure Control**

Exposure Limits - OSHA sets Permissible Exposure Limits (PEL) for many chemicals. The PEL is the allowable exposure that an employee can be exposed to over an eight-hour time weighted average. The current PEL for benzene is 1 part benzene per million parts air (ppm). Since this is an 8-hour average, short-term exposures above the PEL are permitted as long as the average exposure over an 8-hour period does not exceed the PEL.

Short Time Exposure Limit (STEL) for benzene that cannot be exceeded. The STEL is the greatest concentration of benzene in air to which exposure may occur for a fifteen-minute period. The current STEL is 5 ppm.

Exposure Determination and Monitoring – BBC Electrical Services, Inc. will conduct initial and periodic monitoring for each job classification or process where a potential for benzene exposure may exist. Initial monitoring will consist of identifying those employees who may be exposed at or above the action level or STEL. This monitoring process will be repeated each time there is a change in production, equipment, process, personnel or control measures which may result in new or additional exposure to benzene.

BBC Electrical Services, Inc. will institute administrative, engineering and work practice controls to reduce and maintain employees' exposure to benzene at or below the PEL and STEL. If these controls cannot reduce employees' exposure below the permissible exposure limits, respiratory protection will be provided to reduce employee exposure to or below the PEL.

Protective clothing and equipment resistant to benzene must be provided to employees. Skin and eye contact can be prevented by the use of chemical protective clothing made of material impervious to benzene and the use of other personal protective equipment, such as gloves, goggles and face shields, as appropriate to the operation.

### **Communication of Hazards**

BBC Electrical Services, Inc. will provide training for employees who are assigned to workplaces where there is a potential for exposure to benzene. This training must occur prior to or at the time of initial assignment, and whenever a new exposure to benzene is introduced into the work area. The training will be repeated annually thereafter if exposures are above the action level.

The training program will be conducted in a manner which the employee is able to understand and will include:

- Requirements of OSHA's Benzene Standard and how to access or obtain a copy of it in the workplace;
- Description of the medical surveillance program and the information contained in Appendix C of OSHA's Benzene Standard; and
- Information on the quantity, location, manner of use, release and storage of benzene and the specific operations in the workplace that could result in exposure to benzene.

The supervisor will inform all affected employees of the location of written training materials and will make these materials readily available, without cost, to the affected employees.

### **Container Labels**

The OSHA Hazard Communication regulations require that all chemical containers must be labeled with the name of the chemical and any of the hazards associated with that chemical. All benzene-containing (>0.1%) solutions should have a warning label stating, at a minimum, "Contains Benzene, Cancer Hazard", because OSHA has designated benzene as a carcinogen.

If a chemical product containing more than 0.1% benzene is transferred into a container other than the original container from the manufacturer, it must be labeled, at a minimum, with the following information:

**DANGER!**  
**Contains Benzene**  
**Cancer Hazard**

### **Regulated Areas**

In areas where the concentrations of airborne benzene exceeds the PEL and STEL, all entrances and access-ways will be posted with signs bearing the following information:

DANGER  
BENZENE  
CANCER HAZARD  
FLAMMABLE - NO SMOKING  
AUTHORIZED PERSONNEL ONLY  
RESPIRATOR REQUIRED

Only those employees who have been trained to recognize the hazards of benzene will be allowed to enter these areas.

### **Emergency Procedures**

In order to prevent emergencies in those areas using benzene, BBC Electrical Services, Inc. will establish a procedure to detect leaks and spills, including regular visual inspections and preventative maintenance on equipment.

Supervisors will ensure that spills are contained and cleaned up promptly, only by those individuals wearing suitable personal protective equipment and who are trained in proper methods of cleanup and decontamination.

Employees involved in an emergency involving benzene are responsible for notifying the appropriate authorities and following established protocol.

### **Characteristics of Benzene**

Benzene is a chemical that is a colorless or light yellow liquid at room temperature. It has a sweet odor and is highly flammable. Benzene is not soluble in water.

### **Health Effects**

People who breathe in high levels of benzene may develop the following signs and symptoms within minutes to several hours:

- Drowsiness
- Dizziness
- Rapid or irregular heartbeat
- Headaches
- Tremors
- Confusion
- Unconsciousness
- Death (at very high levels)

Eating foods or drinking beverages containing high levels of benzene can cause the following symptoms within minutes to several hours:

- Vomiting
- Irritation of the stomach
- Dizziness
- Sleepiness
- Convulsions
- Rapid or irregular heartbeat
- Death (at very high levels)

Direct exposure of the eyes, skin, or lungs to benzene can cause tissue injury and irritation.

### **Long-term health effects of exposure to benzene**

- The major effect of benzene from long-term exposure is on the blood. (Long-term exposure means exposure of a year or more.) Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells, leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection.
- Some women who breathed high levels of benzene for many months had irregular menstrual periods and a decrease in the size of their ovaries. It is not known whether benzene exposure affects the developing fetus in pregnant women or fertility in men.
- Animal studies have shown low birth weights, delayed bone formation, and bone marrow damage when pregnant animals breathed benzene.
- The Department of Health and Human Services (DHHS) has determined that benzene causes cancer in humans. Long-term exposure to high levels of benzene in the air can cause leukemia, cancer of the blood-forming organs.

## **Medical Surveillance**

BBC Electrical Services, Inc. will institute medical surveillance program for all employees exposed to benzene at concentrations at or exceeding the action level on 30 or more days per year, or exceeding the PEL or STEL for 10 or more days per year.

All medical procedures, including administration of medical disease questionnaires, will be performed by or under the supervision of a licensed physician and will be provided without cost to the employee, without loss of pay, and at a reasonable time and place.

Initial medical surveillance must occur prior to assignment to a job. BBC Electrical Services, Inc. will provide each affected employee with a medical examination annually following the initial examination.

## **Recordkeeping**

BBC Electrical Services, Inc. will establish and maintain an accurate record of the following:

- Exposure measurements, which must be maintained for at least thirty years, including:
  - The dates, number, duration, and results of each of the samples taken, including a description of the procedure used to determine representative employee exposures;
  - A description of the sampling and analytical methods used;
  - A description of the type of respiratory protective devices worn, if any; and
  - The name, social security number, job classification and exposure levels of the employee monitored and all other employees whose exposure the measurement is intended to represent.
- Medical surveillance records, which will be maintained for the at least the duration of the employment plus thirty years, including:
  - The name and social security number of the employee;
  - The department's copy of the physicians written opinion on the initial, periodic and special examinations, including results of medical examinations and all tests, opinions and recommendations;
  - Any employee medical complaints related to benzene exposure;
  - A copy of the information provided to the physician; and
  - A copy of the employee's medical and work history related to exposure to benzene or any other hematologic toxins.

Employee exposure and medical records required by this policy shall be provided upon request for examination and copying, to the subject employee or former employee or to anyone having the specific written consent of the subject employee or former employee.

## **Safe Work Practices**

Fire extinguishers must be readily available. Smoking is prohibited in areas where benzene is used or stored.

BBC Electrical Services, Inc. will inform employees of Owners contingency plan provisions and where benzene is used in host facility.



Employees are to follow all Owners safety rules.

### **Plan evaluations**

The effectiveness of this plan will be evaluated periodically using the criteria listed below:

- Maintain compliance with applicable institutional, local, State and Federal regulations;
- Processes involving benzene are evaluated at least annually;
- Maintain exposures below applicable limits or provide appropriate protection.

## **Section 8- Bloodborne Pathogens**

### **Purpose**

To reduce the risk of exposure to bloodborne pathogens by all employees, including those who perform first aid and/or CPR.

### **Definitions**

Occupational Exposure - Reasonably anticipated skin, eye, mucous membrane, or parenteral (needle stick, puncture) contact with blood or other potentially infectious materials that may result from the performance of an employee's duties. This regulation was initially written to protect workers in the emergency response and health care profession. OSHA has found an application in the construction industry. According to OSHA those individuals assigned with the responsibility of administering first aid on the job site are occupationally exposed or have the potential of being exposed to human blood and body fluid.

Bloodborne Pathogens - Pathogenic micro-organisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

Contaminated Sharps - Any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.

Decontamination - The use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

Engineering Controls - Controls (e.g., sharps disposal containers, self-sheathing needles) that isolate or remove the bloodborne pathogens hazard from the workplace.

Exposure Incident - A specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

Hand washing Facilities - A facility providing an adequate supply of running potable water, soap and single use towels or hot air drying machines.

HBV - Hepatitis B virus.

HIV - Human immunodeficiency virus.

Occupational Exposure - Reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.

Parenteral - Piercing mucous membranes or the skin barrier through such events as needle sticks, human bites, cuts, and abrasions.

Personal Protective Equipment - Specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.

Regulated Waste - Liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state.

Compressed - Items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

Source Individual - Any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee.

Universal Precautions - An approach to infection control. All human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

## **Procedures**

It is inevitable that some employees may encounter blood or some other body fluid in the workplace. The following control measures will be utilized when body fluid is encountered on the jobsite:

- Barricade, mark, or section off any area that contains spilled blood or body fluid until it can be cleaned and decontaminated. Employees registered in First Aid/CPR should clean up the spill as soon as possible before returning to regular duties.

Only first aid/CPR-trained personnel are considered qualified to provide care to the injured party and must wear the appropriate personal protective equipment, provided at no cost. Personal protective equipment includes:

- Disposable gloves
- Eye protection
- Body gown
- Disposable shoe covers
- One way resuscitation device (used to restore breathing)

All of the above equipment will be considered part of the first aid kit.

All equipment or environmental surfaces will be cleaned and decontaminated after contact with blood or other infectious materials.

All body fluids will be considered contaminated and will be cleaned up and disposed of properly. The following procedures will be used for cleaning and removal of body fluids:

- Personal protective equipment as described above will be worn during the operation.
- Puncture resistant containers or leak proof bags will be used to store the contaminated material.

- Containers will be labeled as contaminated, using the Orange Biohazard symbol.



- Containers will be taken to a servicing facility such as a hospital or clinic, for proper disposal.

Appropriate antiseptic hand cleanser in conjunction with cloth/paper towels or antiseptic towelettes, will be available if handwashing stations are not feasible.

BBC Electrical Services, Inc. makes available, at no cost to the first aid/CPR trained employee, a Hepatitis B Vaccination. This employee is not required to have the vaccination, but if he/she refuses the vaccination, he/she must sign the declination form. This form will be kept in the employee's personnel file in the Corporate Office. The vaccination will be available at no cost to the employee at a future date if he/she decides to have it.

For the safety and well-being of our employees, BBC Electrical Services, Inc. has made it mandatory that those employees who have been exposed to body fluids must see the BBC Electrical Services, Inc. Doctor for a follow-up evaluation and possibly laboratory tests. Upon evaluation, the Doctor may recommend that the employee have the Hepatitis B vaccination. This recommendation will be followed, and the employee will be required to have the vaccination.

When dealing with body fluids of any kind, it should be considered contaminated. A contaminated material is hazardous and will be labeled as such, placing the Orange Biohazard symbol on the container containing fluid.

BBC Electrical Services, Inc. will keep records on those employees who have been exposed to body fluids for up to 30 years after employment is discontinued.

BBC Electrical Services, Inc. will provide instruction to first aid/CPR certified employees in the proper methods of reducing the risk of exposure.

Exposure determinations will be made without regards to the use of personal protective equipment. Jobs that may result in exposure include: designated first aid responders.

Training records will be available upon request of employees, Assistant Secretary and the Director for examination and copying. Medical records must have written consent of employee before released. BBC Electrical Services, Inc. will comply with the requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

This policy will be reviewed during New Hire Orientation. The training will be provided annually to all employees who may be exposed, within one year of the initial training. Training records will include the date of training, contents of the training, and the names of those attending the training. Training records will be maintained for three years. The exposure control plan will be accessible to all employees upon request.

## **Section 9- Confined Space Entry**

### **Purpose**

To ensure a safe work environment when work is performed in a confined space.

### **Scope**

This policy applies to all BBC Electrical Services, Inc. operations with confined spaces or when engaged in confined space entry.

### **Definitions**

#### **Confined Space**

- Is large enough and so configured that an employee can bodily enter and perform assigned work
- Has limited or restricted means for entry or exit
- Is not designed for continuous employee occupancy

**Controlling Contractor** - The employer that has overall responsibility for construction at the worksite.

**Entry Employer** - Means any employer who decides that an employee it directs will enter a permit space.

**Hazardous Atmosphere** - An atmosphere that may expose employees to the risk of death, incapacitation, and impairment of ability to self-rescue (that is, escape unaided from permit space), injury, or acute illness from one or more of the following causes:

- Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
- Airborne combustible dust at a concentration that meets or exceeds its LFL;
- Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
- Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, *Occupational Health and Environmental Control*, or in Subpart Z, *Toxic and Hazardous Substances*, of this part and which could result in employee exposure in excess of its dose or permissible exposure limit;
- Any other atmospheric condition that is immediately dangerous to life or health.

**Host Employer** - Means the employer that owns or manages the property where the construction work is taking place.

**Permit-Required Confined Space** - A confined space that has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere;
- Contains a material that has the potential for engulfing an entrant;
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inward converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
- Contains any other recognized serious safety or health hazard.

Non-Permit Confined Space - (Low Hazard) A confined space that poses no actual or potential atmospheric hazards and if all hazards within the confined space are eliminated without entry into the space, the space may be classified or reclassified as a Non-Permit confined space, for as long as the non-atmospheric hazards remain limited. (Forced air ventilation does not consider elimination of a hazard.)

## **Responsibilities**

The Safety Officer will manage the overall confined space entry program and will ensure that supervisory and worker personnel are trained and comply with policy requirements. In addition, the Safety Officer will ensure any permits are kept on file for one year following entry.

### **Attendants**

- Have knowledge of all potential hazards of entry.
- Aware of possibly behavioral effects of hazard exposure.
- Stay in constant communication with entrants via hand held radios.
- Remain outside the permit space during entry operations, unless relieved by another attendant.
- Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and order entrants to evacuate immediately under any of the following conditions:
  - Attendant detects a prohibited condition.
  - Attendant detects the behavioral effects of hazard exposure in an entrant.
  - Attendant detects a situation outside the space that could endanger the entrants.
- Summon rescue and other emergency services as needed.
- Take appropriate actions if unauthorized persons approach or enter a permit space.
- Warn unauthorized persons to stay away from permit space.
- Advise unauthorized persons to exit immediately if they have entered the permit space.
- Inform authorized entrants and entry supervisor if unauthorized persons have entered the space.
- Perform non-entry rescue as specified by the employer's rescue procedure.
- A single attendant will not be allowed to attend more than one confined space at a time.

### **Entrants**

- Have knowledge of all potential hazards of entry.
- Stay in contact communication with attendants.
- Alert the attendant whenever:
  - Entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
  - Entrant detects a prohibited condition.
- Exit the space as quickly as possible whenever:
  - An order to evacuate is given by the attendant or entry supervisor.
  - Entrant recognizes any warning sign or symptom of hazardous exposure.
  - Entrant detects a prohibited condition.
  - An evacuation alarm is activated.

### **Entry Supervisor**

- Have knowledge of all potential hazards of entry.

- Verify full completion of permit, including atmospheric testing requirements and all other applicable procedures and equipment as specified by the permit before signing and allowing entry to begin.
- Terminate the entry and cancels the permit whenever:
  - Entry operations covered by the permit are completed.
  - A condition not allowed under the permit arises in or near the permit space.
- Verify that rescue services are available and the means for summoning them are operable.
- Remove unauthorized individuals who enter or attempt to enter the permit space.
- Coordinate permit transfer so that entry operations remain consistent with the terms of the entry permit and that acceptable entry conditions are maintained.

## **Procedures**

### **General Requirements**

- Before work begins at a worksite, each employer/contractor must ensure that a competent person identifies all confined spaces in which one or more of the employees it directs may work, and identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary. Danger signs are posted of the existence, location, and danger posed by permit and non-permit confined spaces.
- If the workplace contains one or more permit spaces, the employer who identifies, or who receives notice of, a permit space must:
  - Inform exposed employees by posting danger signs or by any other equally effective means, of the existence and location of, and the danger posed by, each permit space; and
  - Inform, in a timely manner and in a manner other than posting, its employees' authorized representatives and the controlling contractor of the existence and location of, and the danger posed by, each permit space.
- Danger signs are posted of the existence, location, and danger posed by permit and non-permit confined spaces.
- The company Safety Officer is responsible for program development, implementation, and policy revisions.
  - Types of Hazards Associated with Confined Spaces
    - Oxygen deficiency, less than 19.5%
    - Combustible/Flammable/Explosive Atmospheres
    - Toxic Gases or Vapors
    - Physical Hazards
    - Grinding
    - Agitators
    - Steam
    - Falling/Tripping
    - Other Moving Parts
    - Mulching
    - Corrosive chemicals
    - Biological
    - Unknowns
    - Electrical

- Wind
- Lighting
- Weather
- Insecure Footing
- Rodents/Snakes/Spiders

#### Confined Space Entry

- Entrants must review activity to be performed. The company Safety Officer will determine entry classification of permit or non-permit required.
- The Entry Supervisor must Complete BBC Electrical Services, Inc.'s Confined Space Entry Permit.
- The Entry Supervisor must prepare space for entry in the following ways:
  - Notify the department likely to be affected by service interruption.
  - Post signs, put up barriers and tape where necessary to prevent unauthorized entry.
  - Follow appropriate shutdown procedures.
  - Implement lockout/tagout where necessary to isolate space.
  - Empty the space if possible of hazardous materials, clean, wash and purge.
  - Ventilate if needed long enough in advance. Verify by testing.
  - Review with personnel entering the space that previous testing has been completed.
  - Attach "HOT WORK" permit, if required, to confined space entry permit.
  - Conduct atmospheric testing to determine concentration levels of all hazards identified. Entrants will be given an opportunity to participate in and review calibrated air monitoring data before entry.
  - Post confined space entry permit (if required)
- Atmosphere Testing and Monitoring Requirements
  - Initial testing of the confined space is to be conducted by a "qualified person" only. At a minimum all confined spaces must be evaluated for:
    - Oxygen (O<sub>2</sub>) levels must be >19.5% and <21.5%
    - Presence of Carbon Monoxide (CO) gas must be below the PEL
    - Presence of explosive gas or vapor must be less than 10% of the LEL
  - Re-evaluation of the space will be done if, there is reason to believe changes have occurred, or employees or their representatives request additional monitoring.
- Additional tests in confined spaces may be needed because of the function of the confined space. For example:
  - Chemical Hazards
    - Toxicity (Review SDSs, PEL's, TLV's and other data to evaluate exposure.)
    - Sulfur Dioxide (SO<sub>2</sub>)
    - Hydrogen Sulfide (H<sub>2</sub>S)
    - Hydrogen Cyanide (HCN)
    - Physical Hazards
    - Heat stress (using wet Bulb Globe thermometer)
    - Noise (using dosimeter to evaluate)



- Continuous Testing in Attended Confined Spaces
  - Where the space contains or has the potential to contain a hazardous atmosphere, continuous monitoring will be done.
  - Personnel using continuous monitors will be trained on the use and limitations of the monitor. This training is part of the annual confined space training program.
- Combustible Gases and Dusts Testing
  - All confined spaces will be tested for explosive gases and vapors prior to entry, no "HOT WORK" will be permitted if atmospheric readings are above 10% of the lower explosion limit (LEL). Continuous reading monitors for explosive ranges will be used on the jobsite in which "HOT WORK" is being conducted in attended confined spaces.
  - Before "HOT WORK" is conducted in confined spaces which contain combustible dusts, they will be adequately cleaned by means of washing or "wetting down", or vacuuming with properly grounded equipment. At NO time is compressed air to be used for cleaning of combustible dusts.

BBC Electrical Services, Inc. will establish procedures to coordinate entry operations for multi employers, so that employees of one employer do not endanger the employees of any other employer.

If it is believed that that the measures taken under the permit space program may not protect employees, the entry operations will be reviewed and revisions will be made to the program to correct deficiencies found before subsequent entries are authorized. Review of the permit required space program, using the canceled permits retained within 1 year after each entry. Revisions will be made to the program as necessary, to ensure that employees participating in entry operations are protected from permit space hazards.

### **Training Requirements**

Initial training will provide employees with the understanding, skill and knowledge necessary to perform the job safely, in addition to the proper PPE, use of tripod and other necessary equipment. Refresher training will be given when duties change, hazards in space change or whenever evaluation exposes inadequacies in employee knowledge. Employer certification of training must include employee's name, signature or initials of trainer and date of training.

Employees will be trained and required to wear the appropriate personal protective equipment.

### **Rescue Services**

Employee retrieval systems will be used whenever possible. The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.

BBC Electrical Services will not perform work in confined spaces with immediately dangerous to life or health conditions.

- A rescue team or service will be selected to perform rescue prior to starting the project. The rescue team will:

- 1) Have the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified;
- 2) Be equipped for, and proficient in, performing the needed rescue services;
- 3) Notify the employer immediately in the event that the rescue service becomes unavailable;
- 4) Inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site; and
- 5) Have access to all permit spaces from which rescue may be necessary so that the rescue team or service can develop appropriate rescue plans and practice rescue operations.

## **Section 10- Cranes and Hoist**

### **Purpose**

To prevent accidents and injury from the use of unsafe crane equipment or from the unsafe operations of cranes or crane equipment.

### **Scope**

This section applies to all BBC Electrical Services, Inc. contractor operations involving power-operated equipment, when used in construction that can hoist, lower, and horizontally move a suspended load. Such equipment typically refers to articulating cranes, crawler cranes, mobile cranes, rough/all terrain cranes, etc. (Exclusions may include: excavating equipment, forklifts, digger derricks, tree trimming and removal, helicopter cranes, and automotive wreckers.)

### **Definitions**

Not Applicable

### **Responsibilities**

The Superintendent will be responsible for the safe use of crane equipment at the jobsite, and will ensure that the crane operator is trained and qualified for the equipment being used.

The Superintendent will also conduct a pre-operational assessment. The work zone shall be identified by defined boundaries such as flag and range limiting devices, or defining the work zone as 360 degrees around the equipment up to the maximum working radius. The hazard assessment must determine if any part of the equipment could get closer than 20 feet to a power.

The crane operator will ensure that all crane equipment including hoist is inspected daily prior to the first crane lift.

The employer must comply with all applicable manufacturer prohibitions and must comply with either the manufacturer procedures applicable to assembly and disassembly or the employer's procedure(s) for assembly or disassembly. The manufacturer must approve all modifications/additions in writing. A registered professional engineer must be qualified with respect to the equipment involved, and must ensure the original safety factor of the equipment is not reduced.

A Competent/Qualified Person must supervise all assembly and disassembly of cranes, derricks, and related equipment. 29 CFR 1926.1404 – 29 CFR 1926.1406 should be followed during the assembly and disassembly procedures.

### **Procedures**

#### **Daily Inspection**

- Visually inspect the entire crane for signs of damage that might cause unsafe operation. Inspect the bridge and cab for loose objects that might fall to the floor.
- Visually inspect running hoist cable from cable drum to block. If broken wires in a strand are found, have the foreman ask maintenance to check the hoist cables. Ensure that user cables are threaded through their sheaves.
- Visually inspect for hook spread. Be sure safety latch is in place and in working condition.
- Test the alarm.

- Operate each control to determine that it functions properly:
  - Bridge control and brake
  - Trolley control and brake
  - Hoist control and brake
- Handling equipment controls: (Example: Rotator rope grab). Check for misalignment, worn points, hose, and cables out of holders or racks, electric cables pinched or worn, and leaking hydraulics.
- Check the emergency hoist limit switch; IT IS NOT AN OPERATING CONTROL (The hoist limit switch is for automatic emergency use only). After checking, do not hoist the crane block to the point of engaging the limit switch.
- Move the crane to an open area, away from personnel and equipment and test the limit switch without a load. The operator shall stand clear of the fall pattern of the crane block.
- Raise the block and hook-up to, but not more than three feet below the limit switch trip mechanism and stop the hoist motion completely.
- Raising the block(s) slowly, proceed cautiously until the emergency hoist limit switch engages.
- During a hoist limit switch check, the operator shall never run the limit switch at full speed.
- When the emergency switch is inoperable, an operator runs the risk of the blocks going beyond the height of the emergency hoist limit switch and getting caught in the frame, causing the cables to break, the block and hook to drop
- If the hoist limit switch is working, the hoist will stop.
- If the limit switch does not operate at the point of which it should, lower the block out of contact with the limit switch trip mechanism and NOTIFY YOUR SUPERVISOR IMMEDIATELY.
- Always bring the block down out of the power limit slowly. JOG DOWN THE HOIST, because at that point, you do not have dynamic braking. The block and hook are coasting downward due to the weight of the block and will carry the hoist drum downward.

Inspection shall be conducted by a competent person and shall be documented monthly using the Crane Inspection Checklist. At least every 12 months the equipment must be inspected by a qualified person. The annual inspection will document the items checked and the results of the inspection and the name and signature of the person who conducted the inspection and the date.

#### General Crane Rules

- Test the hoist brake on the first load lifted on the shift and on successive larger loads during the shift. Test by lifting the load a few inches off the floor and stopping to make sure the brake does not slip.
- Report immediately to your foreman any unsafe condition found during the proportional check and/or during later operations of the crane.
- Equipment must not be assembled or used unless ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction with the use of supporting materials, the equipment manufacturer's specifications for adequate support and degree of level of the equipment are met.
- Know the rated capacity of the crane before operating or attempting any lifting operation.
- Watch for co-workers near or on crane rails. Look down the rails in the direction of travel prior to bridge movement.

- When approaching a pennant streamer across the building, or other stop signal, stop crane immediately. Find out why the warning was given and then proceed only when you are sure of safe operating conditions.
- Before moving a load, make sure that no one is in a position to be injured and that no equipment or material could be damaged by the lift.
- Center the hook over load before any lift is started, this will prevent swinging. Check with rigging personnel to ensure that the load center of gravity has been clearly established.
- Sound crane bell, horn, or sirens as you begin to move a load through high traffic areas and intersections.
- NEVER carry a load over co-workers.
- If in doubt about clearing any object "STOP" and seek assistance.
- Any time an object is accidentally damaged by your crane, load, or grab, STOP and report it immediately to your foreman.
- When you are relieved by another operator, report the crane operating condition to the operator relieving you.
- Avoid parking cranes so that control pendants, hooks, grabs, or other lifting devices are left suspended over aisle ways.
- Fall protection is to be utilized at heights of 6 feet and greater. Rigid guardrail systems are to remain in place on all cranes.
- When work on an overhead crane or gantry crane requires the crane to be tagged out. The cranes main electrical disconnect switch shall be tagged and locked in the open position.
- Hazard areas will be identified by marking the boundaries of the crane swing radius with warning lines, railings or similar barriers.
- The following situations require cranes adjacent to the work area to be locked/tagged out or blocked when the work area is in the path of the bridges of these cranes:
  - When working in a JLG, bucket truck, or other personnel lifting device
  - When working with a mobile crane
  - When working on the bridge of a gantry crane or small crane
  - When working on a ladder or scaffold
  - When working on any elevated platform or on any equipment

#### Safety devices

- The following safety devices are required on all equipment covered by this subpart, unless otherwise specified:
- Crane level indicator
  - The equipment must have a crane level indicator that is either built into the equipment or is available on the equipment.
  - If a built-in crane level indicator is not working properly, it must be tagged-out or removed. If a removable crane level indicator is not working properly, it must be removed.
  - This requirement does not apply to portal cranes, derricks, floating cranes/derricks and land cranes/derricks on barges, pontoons, vessels or other means of flotation.
  - Boom stops, except for derricks and hydraulic booms.
  - Jib stops (if a jib is attached), except for derricks.
  - Equipment with foot pedal brakes must have locks.

- Hydraulic outrigger jacks and hydraulic stabilizer jacks must have an integral holding device/check valve.
- Equipment on rails must have rail clamps and rail stops, except for portal cranes.
- Horn
  - The equipment must have a horn that is either built into the equipment or is on the equipment and immediately available to the operator.
  - If a built-in horn is not working properly, it must be tagged-out or removed. If a removable horn is not working properly, it must be removed.

#### Proper operation required

- Operations must not begin unless all of the devices listed in this section are in proper working order. If a device stops working properly during operations, the operator must safely stop operations. If any of the devices listed in this section are not in proper working order, the equipment must be taken out of service and operations must not resume until the device is again working properly. Alternative measures are not permitted to be used. All manufacturer procedures applicable to the operational functions of equipment, including its use with attachments, must be complied with.
- Acceptable Blocking Methods
  - Crane stops on each rail with a streamer of pennants draped between the stops. The streamer shall be draped with sufficient slack to hang the pennants at or below the level of the cab of an adjacent crane. When the crane stops are used, the operators of the adjacent crane(s) shall be notified, and a sign, "CAUTION, Crane Stops Up At Column \_\_\_\_," shall be hung on a rung of the access ladder(s) to the adjacent crane(s). To caution operators of pendant and radio controlled crane, a caution tag, instead of a sign, shall be attached to the control box of the crane.
  - An adjacent crane can be positioned between the work area and other active cranes. The adjacent crane shall have parking brakes set and shall be properly locked out. Locking or blocking adjacent cranes on the same rails shall be required when performing maintenance activities on the overhead crane.
  - Blocking is required when a section of the crane rail is electrically de-energized. The blocks shall be placed so the crane electrical pick up shoes do not enter the de-energized zone and lose power.
  - When signaling to a crane operator, use standard signals as shown in handout.
  - When an operator is at the controls of a crane, he/she shall be aware of any person boarding or leaving a crane. The crane shall not be moved while a person is boarding or leaving the crane.
  - Keep aisle ways unobstructed in the area serviced by pendant or radio controlled cranes.
  - Keep a firm grip on the pendant control box.
  - Turn off electrical power when you finish using the crane.
  - In all cases when the need for a flag person is required, stop and call for assistance.

- Lift Plans
  - Before beginning a crane operation in which more than one crane will be supporting the load, the operation will be planned. The plan must be developed by a qualified person, meet the requirements listed in 1926 Subpart CC and may require engineering expertise if the qualified person deems necessary.
  - Pre-lift planning meetings will include all personnel involved with the lift and discuss the following items at a minimum:
    - 1) Load weight, size and distance will be determined to assure that the proper equipment is available to accomplish the lift safely.
    - 2) Riggers and equipment operators will determine the weight of the load to be handled and the capacity of handling devices before moving the load.
- Rigging
  - Rigging equipment for material handling must be inspected prior to use on each shift and as necessary during its use to ensure that it is safe. Defective rigging equipment will be removed from service.
  - BBC Electrical Services will ensure that rigging equipment:
    - Has permanently affixed and legible identification markings as prescribed by the manufacturer that indicate the recommended safe working load;
    - Not be loaded in excess of its recommended safe working load as prescribed on the identification markings by the manufacturer; and
    - Not be used without affixed, legible identification markings.
  - Rigging equipment, when not in use, must be removed from the immediate work area so as not to present a hazard to employees.
  - All rigging will be performed by qualified riggers.
- Crane Hand Signals
  - Both the signal person and crane operator shall know and use the standard crane signals. Communication between the crane operator and the signal person is essential for the safe operation and movement of the crane while in operation.
  - Signals to operators will be hand, voice, audible or new signals.
  - When using hand signals, the Standard Method (1926.1419 Appendix A) must be used unless infeasible.
- Qualified Signal Person
  - A signal person shall be provided when any point of the operation or movement is not in full and direct view of the operator, the view is obstructed when the equipment is traveling, and/or the operator or the person handling the load determines it is necessary due to site specific concerns.
  - The signal person shall be in a sufficiently lighted area and clearly visible to the operator.
  - The signal person shall give signals so that they are easily recognized and identified.
  - There shall be only one person to relay all signals to the crane operator although the need for more than one ground guide may be required. Effective communications between the ground guides shall be clear and precise.
- Flagging
  - Throughout the entire lift, the equipment operator will accept communications only from the designated flagger, except in emergency situations.

- The operator will accept an emergency stop signal from anyone.
  - When there is a concern as to safety, the mobile crane operator has the authority to stop and refuse to handle loads until a qualified person has determined that safety has been assured.
- Night Time Operations
    - Night time operations will be conducted with adequate illumination of the pickup area, setdown area, the flagger, the boom tip and the load path (if the load path is not previously determined to be clear).
    - Night time crane operations where contact with energized electrical lines is possible shall not occur unless such lines can be adequately illuminated, de-energized or protected.
    - The crane operator will determine the required illumination needed for safe operation.
- Crane Operator
    - The crane operator shall respond to the standard operating signals only from one authorized signal person. If more than one signal person is on the floor at the same time, the crane operator shall not lift the load until it has been determined which individual will give the signals. However, the operator shall recognize and obey a STOP signal at all times, no matter who gives it.
    - If the signal or order from the person is unsafe, the crane operator shall refuse to make the lift until corrections have been made and the move or load can be lifted safely.
    - The crane operator shall not move a load unless signals are clearly given, seen and understood. The operator shall halt the lift or movement in progress if the signal person is not in clear view at all times.
    - The operator shall have access to procedures applicable to the operation of the equipment. Procedures include rated capacities (load charts), recommended operating speeds, special hazard warnings, instructions and operator's manual.
    - Whenever there is a safety concern, the operator has the authority to stop and refuse to handle loads until a qualified person has determined that safety has been assured.
- Power Line Safety
    - The competent/qualified personnel and operator should always take into consideration all power lines in and around jobsites. Proper planning, review of power ratings, and identification of all parties involved are key components of preconstruction planning.
    - Refer to sections 29 CFR 1926.1407 – 1411 when power lines are identified as potential hazards on projects.
    - If it is determined that any part of the equipment, load line or load could get closer than 20 feet to a power line then at least one of the following measures must be taken:
      - Ensure the power lines have been de-energized and visibly grounded
      - Ensure no part of the equipment, load line or load gets closer than 20 feet to the power line
      - Determine the line's voltage and minimum approach distance permitted in Table 1-A.

TABLE A—MINIMUM CLEARANCE DISTANCES



Voltage (nominal, kV, alternating current)	Minimum clearance distance (feet)
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1,000	45
over 1,000	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).

**Note:** The value that follows "to" is up to and includes that value. For example, over 50 to 200 means up to and including 200kV.

### Training Requirements

Only those employees qualified by training or experience shall be allowed to operate equipment and machinery. The crane operator will meet one of the acceptable training methods in 1926.1427.

## **Section 11- Designated Health Care Facility**

### **Purpose**

To provide prompt quality medical services and to establish procedures for returning employees with job-related injuries or illnesses to work by providing Restricted Duty job assignments when necessary.

### **Definitions**

Designated Clinic – The nearest occupational health clinic has been selected by BBC Electrical Services, Inc. to treat all non-life threatening work related injuries.

Restricted Duty - An assignment provided to an employee who, because of a job-related injury or illness, is physically or mentally unable to perform all or any part of his/her normal assignment during all or any part of the normal workday or shift.

### **Procedures**

For accidents resulting in injuries that require emergency transport, the injured employee should be taken to the nearest emergency room facility.

For injuries not requiring emergency transport, the Safety Officer after being notified of an injury, will select and contact the nearest preferred Occupational facility for treatment of the injured employee. The selection of this facility and future designated clinics will be based on the following:

- The doctor's experience in treating occupational injuries;
- The doctor's attitude in recommending light duty work assignments and;
- The doctor's familiarity of Indiana workmen's compensation laws.

BBC Electrical Services, Inc.'s policy is to return employees to work as soon as possible after a job-related injury or illness has occurred. All possible opportunities will be considered to provide Restricted Duty Assignments for these employees. Restricted Duty Assignments will also be considered for employees injured off the job whenever possible.

By returning to work, employees are able to maintain their normal income while recovering from an injury or illness. Returning employees to work as soon as possible also benefits BBC Electrical Services, Inc. by keeping claims to a minimum and maintaining productivity by keeping the qualified individual on the job rather than retraining a replacement worker.

When an injured employee returns to work, all physical and mental limitations must be evaluated so that additional injury or aggravation does not occur. The safety of other employees working with the injured individual must also be considered.

### **Evaluation**

All injuries and illnesses will be evaluated on case-by-case basis by the physician, with consultation by company representatives regarding light duty work that is available for the injured employee. The evaluation should consider the following items:

- Can the employee perform a useful task for BBC Electrical Services, Inc.?
- Does the assignment risk further injury or aggravation?
- Will the assignment compromise the safety of other employees?

Injured employees may return to work on Restricted Duty under the following circumstances:

- The employee's attending physician has determined the physical restrictions.
- BBC Electrical Services, Inc. has a task that can be assigned that meets the restrictions.
- BBC Electrical Services, Inc.'s Project Managers are informed of the restrictions.
- No employee on Restricted Duty will be allowed to work more than (40) hours per week.

The employee must receive full medical release from a physician before resuming normal work activities.

Medical facility information will be posted at each jobsite.

## **Section 12- Disciplinary Procedures**

### **Purpose**

To provide a fair and consistent method for ensuring compliance with rules concerning operation, personnel, safety, security, and other regulations adopted by BBC Electrical Services, Inc.

### **Scope**

This policy will apply to all employees of BBC Electrical Services, Inc.

### **Definitions**

Safety Violation - Any unsafe act or condition that could lead to an accident, injury or property loss; and that could have reasonably been anticipated.

### **Responsibilities**

Company officials will conduct periodic inspections to ensure Project Managers commitment to safety goals. Violations showing overall lack of commitment to company safety goals shall be under the same level of disciplinary actions.

### **Procedures**

Project Managers are authorized to enforce or administer the disciplinary policy. The Safety Officer will make the final determination of the degree of disciplinary action taken for violations of a rule or regulation.

The Project Manager will determine the degree of seriousness of the violation as follows:

- First Degree - Non-Serious Violation: A safety violation that has a direct relationship to jobsite safety and health, but in all probability, would not cause death or serious physical harm.
- Second Degree - Serious Violation: A violation that has been addressed verbally and not corrected in a reasonable period of time or could reasonably result in death or serious physical harm.
- Third Degree - Intentional Violation: A serious violation that is intentionally and knowingly committed, repeated without any effort to eliminate the unsafe condition, or is immediately dangerous to health.

The Project Manager will determine the degree of discipline as follows:

- First Degree - Non-Serious Violation. Penalty: Verbal Warning. The Project Manager should log this warning and advise the Safety Officer of its occurrence. The record of this occurrence will be placed in the violator's personnel file.
- Second Degree - Serious Violation. Penalty: Written Warning. The Project Manager and the violator will sign the written warning, and it will be placed in the violator's personnel file. (See Individual Disciplinary Notice D-5)
- Third Degree - Intentional Violation. Penalty: Up to three (3) days of suspension with written notice for an employee, and suspension from work. The Project Manager and the violator will sign the notice, and it will be placed in the violator's personnel file.

In addition to the above procedure, BBC Electrical Services, Inc. reserves the right to immediately terminate a person for violating safety and health policies.

## **Section 13- DOT Policy**

### **Purpose**

To comply with the Department of Transportation's rules, regulations, and requirements that pertain to the operations of BBC Electrical Services vehicles.

### **Scope**

This policy applies to all BBC Electrical Services employees that drive a company vehicle. Drivers of company vehicles shall have a valid driver's license and must be listed as an eligible company driver. Furthermore, employees must obey all traffic laws while driving company vehicles; this also includes seatbelts.

### **Requirements**

All company vehicles require a documented daily inspection.

Hazardous Materials:

To avoid placarding and Commercial Driver's License (CDLs) requirements each vehicle shall not be loaded with more than 1,000 lbs. of hazardous materials.

A Disclosure of Materials Form is required for any amount of hazardous materials. This form must be completed prior to operating a company vehicle.

When the Gross Vehicle Weight (GVW) reaches 10,001 lbs. there are several additional regulations that must be followed:

- Drivers must have a completed a bi-annual (every 2 years) DOT physical with a urine screen.
- Drivers must possess a copy of their physical exam results while operating a company vehicle.
- CDL operator's license will be reviewed annually.
- The company must have a driver qualification report for each driver on file at the corporate office.
- Log books are to be completed when drivers exceed a 100 mile radius of the BBC Electrical Services office.
- Log books will be assigned to each truck rather than each individual. The driver is responsible for turning in the log from that days travel to the office.

### **Responsibilities**

#### **Fleet Manager**

- Responsible for administering the overall DOT program and updating requirements.
- Maintain data base of all qualified BBC Electrical Services employees that will be operating company vehicles.
- Provide all appropriate documents and/or forms to each employee.
- Equip each vehicle with log books, an accident kit, daily inspection forms, and disclosure of materials forms.
- Maintain employee physical exam records. This information is confidential and will be kept separate from all other DOT documents or forms. The fleet manager, human resources, and compliance officer are the only personnel that will be able to review records.

## **Section 14- Electrical**

### **Purpose**

To protect all employees from electrical hazards and/or working on or near exposed energized parts.

### **Scope**

This section applies to all BBC Electrical Services, Inc. operations including shops, offices, and jobsites.

### **Definitions**

**Grounded** - Connected to earth or to some conducting body that serves in place of the earth.

**Ground-Fault Circuit Interrupter** - A device for the protection of personnel that functions to de-energize a circuit or portion thereof within an established period of time when a current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit.

**Guarded** - Covered, shielded, fenced, enclosed, or otherwise protected by means of suitable covers, casings, barriers, rails, screens, mats, or platforms to remove the likelihood of approach to a point of danger or contact by persons or objects.

**Qualified Person** - A recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience enabling successful demonstration of ability to solve or resolve problems relating to the subject matter, the work, or the project.

### **Responsibilities**

The Safety Officer will evaluate field operations for compliance with safe work practices associated with electrical hazards.

Project Managers will evaluate the potential for electrical hazards at each jobsite and ensure that field personnel follow existing safe work procedures.

### **Procedures**

BBC Electrical Services, Inc. will utilize Ground Fault Circuit Interrupters (GFCI) to protect our employees on all construction sites.

#### **▪ *Ground Fault Circuit Interrupters***

- Temporary wiring on a construction job will be guarded by the use of Ground Fault Circuit Interrupters (GFCI) to protect BBC Electrical Services, Inc. employees. This requirement is in addition to any other requirements for equipment grounding conductors.
- All 120 volt, single-phase, 15 and 20 ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure, and which are in use by employees, should, under ideal conditions, have approved Ground Fault Circuit Interrupters to provide protection for those employees.
- Receptacles on a two-wire, single-phase portable or vehicle mounted generator rated not more than 5kW, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces, need not be protected with GFCI.

- The testing of company owned or controlled GFCI's should be documented. The test results should be kept as part of the job file. Any GFCI which fails to properly function will be immediately taken out of service.
- **Reporting**
  - Any electrical equipment found to be unsafe will be reported, tagged "DO NOT USE", and turned in for repair or replacement.
  - *Reporting* and alerting co-workers will prevent possible electrical contact. Notify jobsite supervision of all identified electrical hazards.
- **Test Equipment**
  - Only qualified persons will use test equipment and will verify that the hazard has been de-energized. If the circuit to be tested is over 600 volts, nominal, the test equipment will be checked for proper operation.
- **Warning Signs**
  - Warning signs are posted where employees may be exposed to high voltage electrical hazards. Never remove or damage this signage. When guarding, isolating, insulating, or grounding protective measures have been taken, they will not be removed by "unqualified employees".
- **Power Tools**
  - All electric power tools must be grounded. Electric power tools will be equipped with a proper ground plug (three-prong) or be of double insulation construction.
  - Electrical supply cords are never used to carry electrical power tools. The tool must be carried by its proper handle.
  - Power hand tools will be carefully inspected before use. All blades, chucks, tool assembly, guards and electrical cords must be checked.
- **Housekeeping**
  - Housekeeping duties that require an employee to perform duties near electrical hazards will not use electrically conductive cleaning materials (steel wool, metalized cloth, and silicon carbide as well as any conductive liquid solutions). Pay close attention to materials used to ensure they won't contribute to a potential explosion.
- **Conductive Apparel**
  - All employees will take special care in the use of conductive apparel (such as watch bands, bracelets, rings, key chains, or metal headgear and glasses).
- **Connecting/Starting/Energizing Electrical Equipment**
  - At no time will any employee connect, start, or energize electrical equipment while standing in water.
- **Personal Protection Equipment**
  - BBC Electrical Services, Inc. will provide personal protection equipment to safeguard "qualified personnel" where potential electrical hazards are present.
  - Employees will wear eye and face protective equipment where necessary to protect them from electric arcs or flashes or from flying objects.

**Training Requirements**

Electrical hazards (except lockout/tagout) will be addressed in BBC Electrical Services, Inc.'s Safety talks, safety newsletters and daily work instructions (at a minimum).



## **Section 15- Qualified/Non-Qualified Electrical Safety**

### **Purpose**

Protect all craft persons from electrical hazards and/or working on or near exposed energized parts.

### **Scope**

This section is applicable to all BBC Electrical Services, Inc. operations including shops, offices, and jobsites.

### **Definitions**

Grounded - Connected to earth or to some conducting body that serves in place of the earth.

Ground-Fault Circuit Interrupter - A device for the protection of personnel that functions to deenergize a circuit or portion thereof within an established period of time when a current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit.

Guarded - Covered, shielded, fenced, enclosed, or otherwise protected by means of suitable covers, casings, barriers, rails, screens, mats, or platforms to remove the likelihood of approach to a point of danger or contact by persons or objects.

Qualified Person - A recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience enabling successful demonstration of ability to solve or resolve problems relating to the subject matter, the work, or the project.

### **Responsibilities**

The Safety Representative evaluates field operations for compliance with safe work practices associated with electrical hazards.

Superintendents evaluate the potential for electrical hazards at each jobsite and ensure that field personnel follow existing safe work procedures.

### **Procedures**

BBC Electrical Services, Inc. will utilize Ground Fault Circuit Interrupters (GFCI's) to protect our employees on all construction sites.

### **Ground Fault Circuit Interrupters**

Temporary wiring on a construction job shall be guarded by the use of Ground Fault Circuit Interrupters (GFCI) to protect craft persons. This requirement is in addition to any other requirements for equipment grounding conductors.

All 120 volt, single-phase, 15 and 20 ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure and which are in use by employees, should, under ideal conditions, have approved Ground Fault Circuit Interrupters to provide protection for those employees.

Receptacles on a two-wire, single-phase portable or vehicle mounted generator rated not

more than 5kW, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces, need not be protected with GFCI. The testing of company owned or controlled GFCI's should be documented. The test results should be kept as part of job file. Any GFCI which fails to function properly shall be immediately taken out of service.

### **Working on Energized Equipment**

Only qualified person(s) appointed by BBC Electrical Services, Inc. may work on electric circuit parts or equipment that has not been de-energized. They shall be trained on the proper use of special precautionary techniques, PPE, insulating/shielding materials, and insulated tools.

### **Working On or Near Exposed De-Energized Parts**

This applies to work on exposed de-energized parts or near enough to them to expose the employee to any electrical hazard they present. While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts shall be locked out or tagged or both. Conductors and parts of electric equipment that have been de-energized but have not been locked out or tagged, shall be treated as energized parts.

### **Working under Overhead Lines**

When work is performed near overhead lines, the lines shall be de-energized and grounded, or other protective measures shall be provided before work is started. If the lines are to be de-energized, arrangements shall be made with the person or organization that operates or controls the electric circuits involved to de-energize and ground them.

### **Minimum Approach Distances**

BBC Electrical Services will establish minimum approach distances no less than the distances computed by Table R-3 for ac systems or Table R-8 for dc systems.

Mechanical equipment will be operated so that the minimum approach distances are maintained from exposed energized lines and equipment. However, the insulated portion of an aerial lift operated by a qualified employee in the lift is exempt from this requirement if the applicable minimum approach distance is maintained between the uninsulated portions of the aerial lift and exposed objects having a different electrical potential. A designated employee other than the equipment operator will observe the approach distance to exposed lines and equipment and provide timely warnings before the minimum approach distance is reached.

TABLE R-3-AC LIVE-LINE WORK MINIMUM APPROACH DISTANCE

[The minimum approach distance (MAD; in meters) shall conform to the following equations.]

For phase-to-phase system voltages of 50 V to 300 V: <sup>1</sup>

MAD = avoid contact

For phase-to-phase system voltages of 301 V to 5 kV: <sup>1</sup>

MAD = M + D, where

D = 0.02 m .....

M = 0.31 m for voltages up to 750 V and 0.61 m otherwise .....

the electrical component of the minimum approach distance.

the inadvertent movement factor.

For phase-to-phase system voltages of 5.1 kV to 72.5 kV: <sup>1 4</sup>

MAD = M + AD, where

M = 0.61 m .....

A = the applicable value from Table R-5 .....

D = the value from Table R-4 corresponding to the voltage and exposure or the value of the electrical component of the minimum approach distance calculated using the method provided in Appendix B to this section.

the inadvertent movement factor.

the altitude correction factor.

the electrical component of the minimum approach distance.

For phase-to-phase system voltages of more than 72.5 kV, nominal: <sup>2 4</sup>MAD = 0.3048(C + a)V<sub>L-G</sub>T<sup>4</sup> + M, where

C = 0.01 for phase-to-ground exposures that the employer can demonstrate consist only of air across the approach distance (gap),

0.01 for phase-to-phase exposures if the employer can demonstrate that no insulated tool spans the gap and that no large conductive object is in the gap, or

0.011 otherwise

V<sub>L-G</sub> = phase-to-ground rms voltage, in kVT = maximum anticipated per-unit transient overvoltage; for phase-to-ground exposures, T equals T<sub>L-G</sub>, the maximum per-unit transient overvoltage, phase-to-ground, determined by the employer under paragraph (i)(3)(ii) of this section; for phase-to-phase exposures, T equals 1.35T<sub>L-G</sub> + 0.45

A = altitude correction factor from Table R-5

M = 0.31 m, the inadvertent movement factor

a = saturation factor, as follows:

## Phase-to-Ground Exposures

V<sub>Peak</sub> = T<sub>L-G</sub>V<sub>L-G</sub>/2 .....

a .....

635 kV or less

0

635.1 to 915 kV

(V<sub>Peak</sub>-635)/140,000

915.1 to 1,050 kV

(V<sub>Peak</sub>-645)/135,000

More than 1,050 kV

(V<sub>Peak</sub>-675)/125,000Phase-to-Phase Exposures <sup>3</sup>V<sub>Peak</sub> = (1.35T<sub>L-G</sub> + 0.45)V<sub>L-G</sub>/2 .....

a .....

630 kV or less

0

630.1 to 848 kV

(V<sub>Peak</sub>-630)/155,000

848.1 to 1,131 kV

(V<sub>Peak</sub>-633.6)/152,207

1,131.1 to 1,485 kV

(V<sub>Peak</sub>-628)/153,846

More than 1,485 kV

(V<sub>Peak</sub>-350.5)/203,666<sup>1</sup> Employers may use the minimum approach distances in Table R-6. If the worksite is at an elevation of more than 900 meters (3,000 feet), see footnote 1 to Table R-6.<sup>2</sup> Employers may use the minimum approach distances in Table R-7, except that the employer may not use the minimum approach distances in Table R-7 for phase-to-phase exposures if an insulated tool spans the gap or if any large conductive object is in the gap. If the worksite is at an elevation of more than 900 meters (3,000 feet), see footnote 1 to Table R-7. Employers may use the minimum approach distances in Table 14 through Table 21 in Appendix B to this section, which calculated MAD for various values of T, provided the employer follows the notes to those tables.<sup>3</sup> Use the equations for phase-to-ground exposures (with V<sub>Peak</sub> for phase-to-phase exposures) unless the employer can demonstrate that no insulated tool spans the gap and that no large conductive object is in the gap.<sup>4</sup> Until March 31, 2015, employers may use the minimum approach distances in Table 6 through Table 13 in Appendix B to this section.

TABLE R-4-ELECTRICAL COMPONENT OF THE MINIMUM APPROACH DISTANCE AT 5.1 TO 72.5 KV

[D; In meters]

Nominal voltage (kV) phase-to-phase	Phase-to-ground exposure	Phase-to-phase exposure
	D (m)	D (m)
5.1 to 15.0 .....	0.04	0.07
15.1 to 36.0 .....	0.16	0.28
36.1 to 46.0 .....	0.23	0.37
46.1 to 72.5 .....	0.39	0.59

TABLE R-5-ALTITUDE CORRECTION FACTOR

Altitude above sea level (m)	A
0 to 900 .....	1.00
901 to 1,200 .....	1.02
1,201 to 1,500 .....	1.05
1,501 to 1,800 .....	1.08
1,801 to 2,100 .....	1.11
2,101 to 2,400 .....	1.14
2,401 to 2,700 .....	1.17
2,701 to 3,000 .....	1.20
3,001 to 3,600 .....	1.25
3,601 to 4,200 .....	1.30
4,201 to 4,800 .....	1.35
4,801 to 5,400 .....	1.39
5,401 to 6,000 .....	1.44

TABLE R-6-ALTERNATIVE MINIMUM APPROACH DISTANCES FOR VOLTAGES OF 72.5 KV AND LESS <sup>1</sup>

Nominal voltage (kV) phase-to-phase	Distance			
	Phase-to-ground exposure		Phase-to-phase exposure	
	m	ft	m	ft
0.50 to 0.300 <sup>2</sup> .....	Avoid Contact		Avoid Contact	
0.301 to 0.750 <sup>2</sup> .....	0.33	1.09	0.33	1.09
0.751 to 5.0 .....	0.63	2.07	0.63	2.07
5.1 to 15.0 .....	0.65	2.14	0.68	2.24
15.1 to 36.0 .....	0.77	2.53	0.89	2.92
36.1 to 46.0 .....	0.84	2.76	0.98	3.22
46.1 to 72.5 .....	1.00	3.29	1.20	3.94
<sup>1</sup> Employers may use the minimum approach distances in this table provided the worksite is at an elevation of 900 meters (3,000 feet) or less. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer shall determine minimum approach distances by multiplying the distances in this table by the correction factor in Table R-5 corresponding to the altitude of the work.				
<sup>2</sup> For single-phase systems, use voltage-to-ground.				

TABLE R-7-ALTERNATIVE MINIMUM APPROACH DISTANCES FOR VOLTAGES OF MORE THAN 72.5 KV <sup>1 2 3</sup>

Voltage range phase to phase (kV)	Phase-to-ground exposure		Phase-to-phase exposure	
	m	ft	m	ft
72.6 to 121.0 .....	1.13	3.71	1.42	4.66
121.1 to 145.0 .....	1.30	4.27	1.64	5.38
145.1 to 169.0 .....	1.46	4.79	1.94	6.36
169.1 to 242.0 .....	2.01	6.59	3.08	10.10
242.1 to 362.0 .....	3.41	11.19	5.52	18.11
362.1 to 420.0 .....	4.25	13.94	6.81	22.34
420.1 to 550.0 .....	5.07	16.63	8.24	27.03
550.1 to 800.0 .....	6.88	22.57	11.38	37.34
<sup>1</sup> Employers may use the minimum approach distances in this table provided the worksite is at an elevation of 900 meters (3,000 feet) or less. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer shall determine minimum approach distances by multiplying the distances in this table by the correction factor in Table R-5 corresponding to the altitude of the work.				
<sup>2</sup> Employers may use the phase-to-phase minimum approach distances in this table provided that no insulated tool spans the gap and no large conductive object is in the gap.				
<sup>3</sup> The clear live-line tool distance shall equal or exceed the values for the indicated voltage ranges.				

TABLE R-8-DC LIVE-LINE MINIMUM APPROACH DISTANCE WITH OVERVOLTAGE FACTOR <sup>1</sup>  
[In meters]

Maximum anticipated per-unit transient overvoltage	Distance (m) maximum line-to-ground voltage (kV)				
	250	400	500	600	750
1.5 or less .....	1.12	1.60	2.06	2.62	3.61
1.6 .....	1.17	1.69	2.24	2.86	3.98
1.7 .....	1.23	1.82	2.42	3.12	4.37
1.8 .....	1.28	1.95	2.62	3.39	4.79

<sup>1</sup> The distances specified in this table are for air, bare-hand, and live-line tool conditions. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer shall determine minimum approach distances by multiplying the distances in this table by the correction factor in Table R-5 corresponding to the altitude of the work.

TABLE R-9-ASSUMED MAXIMUM PER-UNIT TRANSIENT OVERVOLTAGE

Voltage range (kV)	Type of current (ac or dc)	Assumed maximum per-unit transient overvoltage
72.6 to 420.0 .....	ac	3.5
420.1 to 550.0 .....	ac	3.0
550.1 to 800.0 .....	ac	2.5
250 to 750 .....	dc	1.8

## Qualified Employees

When a qualified person is working in the vicinity of overhead lines, whether in an elevated position or on the ground, the employee may not approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown in Table 1-A unless:

- The employee is insulated from the energized part or the energized part is insulated both from all other conductive objects at a different potential and from the person or:
- The person is insulated from all conductive objects at a potential different from that of the energized part.

## Unqualified Employees

When an unqualified person is working in an elevated position near overhead lines, the location shall be such that the employee and the longest conductive object he or she may contact cannot come closer to any unguarded, energized overhead line than the following distances:

- For voltages to ground 50kV or below – 10 feet plus 4 inches for every 10kV over 50kV.

Table 1-A -- Approach distances for qualified employees	
Voltage range (phase to phase)	Minimum approach distance
300V and less	Avoid contact
Over 300V, not over 750V	1 ft. 0 in. (30.5 cm)
Over 750V, not over 2kV	1 ft. 6 in. (46 cm)
Over 2kV, not over 15kV	2 ft. 0 in. (61 cm)
Over 15kV, not over 37kV	3 ft. 0 in. (91 cm)
Over 37kV, not over 87.5kV	3 ft. 6 in. (107 cm)
Over 87.5kV, not over 121kV	4 ft. 0 in. (122 cm)
Over 121kV, not over 140kV	4 ft. 6 in. (137 cm)

## Vehicular and Mechanical Equipment

Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that a clearance of 10 feet is maintained.

Employees standing on the ground may not contact the vehicle or mechanical equipment or any of its attachments, unless the employee is using protective equipment rated for the voltage.

Mechanical equipment used to lift or move lines or other material will be used within its maximum load rating and other design limitations for the conditions under which the mechanical equipment is being used.

The critical safety components of mechanical elevating and rotating equipment will receive a thorough visual inspection before use on each shift.

Vehicular and mechanical equipment having an obstructed view to the rear must have a spotter or reverse signal (i.e. a back-up) alarm above the ambient noise level.

The energized lines or equipment exposed to contact will be covered with insulating protective material that will withstand the type of contact that could be made during the operation.

Each BBC Electrical Services employee will be protected from hazards that could arise from mechanical equipment contact with energized lines or equipment. The measures used will ensure that employees will not be exposed to hazardous differences in electric potential.

## Illumination

Employees may not enter spaces containing exposed energized parts, unless illumination is provided that enables the employees to perform the work safely.

## **Confined or Enclosed Work Spaces**

When an employee works in a confined or enclosed space that contains exposed energized parts, BBC Electrical Services, Inc. shall provide, and the employee shall use, protective shields, protective barriers, or insulating materials as necessary to avoid unintentional contact with these parts.

## **Reporting**

Any electrical equipment found to be unsafe shall be reported, tagged "DO NOT USE", and turned in for repair or replacement.

*Reporting* and alerting co-workers will prevent possible electrical contact. Notify jobsite supervisors of all identified electrical hazards.

## **Test Equipment**

Only qualified persons shall use test equipment and shall verify that the hazard has been de-energized. If the circuit to be tested is over 600 volts, nominal, the test equipment shall be checked for proper operation.

## **Warning Signs**

Warning signs are posted where employees may be exposed to high voltage electrical hazards. Never remove or damage this signage. When guarding, isolating, insulating, or grounding protective measures have been taken, they shall not be removed by "unqualified employees".

## **Power Tools**

Insure that all electric power tools are grounded. Electric power tools shall be equipped with a proper ground plug (three-prong) or be of double insulation construction.

Never use the electrical supply cord to carry electric power tools. Carry the tool by its proper handle.

Power hand tools shall be carefully inspected before use. Check blades, chucks, tool assembly, guards, and electrical cords.

## **Housekeeping**

Housekeeping duties that require an employee to perform duties near electrical hazards shall not use electrically conductive cleaning materials (steel wool, metalized cloth, and silicon carbide as well as any conductive liquid solutions). Pay close attention to materials used to ensure they will not contribute to a potential explosion.

## **Portable Ladders**

Portable ladders shall have nonconductive siderails if they are used where the employee or the ladder could contact exposed energized parts.

## **Conductive Apparel**

All employees shall take special care in the use of conductive apparel (such as watch bands, bracelets, rings, key chains, or metal headgear and glasses) may not be worn if they might contact exposed energized parts. Unless such articles are rendered nonconductive by covering, wrapping, or other insulating means.

### **Conductive Materials and Equipment**

Conductive materials and equipment that are in contact with any part of an employee's body shall be handled in a manner that will prevent them from contacting exposed energized conductors or circuit parts. If an employee must handle long dimensional conductive objects in areas with exposed live parts, BBC Electrical Services, Inc. shall institute work practices which will minimize the hazard.

### **Connecting/Starting/Energizing Electrical Equipment**

At no time shall any employee connect, start, or energize electrical equipment while standing in water.

### **Personal Protection Equipment**

BBC Electrical Services, Inc. shall provide personal protection equipment to safeguard "qualified personnel" where potential electrical hazards are present.

Employees shall wear eye and face protective equipment where necessary to protect them from electric arcs or flashes or from flying objects.

Depending on the job task to be performed, PPE generally includes safety glasses, face shields, hard hats, safety shoes, insulating (rubber) gloves with leather protectors, insulating sleeves, and flame-resistant (FR) clothing. Additional PPE, such as fall protection equipment, respirators, chemical-resistant or cut-resistant gloves, and chaps, may be required, depending on the results of the hazard assessment.

### **Training Requirements**

Electrical hazards (except lockout/tagout) shall be addressed in toolbox talks, safety newsletters and daily work instructions (at a minimum).

Qualified and unqualified employees shall be trained in safety related work practices that pertain to their respective job assignments.

Qualified employees will be trained in the skills and techniques to distinguish live parts and to determine the nominal voltage of exposed live parts.

Employees who face a risk of electric shock but who are not qualified persons shall be trained and familiar with electrically related safety practices.

Employees will be trained on how to calculate the proper clearance distances.



## **Section 16- Emergency Action Plan**

### **Purpose**

To ensure the safety and well being of all employees in the event of a natural or man-made emergency or disaster.

### **References**

1926.35 – Employee Emergency Plans and Fire Prevention Plans

### **Definitions**

Emergency - Any serious, unexpected situation or occurrence that demands immediate action in order to protect the life of an employee, falls under scrutiny by the government or media, jeopardizes our public image, or threatens our financial or legal condition. Emergencies covered under this plan include:

- Major accidents
- Employee deaths from accidents
- Serious injuries
- Natural disasters, such as tornadoes, floods, earthquakes, etc.
- Man-made disasters, such as fires, explosions, workplace violence, chemical spills, toxic gas releases, etc.

Emergency Response Plan (ERP) - Written and posted documents as described on the Emergency Response Plan Checklist

### **Procedures**

EAP procedures and equipment are developed prior to the start of a project.

An Emergency Action Plan contains requirements to protect all employees from the hazards associated with emergencies on projects that are continuously staffed for more than 3 months. Normally, BBC Electrical Services, Inc. projects will not fall under these guidelines. In the event of an emergency, all employees will rally at the company vehicle (or a pre-determined, project-specific rally point) until an all clear is given by the Project Manager.

Emergency agencies will be contacted via 911.

Complete the Emergency Response Plan Checklist as needed.

### **Who to Call**

All employees of BBC Electrical Services, Inc. must know exactly who to call in the event of an emergency. The ERP will include a list of the following:

- Designated, On-site Leader of the Emergency
- President
- All Local Emergency Response Teams

### **Site Access**

The plan will include a means of access and exit for the emergency agencies. The following items must be made known to all emergency teams:

- Map of the site showing path to be taken through the jobsite.

- A means to ensure the emergency team stays on this path. A suggestion would be to assign a number of people to stand at intervals, holding up a flag, to identify the path to be taken.
- Who the lead person(s) is (are) on-site.
- What the means of communication will be.

## Site Evacuation

The plan will include an evacuation procedure (if the existing building does not already have one posted) including the following:

- Illustrated evacuation route, floor plans or workplace maps clearly showing the emergency escape route, along with safe refuge areas.
- A means of communicating the order.
- A means of accounting for personnel.

Evacuating Employees:

- Employees are to proceed to the emergency assembly area using the safest and fastest evacuation routes.
- Employees are to meet in designated area according to the type of emergency.
- Employees **ARE NOT** to return to the building or the area of the emergency.

Office employees are required to follow the detailed EAP procedures for the office.

## Responsibilities

The Safety Officer, with input from the Safety Committee, is responsible for the development, implementation, and review of the Emergency Response Plan Policy.

- Foremen and Operations Managers share the responsibilities in the development of the jobsite Emergency Response Plan, using this policy as a general guideline. These responsibilities include the following:
  - Completing the ERP prior to the start of the project.
  - Reviewing the job-specific plan with all jobsite employees, subcontractors, and client/ customer representatives.
  - Taking appropriate action to minimize hazardous situations and exposures to BBC Electrical Services, Inc. employees and subcontracted personnel.
  - Ensuring that outside emergency services (medical aid and local fire departments are called when necessary).
  - Posting the ERP where all employees, suppliers, and subcontractors can see and read its provisions.
  - Updating the ERP as required during the course of the project.
  - A site specific spill/release response plan will be developed for each work site. The Project Manager will meet with the Owner's site management to determine site specific procedures.
- All subcontractors will comply with BBC Electrical Services, Inc. provisions of the jobsite Emergency Response Plan.

## **Section 17- Fall Protection**

### **Purpose**

To protect BBC Electrical Services, Inc.'s employees and subcontractors from the hazards of falls from elevated areas.

### **Scope**

This policy applies to floor, roof, or wall openings and have been written to prevent the possibility or danger of personnel or materials falling through these openings.

### **Definitions**

Anchorage - A secure point of attachment for lifelines, lanyards or deceleration devices.

Body Harness - Straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.

Controlled Access Zone (CAZ) - An area in which certain work (i.e., overhand bricklaying) may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled.

Deceleration Device - Any mechanism, such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic self retracting lifelines/lanyards, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

Guardrail System - A barrier erected to prevent employees from falling lower levels.

Handrail - Single bar on brackets attached on a wall, ramp or stairway, used to prevent tripping.

Hole - A gap or void 2 inches (5.1cm) or more in its least dimension, in a floor, roof, or other walking/working surface.

Lanyard - A flexible line of rope, wire, or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage.

Leading Edge - The edge of a floor, roof, or formwork for a floor or other walking/working surface (such as the deck) which changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

Lifeline - A component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

Low Slope Roof - A roof having a slope less than or equal to 4 in 12 (vertical to horizontal).

Lower Levels - Those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.

Opening - A gap or void 30 inches (76 cm) or more high and 18 inches (48 cm) or more wide, in a wall or partition, through which employees can fall to a lower level.

Personal Fall Arrest System - A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. As of January 1, 1998, the use of a body belt for fall arrest is prohibited.

Rope Grab - A deceleration device which travels on a lifeline and automatically, by friction, engages the lifeline and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.

Roof - The exterior surface on the top of a building. This does not include floors or formwork which, because a building has not been completed, temporarily becomes the top surface of a building.

Roofing Work - The hoisting, storage, application, and removal of roofing materials and equipment, including related insulation, sheet metal, and vapor barrier work, but not including the construction of the roof deck.

Safety Monitoring System - A safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

Standard Railing - Vertical barrier to protect and prevent persons from falling into, through or from wall openings, ramps, platform or other areas where a fall hazard exists.

Steep Roof - A roof having a slope greater than 4 in 12 (vertical to horizontal).

Toeboard - A low protective barrier that will prevent the fall of materials and equipment to lower levels and provide protection from falls for personnel.

Unprotected Sides and Edges - Any side or edge (except at entrances to points of access) of a walking/working surface, (i.e., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39 inches [1.0 m] high.)

Walking/Working Surfaces - Any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties.

Warning Line System - A barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which roofing work may take place without the use of a guardrail, body belt, or safety net systems to protect employees in the area.

Work Area - That portion of a walking/working surface where job duties are being performed.

## **Responsibilities**

The Safety Officer will ensure that all Project Managers are trained and educated on the company fall protection policy and procedures.

Project Managers must instruct personnel in the use of fall protection equipment and procedures. Project Managers will consult with the Safety Officer to determine if the project has an adequate fall protection plan. When purchasing equipment and raw materials for use in fall protection systems applicable ANSI and ASTM requirements will be met

All employees are required to follow safe work practices related to fall protection.

Project Managers must evaluate and control the worksite hazards associated with floor, roof, and floor openings and must instruct workers to avoid exposure to the hazards and/or provide the physical means to prevent such exposures.

The employer will provide for prompt rescue of employees in the event of a fall or will assure that employees are able to rescue themselves. All accidents and near misses be investigated and changes will be made to the fall protection plan as necessary.

## **Procedures**

Pre Project Planning - A systematic evaluation of the building structure, openings and skylights, and fall exposures must be made prior to construction or demolition operations. Pre project planning for safety is best performed in conjunction with the safety department, the project management team, and other appropriate experts. A written site-specific fall prevention plan may be appropriate for particularly hazardous projects.

### **▪ *Compliance with Fall Protection Requirements***

- Generally, fall protection for workers is required whenever there is a potential for fall exposure of six (6) feet or more, however when more stringent protection is required by a General Contractor or an Owner, the more stringent requirement will be adhered (i.e. some Owners and GC's require fall protection at 4 feet). Existing regulations allow alternative systems to protect workers from fall-related accidents.
- Project Managers should implement the most suitable form of fall protection system for each project, task, and employee. Decisions and actions required to implement fall protection must occur prior to operations.
- The following are examples of each of the seven (7) types of fall protection systems that must be used when workers are working at or above six (6) foot elevations:

### **▪ *Guardrail Systems (1)***

- The top edge of the guardrail will be 42 inches (+/-3 inches) above the walking/working level. Midrails will be installed between the top edge of the guardrail system and the walking/working surface.
- Midrails will be installed at a height halfway between the top edge of the guardrail system and the walking/working surface.
- Guardrail systems will be capable of withstanding, without failure, a force of at least 200 pounds in any outward or downward direction at any point along the top edge.

- When the 200 pound test load is applied in a downward direction, the top edge of the guardrail will not deflect to a height less than 39 inches above the walking/working level. Guardrail system components selected and constructed will be deemed to meet this requirement.
- Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members will be capable of withstanding, without failure, a force of at least 150 pounds applied in any downward or outward direction at any point along the midrail or other member.
- Guardrail systems will be so surfaced as to prevent injury to an employee from punctures or lacerations and to prevent snagging of clothing.
- If wire rope is used for top rails, it will be flagged at not more than 6-foot intervals with high-visibility material.
- When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section will be placed across the access opening between guardrail sections when hoisting operations are not taking place.
- When guardrail systems are used at holes, they will be erected on all unprotected sides or edges of the hole.
- When guardrail systems are used around holes used for the passage of materials, the hole will have not more than two sides provided with removable guardrail sections to allow the passage of materials. When the hole is not in use, it will be closed over with a cover, or a guardrail system will be provided along all unprotected sides or edges.
- When guardrail systems are used around holes which are used as points of access (such as ladderways), they will be provided with a gate or be so offset that a person cannot walk directly into the hole.
- Guardrail systems used on ramps and runways will be erected along each unprotected side or edge.
- Manila, plastic or synthetic rope being used for top rails or midrails will be inspected as frequently as necessary to ensure that it continues to meet the strength requirements of 200 pounds and 150 pounds.

▪ ***Personal Fall Arrest Systems (2)***

- Personal fall arrest systems and their use will comply with the provisions set forth below. Effective January 1, 1998, body belts are not acceptable as part of a personal fall arrest system. NOTE: The use of a body belt in a positioning device system is acceptable.
- Connectors will be drop forged, pressed or formed steel, or made of equivalent materials.
- Connectors will have a corrosion-resistant finish, and all surfaces and edges will be smooth to prevent damage to interfacing parts of the system.
- D rings and snaphooks will be proof-tested to a minimum tensile load of 3,600 pounds without cracking, breaking, or taking permanent deformation.
- Snaphooks will be sized to be compatible with the member to which they are connected to prevent unintentional disengagement of the snaphook by depression of the snaphook keeper by the connected member. Snaphooks can also be a locking type snaphook designed and used to prevent disengagement of the snaphook by the contact of the snaphook keeper by the connected member. Effective January 1, 1998, only locking type snaphooks will be used.
- Unless the snaphook is a locking type and designed for the following connections, snaphooks will not be engaged as follows:
  - Directly to webbing, rope or wire rope;

- To each other;
  - To a D ring to which another snaphook or other connector is attached;
  - To a horizontal lifeline; or
  - To any object which is incompatibly shaped or dimensioned in relation to the snaphook such that unintentional disengagement could occur by the connected object being able to depress the snaphook keeper and release itself.
- On suspended scaffolds or similar work platforms with horizontal lifelines which may become vertical lifelines, the devices used to connect to a horizontal lifeline will be capable of locking in both directions on the lifeline.
  - Horizontal lifelines will be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two.
  - Lanyards and vertical lifelines will have a minimum breaking strength of 5,000 pounds.
  - When vertical lifelines are used, each employee will be attached to a separate lifeline.
  - Lifelines will be protected against being cut or abraded.
  - Self-retracting lifelines and lanyards which automatically limit free fall distance to 2 feet or less will be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.
  - Self-retracting lifelines and lanyards which do not limit free fall distance to 2 feet or less, ripstitch lanyards, and tearing and deforming lanyards will be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.
  - Ropes and straps (webbing) used in lanyards, lifelines, and strength components of body belts and body harnesses will be made from synthetic fibers.
  - Anchorages used for attachment of personal fall arrest equipment will be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached, or will be designed, installed, and used as follows:
  - As part of a complete personal fall arrest system which maintains a safety factor of at least two; and
  - Under the supervision of a qualified person.
  - Personal fall arrest systems, when stopping a fall will:
  - limit maximum arresting force on an employee to 900 pounds when used with a body belt;
  - limit maximum arresting force on an employee to 1,800 pounds when used with a body harness;
  - be rigged such that an employee can neither free fall more than 6 feet, nor contact any lower level;
  - bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet; and,
  - have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet or the free fall distance permitted by the system, whichever is less.

- The attachment point of the body belt will be located in the center of the wearer's back. The attachment point of the body harness will be located in the center of the wearer's back near shoulder level, or above the wearer's head.
- Body belts, harnesses, and components will be used only for employee protection (as part of a personal fall arrest system or positioning device system) and not to hoist materials.
- Personal fall arrest systems and components subjected to impact loading will be immediately removed from service and will not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.
- Personal fall arrest systems will be inspected prior to each use for wear, damage and other deterioration, and defective components will be removed from service.
- Personal fall arrest systems will not be attached to guardrail systems, nor will they be attached to hoists.
- When a personal fall arrest system is used at hoist areas, it will be rigged to allow the movement of the employee only as far as the edge of the walking/working surface.

▪ **Warning Line Systems (3)**

- The warning line will be erected around all sides of the roof work area.
- When mechanical equipment is not being used, the warning line will be erected not less than 6 feet from the roof edge.
- When mechanical equipment is being used, the warning line will be erected not less than 6 feet from the roof edge which is parallel to the direction of mechanical equipment operation, and not less than 10 feet from the roof edge which is perpendicular to the direction of mechanical equipment operation.
- Points of access, materials handling areas, storage areas, and hoisting areas will be connected to the work area by an access path formed by two warning lines.
- When the path to a point of access is not in use, a rope, wire, chain, or other barricade, equivalent in strength and height to the warning line, will be placed across the path at the point where the path intersects the warning line erected around the work area, or the path will be offset such that a person cannot walk directly into the work area.
- Warning lines will consist of ropes, wires, or chains and supporting stanchions erected as follows:
- The rope, wire, or chain will be flagged at not more than 6-foot intervals with high-visibility material;
- The rope, wire, or chain will be rigged and supported in such a way that its lowest point (including sag) is no less than 34 inches from the walking/working surface and its highest point is no more than 39 inches from the walking/working surface;
- After being erected with the rope, wire, or chain attached, stanchions will be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the walking/working surface, perpendicular to the warning line, and in the direction of the floor, roof, or platform edge;
- The rope, wire, or chain will have a minimum tensile strength of 500 pounds and after being attached to the stanchions, will be capable of supporting, without breaking, the loads applied to the stanchions.



- The line will be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.
  - Mechanical equipment on roofs will be used or stored only in areas where employees are protected by a warning line system, guardrail system, or personal fall arrest system.
- **Controlled Access Zones (4)**
- When used to control access to areas where leading edge and other operations are taking place, the controlled access zone will be defined by a control line or by any other means that restricts access.
  - When control lines are used, they will be erected not less than 6 feet nor more than 25 feet from the unprotected or leading edge, except when erecting precast concrete members.
  - When erecting precast concrete members, the control line will be erected not less than 6 feet nor more than 60 feet or half the length of the member being erected, whichever is less, from the leading edge.
  - The control line will extend along the entire length of the unprotected or leading edge and will be approximately parallel to the unprotected or leading edge.
  - When used to control access to areas where overhand bricklaying and related work are taking place:
    - The controlled access zone will be defined by a control line erected not less than 10 feet (3.1 m) nor more than 15 feet from the working edge.
    - The control line will extend a distance sufficient for the controlled access zone to enclose all employees performing overhand bricklaying, or the related work at the working edge and will be approximately parallel to the working edge.
    - Additional control lines will be erected at each end to enclose the controlled access zone.
    - Only employees engaged in overhand bricklaying or related work will be permitted in the controlled access zone.
  - Control lines will consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions as follows:
    - Each line will be flagged or otherwise clearly marked at not more than 6-foot (1.8 m) intervals with high-visibility material.
    - Each line will be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches from the walking/working surface and its highest point is not more than 45 inches (50 inches when overhand bricklaying operations are being performed) from the walking/working surface.
    - Each line will have a minimum breaking strength of 200 pounds.
  - On floors and roofs where guardrail systems are in place, but need to be removed to allow leading edge work to take place, only that portion of the guardrail necessary to accomplish that day's work will be removed.
- **Safety Monitoring Systems (5)**
- A competent person must be designated to monitor the safety of other employees and this safety monitor must comply with the following requirements:
  - The safety monitor will be competent to recognize fall hazards;
  - The safety monitor will warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner;

- The safety monitor will be on the same walking/working surface and within visual sighting distance of the employee being monitored;
  - The safety monitor will be close enough to communicate orally with the employee; and
  - The safety monitor will not have other responsibilities which could take the monitor's attention from the monitoring function.
  - Other than an employee engaged in roofing work (on low-sloped roofs) or an employee covered by a fall protection plan, no employee will be allowed in an area where an employee is being protected by a safety monitoring system.
  - Employees working in a controlled access zone will comply promptly with fall hazard warnings from the safety monitor.
- **Covers (6)**
    - Covers will be capable of supporting, without failure, at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time.
    - Covers located in roadways and vehicular aisles will be capable of supporting, without failure, at least twice the maximum axle load of the largest vehicle expected to cross over the cover.
    - Covers will be secured when installed so as to prevent accidental displacement by the wind, equipment, or employees.
    - Covers will be color coded or they will be marked with the word "HOLE" or "COVER" to provide warning of the hazard. NOTE: This provision does not apply to cast iron manhole covers or steel grates used on streets or roadways.
  - **Safety Net Systems(7)**
    - Safety nets shall be installed as close as practicable under the walking/working surface on which employees are working, but in no case more that 30 feet below such level.
    - Safety nets will be extended outward from the outermost projection of the work surface as follows:

Vertical distance from working level to horizontal plane of the net	Minimum required horizontal distance of outer edge of net from the edge of the working surface
Up to 5 feet	8 feet
More than 5 feet up to 10 feet	10 feet
More than 10 feet	13 feet

- Safety nets shall be installed with sufficient clearance under them to prevent contact with the surface or structures below when subject to an impact force equal to the drop test.
- Except as provided in paragraph 1926.502(c)(4)(ii), safety nets and safety net installations will be drop tested at the jobsite after initial installation and before being used as a fall protection system, whenever relocated, after major repair, and at 6-month intervals if left in one place. The drop test shall consist of a 400 pound bag of sand 30 +/- 2 inches in diameter dropped into the net from the highest walking/working surface.
- Safety nets will be inspected at least once a week for wear, damage, and other deterioration. Defective components will be removed from service.

- Materials, scrap pieces, equipment, and tools will be removed as soon as possible from the safety net and at least before the next work shift.
  - The maximum size of each safety net mesh opening will not exceed 36 square inches and no longer than 6 inches on any side. The opening measured center-to-center of mesh ropes or webbing will not be longer than 6 inches. All mesh crossings will be secured to prevent enlargement of the mesh opening.
  - Each safety net will have a border rope for webbing with a minimum breaking strength of 5,000 pounds.
  - Connections between safety net panels shall be as strong as integral net components and will be spaced not more than 6 inches apart.
- **Floor Openings and Floor Holes**
    - Floor openings will be guarded by using a standard railing and toeboard.
    - Floor holes will be covered with material that is capable of supporting the maximum weight load intended.
    - Ladderways Floor Openings or Platforms
      - Ladderways will be guarded with standard railings and toeboards.
      - Platforms will be guarded with standard railings and toeboards.
    - Hatchways and Chute Floor Opening
      - Hatchways will be guarded with hinged cover and standard railings with only one exposed side. The hinged cover will be closed or side will be guarded with removable standard railings.
      - Chutes will be guarded with removable standard railings and toeboard on not more than two sides of the opening and a fixed standard railing and toeboard. All standard railings will be kept in place when the chute is not in use.
    - Skylights, Pits and Trap-Door Floor Opening
      - Skylights will be guarded with fixed standard railings on all sides.
      - Pits and trap-doors will be guarded with floor opening covers or standard railings on all exposed sides by removable standard railings.

## **Training Requirements**

The Safety Officer or his/her designated representative (competent person) will provide training for each employee to recognize the hazards of falling as listed in the following procedures:

- The nature of fall hazards in the work area;
- The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used;
- The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used;
- The role of each employee in the safety monitoring system when this system is used;
- The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs;
- The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection;
- The role of employees in fall protection plans;
- The standards contained in the OSHA subpart.

BBC Electrical Services, Inc. will verify fall protection training by preparing a written certification record. The written certification record will contain the name of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer. This record will be kept on file in the office.

When the Safety Officer or Project Manager has reason to believe that any affected employee who has already been trained does not have the understanding and skill required, the Safety Officer or his designated competent person will retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where:

- Changes in the workplace render previous training obsolete; or
- Changes in the types of fall protection systems or equipment to be used render previous training obsolete; or
- Inadequacies in an employee's knowledge and/or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill.

Project Managers will train workers in the avoidance of floor, roof, and wall opening hazards through the use of toolbox talks and daily work instructions.

Employees are required to self inspect all fall protection equipment prior to use.

## **Section 18- First Aid / CPR**

### **Purpose**

To treat minor injuries and to give basic first aid treatment to employees with more serious injuries until medical assistance arrives or while the employee is transported to a medical facility.

### **Scope**

All Superintendents will be certified in first aid and CPR so that at least one first aid trained person is at the jobsite at all times. BBC Electrical Services, Inc. shall have provisions prior to commencement of a project, for prompt medical attention in case of serious injuries.

### **Definitions**

First Aid - Emergency treatment administered to an injured or sick person before professional medical care is available.

### **Responsibilities**

A first aid kit will be provided for each jobsite in the gang box or company vehicles. First aid kits shall consist of appropriate items and stored in a weather proof container with individual sealed packages of each type of item per ANSI. The site supervisor is responsible to ensure that the kit is checked before being sent out on each job and at least weekly on each job to ensure that the expended items are replaced.

Only trained first aid personnel shall administer first aid at the jobsite.

BBC Electrical Services, Inc. will maintain an ANSI (Z 308.1 - 1978) approved first aid kit.

The Safety Representative is responsible for ensuring that his/her organization's on-site first aid kit is properly stocked, easily accessible, and maintained in accordance with ANSI (Z 308.1 - 1978). This first aid kit will also contain equipment and materials to be compliant with 29 CFR 1910.1030 - Bloodborne Pathogens, including mouth-to-mouth resuscitation devices, powdered bleach, and latex disposable gloves.

In the absence of a clinic or doctor that is reasonably accessible in terms of time and distance (response time should not exceed 4 minutes), at least 1 person from the organization will be trained and certified (by either the American Red Cross or the National Safety Council) to provide first aid and cardio pulmonary resuscitation (CPR). Where required, BBC Electrical Services will provide more than 1 person trained in first aid/CPR.

### **Procedures**

Basic Rules of First Aid:

The first rule is that if you do not know how to give it, do not try to. You may do more harm than good. It's important to know not only what to do, but also what **NOT** to do.

If required, administer the following life saving procedures:

- Open the airway.
- Look, listen, and feel for breathing.
- Check the pulse.
- Stop the bleeding and protect the wound.
- Treat for shock.

Do not move the injured person unless you know that moving him will not worsen the injury.

- Keep the injured person lying down.
- Do not give liquids to the unconscious.

All first aid treatments will be recorded on a first aid log at the jobsite. In addition, the Supervisor will turn in a copy of his first aid log each week to the Corporate Office.

In the event of an emergency where there is an injured employee seeking medical attention beyond first aid call 911, if it is determined that the response time of the ambulance is insufficient then the site supervisor will escort the injured employee to the nearest emergency room.

During the summer months drink plenty of water (small amounts and frequently). Once heavy sweating has started, it is very difficult to drink an amount of water that is equal to the amount lost by sweating, about one quart per hour.

Eye wash will be available in the first aid kit for those employees exposed to injurious corrosive materials. An eye wash facility may be set up in the onsite job trailer.

Do **NOT** take in an excessive amount of salt.

At times of high humidity and high temperature or when returning to a hot area, pace your work until you become acclimated to existing conditions.

The site supervisor will ensure phone numbers of physicians, hospitals, and ambulances will be posted in a conspicuous place at the jobsite.

### **Training Requirements**

BBC Electrical Services, Inc. will schedule first aid and CPR training classes for employees at regular intervals during the year. Training will be provided by an authorized instructor through the American Heart Association or American Red Cross. Training will be verified through hands-on practical training and written examinations. The first aid/CPR certification will be provided every two years.

## **Section 19- Hand and Power Tools**

### **Purpose**

Describe general rules and requirements for the safe usage of hand and power tools.

### **Scope**

This section applies to all BBC Electrical Services, Inc. employees and operations, which may require the use of select hand and power tools.

### **Responsibilities**

#### Superintendent

- Ensures the safe condition and maintenance of all tools and equipment used by BBC Electrical Services, Inc. employees including those tools supplied by the employee.
- Ensure that employees are trained and knowledgeable on the safe use of tools required on the job.

#### Employees/Craftsperson

- Wear the proper clothing and PPE as indicated in the following procedures.
- Inspect tools prior to use and report any defects to the supervisor immediately.
- Do not use defective tools.
- Defective tools shall be tagged "Do Not Use" until the device can be repaired or destroyed.

### **Procedures**

#### General Requirements

- Maintain work areas free of clutter.
- Keep alert to potential hazards in the working environment such as damp locations or the presence of highly combustible materials.
- Do not surprise or distract anyone using a power tool.

#### Tool Selection

- Know the application, limitation, and potential hazards of the tool to be used.
- Select the proper tool for the job.
- Inspect the tool for any defects prior to the beginning of use.

#### Use

- Remove adjusting keys and wrenches before turning on tools.
- Do not use tools with frayed cords or loose or broken switches.
- Do not use dull/chipped/warped saw blades, drill bits, utility knife blades, etc.
- Keep hands away from saw blades, drill bits, etc.
- Never use excessive force, let the tool do the work.
- Never "hand hold" material while cutting/drilling, use a firm surface to work on and use clamps to hold the material.
- Keep guards in place and in working order. The guard may not be manipulated in such way that will compromise its integrity or compromise the protection in which intended. Guarding shall meet the requirements set forth in ANSI B15.1.
- Most hand-held electrical tools must be equipped with a "dead-man" or "quick-release" control, so that power is shut off automatically whenever the operator releases the control.

- Portable circular saws must be equipped with guards above and below the base plate or shoe. The lower guard must retract when the blade is in use, and automatically return to the guarding position when the tool is withdrawn from the work.
- All hand-held portable electrical equipment must have its frame grounded or be double-insulated and identified as such.
- Powder actuated tools may only be used by trained and authorized personnel.

#### Dress

- Dress properly to prevent loose clothing from getting caught in moving parts.
- Use protective clothing and equipment when necessary. E.g. safety glasses, fall protection, hearing protection, hand protection, respiratory, etc.
- Jewelry shall not be worn while using power tools.

### **CARE, MAINTENANCE AND TESTING OF LIVE-LINE TOOLS**

*To maintain compliance with OSHA 29 CFR 1910.269 (j) and provide proper protection for all affected personnel, the following procedure should be used for the care, maintenance and testing of live-line tools.*

#### **Testing:**

All live-line tools shall be thoroughly inspected, refinished if needed and tested on a two-year cyclical basis by the person or persons designated by the company as the live-line tool tester. Under no circumstances shall this period exceed two years.

All inspection, refinishing and testing shall be in compliance with IEEE Standard 978-1984, OSHA Regulation 29 CFR 1910.269 0), and the manufacturer's recommendations.

The tester shall maintain an inventory of live-line tools which are in service. This inventory shall include the appropriate type and number of live-line tools on that vehicle and the responsible person, if applicable. Live-line tools shall include, but not be limited to: Extend sticks, 8 ft. universal – both male and female, 6 ft., 8 ft. and 10 ft. shotguns, holding sticks (1 ½”), plier handle sticks, hot cutter sticks and special sticks. Live-line tools shall not be individually serialized nor shall they be individually documented.

The tester shall maintain an inventory of new live-line tools for replacement of defective or non-repairable tools.

The depth of procedures required for any one live-line tool shall be determined by the tester on a case-by-case basis. This can range from a simple visual inspection for approval to repair, refinish and testing for approval.

Each approval shall be effective for a period not to exceed two years. As a part of the approval process, the tester shall affix to the live-line tool an appropriate Approval Marker inscribed with the approval date and the tester's identification.

The tester shall establish a rotating area/departments schedule for live-line tool exchange which meets the OSHA two-year requirement. The next scheduled exchange area shall be notified a minimum of seven days prior to the projected tool exchange date. The local supervisor of that exchange area shall oversee the inspection of all tools for overstressing and excessive mechanical force. All tools shall also be cleaned, re-waxed and/or wiped prior to the tool exchange date.



The tester shall provide each work group with an approved replacement live-line tool inventory for use while that work group's tools are being inspected, repaired, retired, refinished and/or tested. After completion of all testing and/or replacement, the tester shall exchange all tools and proceed to the next scheduled workgroup.

In addition to the live-line tools inspected, repaired, refinished, retired and/or tested during the exchange process, the tester shall also receive live-line tools from other sources. These will include tools that have failed either a visual inspection by personnel or are nearing their biannual test date. Also included will be those live-line tools used by personnel who do not work out of a service center or who are in another department.

To maintain a minimum two year history of inspection, testing and replacement the tester shall maintain a written monthly live-line tool log. This log shall contain a record of each live-line tool which has been inspected, repaired, refinished, retired and tested. The log shall contain the following minimum information:

- Date received
- Received from
- Vehicle number
- Initial inspection comments
- Actions taken with date and initials
- Approval date
- Date returned

The monthly live-line tool log and the individual approval markers shall be considered the record of compliance for OSHA 29 CFR 1910.0. The Safety and Environmental Services Department shall act as the central record keeper for OSHA compliance. A copy of the monthly live-line tool log shall be sent to Safety and Environmental Services by the 15<sup>th</sup> of the following month. The original log shall be retained by the tester.

### **Care and Maintenance:**

All live-line tools should exhibit a smooth, glossy surface.

Live-line tools shall be visually inspected before each use. Tools that show evidence of being overstressed (damaged, bent, cracked or worn) shall be removed from service for immediate repair or replacement. Mechanical loading is indicated by elongated or deformed rivet ends. Live-line tools that indicate mechanical loading shall also be removed from service for repair or replacement. The date of approval shall be noted. Should that date be nearing the two-year anniversary date, the live-line tool shall be removed from service and shipped to the tester.

The surface of each tool should be inspected for contamination before and after each use. If any foreign material, grease, dirt or creosote is present, the tool surface shall be cleaned according to the manufacturer's recommendations.

Should the insulating parts of a tool show an accumulation of contamination, surface blisters, excessive abrasion, nicks or deep scratches the tool shall be removed from service and cleaned. Should cleaning not produce a smooth, glossy surface the tools shall be shipped to the tester.

Live-line tools should be wiped with a clean, absorbent paper towel or cloth before each use. After the initial wiping the tool shall be wiped with a silicone-treated cloth. Should this wiping not remove surface contaminants, denatured alcohol shall be used for removal. After all contamination is removed the tool shall be wiped with a silicone-treated cloth. All cleaning agents, cloths and procedures shall meet the manufacturer's recommendations.

Before a live-line tool is re-waxed, all remaining old wax shall be removed using a solvent or cleaner recommended by the manufacturer. Waxing not only provides the glossy surface but also adds to the electrical integrity of the tool by providing a barrier against contaminant penetration. Waxing should be performed when the glossy surface first begins to dull. All existing wooden live-line tools shall be removed from service and replaced.

## **Section 20- Hazard Communication (HAZCOM)**

### **Purpose**

To properly educate and protect employees from exposures to hazardous chemicals in the workplace.

### **Definitions**

Chemical - Any element, chemical compound, or mixture of elements and/or compounds.

Exposure or Exposed - An employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. "Subjected" in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

Flammable liquid - Any liquid having a flashpoint at or below 199.4°F. Flammable liquids are divided into four categories as follows:

Category 1 shall include liquids having flashpoints below 73.4°F and having a boiling point at or below 95°F.

Category 2 shall include liquids having flashpoints below 73.4°F and having a boiling point above 95°F.

Category 3 shall include liquids having flashpoints at or above 73.4°F and at or below 140 °F. When a Category 3 liquid with a flashpoint at or above 100°F is heated for use to within 30°F of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint below 100°F.

Category 4 shall include liquids having flashpoints above 140°F and at or below 199.4°F. When a Category 4 flammable liquid is heated for use to within 30°F of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint at or above 100°F.

Flash point - The minimum temperature at which a liquid gives off vapor within a test vessel in sufficient concentration to form an ignitable mixture with air near the surface of the liquid.

Globally Harmonized System - The Globally Harmonized System (GHS) is an international approach to hazard communication, providing agreed criteria for classification of chemical hazards, and a standardized approach to label elements and safety data sheets. It is based on major existing systems around the world, including OSHA's Hazard Communication Standard and the chemical classification and labeling systems of other US agencies.

Hazard Category - The division of criteria within each hazard class, (e.g., oral acute toxicity and flammable liquids include four hazard categories). These categories compare hazard severity within a hazard class and should not be taken as a comparison of hazard categories more generally.

Hazard Class - The nature of the physical or health hazards, (e.g., flammable solid, carcinogen, oral acute toxicity).

Hazard Not Otherwise Classified (HNOC) - An adverse physical or health effect identified through evaluation of scientific evidence during the classification process that does not meet the specified criteria for the physical and health hazard classes addressed in this section.

This does not extend coverage to adverse physical and health effects for which there is a hazard class addressed in this section, but the effect either falls below the cut-off value/concentration limit of the hazard class or is under a GHS hazard category that has not been adopted by OSHA (e.g., acute toxicity Category 5).

**Hazard Statement** - A statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

**Hazardous Chemical** - Any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.

**Health Hazard** - A chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard. The criteria for determining whether a chemical is classified as a health hazard are detailed in 29CFR Appendix A to §1910.1200—Health Hazard Criteria.

**Immediate Use** - The hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

**Label** - An appropriate group of written, printed or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging.

**Label Elements** - The specified pictogram, hazard statement, signal word and precautionary statement for each hazard class and category.

**Mixture** - A combination or a solution composed of two or more substances in which they do not react.

**Physical Hazard** - A chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas.

**Pictogram** - A composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category.

**Precautionary Statement** - A phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.

**Product Identifier** - The name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical. The product identifier used shall permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

Safety Data Sheet (SDS) - A written or printed material concerning a hazardous chemical that is prepared in accordance with paragraph (g) of this section.

Signal Word - A word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are "DANGER" and "WARNING." "Danger" is used for the more severe hazards, while "warning" is used for the less severe.

Substance - Chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

Work Area - A room or defined space in a workplace where hazardous chemicals are produced or used and where employees are present.

Workplace - An establishment, jobsite, or project, at one geographical location containing one or more work areas.

### **Responsibilities**

The Safety Officer, Facilities Manager, Shop Foreman and/or Project Manager must label all containers of hazardous materials located at the workplace, not previously labeled by the manufacturer.

The Safety Officer will maintain SDS binders at the main office, as well as administering the HAZCOM written program and training.

The Project Managers will be responsible for ensuring that labeling practices are observed and complied with per the HAZCOM program requirements in the workplace as materials arrive (new and used).

### **Procedures**










All BBC Electrical Services, Inc. employees will be aware of the potentially hazardous materials used on the premises. These materials will be identified with warning labels and SDSs will be kept for each.

This program includes guidelines on identification of chemical hazards and the preparation and proper use of container labels, placards and other types of warning devices. To understand the potential dangers of chemicals, employees will follow these HAZCOM written program guidelines:

- Chemical Inventory
  - BBC Electrical Services, Inc. maintains an inventory of all known chemicals in use on the worksite. A chemical inventory list is available from the Safety Officer.
  - Hazardous chemicals brought onto the worksite will be included on the hazardous chemical inventory list.
- Container Labeling
  - All chemicals on site will be stored in their original or approved containers with a proper label attached, except small quantities for immediate use. A proper label is one that contains the material's Health rating, Flammability rating, Reactivity rating, special precaution indicator, and Chemical Identity (i.e. NFPA label or

HMIS label). Any containers not properly labeled should be given to the Safety Officer for proper handling.

- Workers may dispense chemicals from original containers only in small quantities intended for immediate use. Any chemical left after work is completed must be returned to the original container or the Safety Officer for proper handling.
- All secondary containers must have the appropriate warning label.
- BBC Electrical Services, Inc. will rely on manufacturer applied labels whenever possible, and will ensure that these labels are maintained. Containers that are not labeled, or from which the manufacturer's label has been removed, will be relabeled by the Safety Officer or Project Manager.
- BBC Electrical Services, Inc. will ensure that each container is labeled to identify any hazardous chemicals inside and any appropriate hazard warnings.
- As of June 1, 2015, OSHA's hazard communication standard will require pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

<b>Health Hazard</b>  <ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Mutagenicity</li> <li>• Reproductive Toxicity</li> <li>• Respiratory Sensitizer</li> <li>• Target Organ Toxicity</li> <li>• Aspiration Toxicity</li> </ul>	<b>Flame</b>  <ul style="list-style-type: none"> <li>• Flammables</li> <li>• Pyrophorics</li> <li>• Self-Heating</li> <li>• Emits Flammable Gas</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>	<b>Exclamation Mark</b>  <ul style="list-style-type: none"> <li>• Irritant (skin and eye)</li> <li>• Skin Sensitizer</li> <li>• Acute Toxicity (harmful)</li> <li>• Narcotic Effects</li> <li>• Respiratory Tract Irritant</li> <li>• Hazardous to Ozone Layer (Non Mandatory)</li> </ul>
<b>Gas Cylinder</b>  <ul style="list-style-type: none"> <li>• Gases under Pressure</li> </ul>	<b>Corrosion</b>  <ul style="list-style-type: none"> <li>• Skin Corrosion/ burns</li> <li>• Eye Damage</li> <li>• Corrosive to Metals</li> </ul>	<b>Exploding Bomb</b>  <ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>
<b>Flame over Circle</b>  <ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	<b>Environment *(Non Mandatory)</b>  <ul style="list-style-type: none"> <li>• Aquatic Toxicity</li> </ul>	<b>Skull and Crossbones</b>  <ul style="list-style-type: none"> <li>• Acute Toxicity (fatal or toxic)</li> </ul>

#### ▪ Safety Data Sheets (SDS)

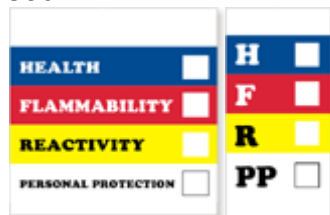
- Employees working with a hazardous chemical may request a copy of the safety data sheet (SDS). Requests for an SDS should be made to the Safety Officer. SDSs will be made available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director in accordance with the requirements of 29 CFR 1910.1020(e).
- SDSs should be available, and standard chemical reference may also be available, on the site to provide immediate reference to chemical safety information. SDSs are required for each hazardous chemical used.

- By Dec. 1, 2015 chemical manufacturers and distributors will provide safety data sheets which meet the 16-section standardized format. These sections will include:

<b>Section 1</b>	Identification
<b>Section 2</b>	Hazard(s) Identification
<b>Section 3</b>	Composition/information on ingredients
<b>Section 4</b>	Fire aid measures
<b>Section 5</b>	Fire-fighting measures
<b>Section 6</b>	Accidental release measures
<b>Section 7</b>	Handling and storage
<b>Section 8</b>	Exposure controls/personal protection
<b>Section 9</b>	Physical and chemical properties
<b>Section 10</b>	Stability and reactivity
<b>Section 11</b>	Toxicological information
<b>Section 12</b>	Ecological information
<b>Section 13</b>	Disposal considerations
<b>Section 14</b>	Transport information
<b>Section 15</b>	Regulatory information
<b>Section 16</b>	Other information, including date of preparation or last revision

- Employee Training
  - Employees will be trained upon initial assignment and annually thereafter, to work safely with hazardous chemicals. Employee training will include:
    - Methods that may be used to detect a release of hazardous chemicals in the work place
    - Physical and health hazards associated with chemicals
    - Protective measures to be taken
    - Safe work practices, emergency responses and use of personal protective equipment
    - Information on the Hazard Communication Standard including:
      - Labeling and warning systems
      - An explanation of Safety Data Sheets
      - Personal Protective Equipment (PPE)
    - The Project Manager will supply the required PPE. Any employee found in violation of PPE requirements may be subject to disciplinary actions up to and including discharge.
- Emergency Response
  - Employees must report any incident of over exposure or spill of a hazardous chemical/substance to the Project Manager at once.
  - The Project Manager will ensure that proper emergency response actions are taken in leak/spill situations.
- Hazards of Non-Routine Tasks
  - The Project Manager will inform employees of any special tasks that may arise which would involve possible exposure to hazardous chemicals.
  - The Project Manager will review safe work procedures and use of required PPE prior to the start of non-routine tasks. Where necessary, areas will be posted to indicate the nature of the hazard involved.

- Informing Other Employers
  - Other on-site employers are required to adhere to the provisions of the Hazard Communication Standard.
  - Information on hazardous chemicals known to be present will be exchanged with other employers. Employers will be responsible for providing necessary information to their employees.
  - A copy of the HAZCOM program, including SDSs will be present on each jobsite.
  - BBC Electrical Services, Inc.'s written hazard communication program will be readily accessible to other on-site employers.
  - All employee currently speak English, appropriate signage will be used if non-English speaking employees are present.
- Examples of labels that may be used.





## **Section 21- Hearing Conservation Program**

### **Purpose**

To provide a hearing conservation/protection program for all BBC Electrical Services, Inc. employees.

### **Definitions**

Decibels (dB)- This symbol is used for expressing the relative intensity of sounds. Zero (0) represents the average least perceptible sound to approximately 130 for the average pain threshold.

Time Weighted Average (TWA) - Averaged dB over 1 hour time period through the usage of a noise dosimeter.

### **Procedures**

Audiometer testing by a licensed or certified audiologist, will be offered at least annually to all employees exposed to greater than 85 decibels on a (8) hour time weighted average (TWA). All test results will be made available to each effected employee.

Areas where daily noise exposures are likely to exceed the 85 decibels (TWA) will be posted with hearing protection required signs. When information indicates that employee exposure may equal/exceed the 8 hr time-weighted avg. of 85 decibels, BBC Electrical Services, Inc. will implement a monitoring program to identify employees to be included in the hearing conservation program.

The safety officer will administer the Hearing Conservation Policy.

### **Hearing Protection Required**

- Hearing protection required signs are to be posted at the entrance and throughout all areas that have been determined as capable of exposing employees to noise levels in excess of 85 decibels over an 8 hour time weighted average (TWA).
- Once a hearing protection required area has been established, all employees working or entering the area will be required to wear the appropriate hearing protection. Hearing protection will be provided at no cost to the employee.

### **Types of Hearing Protection**

- Suitable ear plugs, muffs, etc. will be readily available for employee usage. The Foreman will review the types of hearing protection that will be made available for all effected employees.
- BBC Electrical Services, Inc. will evaluate hearing protection for the specific noise environments in which the protector will be used.
- In all cases where the sound levels exceed the TWA values shown below, a continuing effective Hearing Conservation Program (HCP) shall be administered.

<b>Sound Pressure Level</b>	<b>Time Weighted Average (TWA)</b>	<b>Source or Effect of Noise</b>
114-139	< = 1 Hour	Power actuated tools (such as those for setting fasteners into concrete).
114-118	< = 1 Hour	Hard rock drilling or usage of a jack hammer.
105-125	< = 1 Hour	Riveting tools used on metal plates.
98-100	2 Hours	Heavy truck cab.
95-105	1 Hour - 4 Hours	Crawler tractor.
95-102	1 Hour - 4 Hours	Front-end loaders.
90-120	< = 1 Hour - 8 Hours	Earth moving equipment.
90-115	< = 1 Hour - 8 Hours	Power shovel cab.
87-89	8 Hours	Diesel air compressor.
85-98	2 hours - 8 Hours	Graders.
65-105	1 Hour - 8 Hours	Welding equipment.

The HCP includes a baseline audiogram within six months of first exposure, which tests the current level of hearing for a particular employee. This baseline audiogram (which is quantifiable data) becomes a part of the employee's medical records. Testing to establish audiogram shall be proceeded by at least fourteen hours without exposure to workplace noise.

The HCP also includes annual audiograms to determine if a loss of hearing has occurred for those exposed, an audiometric testing program, employee notification, hearing protection requirements, training on the effects of noise to an employee's hearing and the use of Personal Protective Equipment (PPE).

Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the employee shall be informed of this fact in writing, within 21 days of the determination.

If a standard threshold shift occurs the use of hearing protection shall be re-evaluated and refitted and if necessary a medical evaluation may be required.

### **Training Requirements**

A training program shall be established for all employees who are exposed to noise at or above an 8-hour time-weighted average of 85 decibels.

The training program shall be repeated annually for each employee included in the hearing conservation program. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.

Each employee shall be informed of the following:

- The effects of noise on hearing;
- The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and
- The purpose and results of audiometric testing, and an explanation of the test procedures.

BBC Electrical Services, Inc. will evaluate hearing protection for the specific noise environments in which the protector will be used.

### **Record Keeping**

Records are maintained according to the regulation.

BBC Electrical Services, Inc. will maintain an accurate record of all employee exposure measurements.

## **Section 22- Hexavalent Chromium**

### **Purpose**

Describe procedures and requirements to comply with chromium (VI) requirements in 1910.1026.

### **Scope**

This section applies to all BBC Electrical Services, Inc. employees who may be exposed to chromium (VI).

### **Responsibilities**

#### Superintendent

- Ensures employees adhere to safe work practices when exposed to chromium (VI).
- Ensure that employees are trained and knowledgeable on the hazards and safe work practices when exposed to chromium (VI).

#### Employees

- Wear the proper clothing and PPE as indicated in the following procedures.
- Follow safe work practices to prevent exposure to chromium (VI).

### **Procedures**

#### General Requirements

BBC Electrical Services will ensure that no employee is exposed to an airborne concentration of chromium (VI) in excess of 5 micrograms per cubic meter of air ( $5 \mu\text{g}/\text{m}^3$ ) (PEL), calculated as an 8-hour time-weighted average (TWA).

Representative sampling will be performed to determine the 8-hour TWA exposure. The employee(s) expected to have the highest chromium (VI) exposures will be monitored. If monitoring reveals employee exposures to be at or above the action level, periodic monitoring at least every six months will be performed. If monitoring reveals employee exposures to be above the PEL, periodic monitoring at least every three months will be performed. Air monitoring will be performed at the beginning of each job task that may expose employees to chromium (VI). Whenever the exposure determination indicates that employee exposure is above the PEL, written notification of the corrective action being taken to reduce employee exposure to or below the PEL will be provided.

### **Regulated Areas**

Regulated areas will be established wherever an employee's exposure to airborne concentrations of chromium (VI) is, or can reasonably be expected to be, in excess of the PEL. The regulated areas will be demarcated from the rest of the workplace in a manner that adequately establishes and alerts employees of the boundaries of the regulated area. This will include the use of warning signs to alert employees of the hazard. Access to the regulated areas will be limited to authorized persons required by work duties to be present.

### **Engineering and Work Practice Controls**

If the exposure level is above the permissible limit for more than 30 days per year engineering and work practice controls will be implemented to reduce and maintain employee exposure to chromium (VI) to or below the PEL unless such controls are not feasible.

Where BBC Electrical Services can demonstrate that a process or task does not result in any employee exposure to chromium (VI) above the PEL for 30 or more days per year (12 consecutive months), the requirement to implement engineering and work practice controls to achieve the PEL does not apply to that process or task.

### **Respiratory Protection**

Respiratory protection is required during the following conditions:

- Periods necessary to install or implement feasible engineering and work practice controls;
- Work operations, such as maintenance and repair activities, for which engineering and work practice controls are not feasible;
- Work operations for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL;
- Work operations where employees are exposed above the PEL for fewer than 30 days per year, and the employer has elected not to implement engineering and work practice controls to achieve the PEL;
- Emergencies.

### **Other Types of Personal Protective Equipment**

Where a hazard is present or is likely to be present from skin or eye contact with chromium (VI), appropriate PPE and personal protective clothing will be provided at no cost to employees. Management and Superintendents will ensure that employees use the protective clothing and equipment.

### **Housekeeping**

Management and Superintendents will ensure that all surfaces are maintained as free as practicable of accumulations of chromium (VI) and that all spills and releases of chromium (VI) containing material are cleaned up promptly.

Methods to clean surfaces contaminated with chromium (VI) include:

- By HEPA-filter vacuuming;
- Dry shoveling, dry sweeping, and dry brushing may be used only where HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure to chromium (VI) have been tried and found not to be effective.

Management and Superintendents will not allow compressed air to be used to remove chromium (VI) from any surface unless:

- The compressed air is used in conjunction with a ventilation system designed to capture the dust cloud created by the compressed air; or
- No alternative method is feasible.

Management and Superintendents will ensure that cleaning equipment is handled in a manner that minimizes the reentry of chromium (VI) into the workplace.

### **Medical Surveillance**

Medical surveillance will be made available at no cost to the employee, and at a reasonable time and place, for all employees who are or may be:

- Occupationally exposed to chromium (VI) at or above the action level for 30 or more days a year;

- Experiencing signs or symptoms of the adverse health effects associated with chromium (VI) exposure; or
- Exposed in an emergency.

All medical examinations and procedures will be performed by or under the supervision of a PLHCP.

### **Hygiene Areas and Practices**

Where protective clothing and equipment is required, employees will be provided change rooms. Where skin contact with chromium (VI) occurs, employee will be provided with washing facilities. Eating and drinking areas will also be provided.

Change rooms will be equipped with separate storage facilities for protective clothing and equipment and for street clothes, and that these facilities prevent cross-contamination.

Washing facilities will be accessible and capable of removing chromium (VI) from the skin.

Management and Superintendents will ensure that employees who have skin contact with chromium (VI) wash their hands and faces at the end of the work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet.

If employees are allowed to consume food or beverages at a worksite where chromium (VI) is present, Management will ensure that eating and drinking areas and surfaces are maintained as free as practicable of chromium (VI). Management will also ensure that employees do not enter eating and drinking areas with protective work clothing or equipment unless surface chromium (VI) has been removed from the clothing and equipment by methods that do not disperse chromium (VI) into the air or onto an employee's body.

Management and Superintendents will ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas, or in areas where skin or eye contact with chromium (VI) occurs; or carry the products associated with these activities, or store such products in these areas.

### **Recordkeeping**

BBC Electrical Services will maintain and make available an accurate record of all employee exposure monitoring, medical surveillance and training records.

### **Training Requirements**

BBC Electrical Services will provide training for employees will potential exposure to chromium (VI). The training will ensure that employees can demonstrate knowledge of the hazards of chromium (VI), control methods and the medical surveillance program.

## **Section 23- Hydrogen Sulfide Awareness**

### **Purpose**

Hydrogen Sulfide (H<sub>2</sub>S) is one of the most deadly hazards found in the oil and gas field. The purpose of the Hydrogen Sulfide Awareness Program is to provide basic information and work practices to help field employees to recognize the presence of and protect themselves from the lethal affect of H<sub>2</sub>S.

### **Scope**

This policy applies to all BBC Electrical Services, Inc.'s employees.

### **Definitions**

N/A

### **Procedures**

#### **Sources of H<sub>2</sub>S:**

H<sub>2</sub>S is a gas which occurs in natural gas, crude oil, condensate and produced water. H<sub>2</sub>S can be found at oil and gas drilling, work over and producing locations, within pipelines or in confined spaces such as excavations, production tanks, frac tanks or mud tanks.

#### **Properties of H<sub>2</sub>S:**

PROPERTY	H <sub>2</sub> S
Color	Colorless
Odor	Odor of rotten eggs in lower concentrations
Vapor Density	1.189
Flammability	Forms explosive mixtures with air or oxygen
Explosive Limits	4.3 to 46 percent by volume in air
Ignition Temperature	500 degrees Fahrenheit
Liquid Soluble	Yes

#### **Detection Methods:**

There are several ways you can be alerted to the presence of H<sub>2</sub>s gas. Your nose is usually the first to notice the presence of H<sub>2</sub>S and, unfortunately, the most unreliable. You cannot rely on your nose to tell you how much H<sub>2</sub>S is present.

When monitoring for H<sub>2</sub>S, be prepared for lethal concentrations by wearing an approved respirator. To determine the amount of H<sub>2</sub>S present in a work area, one of the following devised can be used:

- Gas Detector Tubes – the concentration of H<sub>2</sub>s is registered by the length of discoloration when air is drawn through the detector tube.
- Monitors – personal monitors continuously monitor for H<sub>2</sub>S and warn of its presence. Indicating monitors also continuously monitor for H<sub>2</sub>S and give a read out to the H<sub>2</sub>S concentration as well as warning of its presence.
- Personal or area monitors will alarm when the PEL exceeds the preset level of 20 PPM for 1910 or 10 PPM for 1926.

Monitors will be tested before each use and calibrated as needed and on a regular basis. If an air monitoring systems alarms, employees are to vacate the area.

**Safe Work Practices:**

In a work area where H<sub>2</sub>S is suspected or known to exist:

- The buddy system should be used
- A wind sock should be prominently displayed
- Employees should be aware of the wind direction and approach the equipment from upwind
- A personal or indicating H<sub>2</sub>S monitor should be used
- Approved self-contained breathing apparatus or airline respirator with escape SCBA should be used if employees will be exposed to H<sub>2</sub>S concentrations over the OSHA PEL.
- Precautions should be taken when approaching low areas such as ditches, ravines, inside firewall, etc.
- Extreme precautions should be used when working around the vents and thief hatches of tanks containing sour crude oil, condensate and/or produced water
- Remember that H<sub>2</sub>S is liberated from a liquid as that liquid is heated or agitated
- Employees must be aware of site specific contingency/emergency plans

**Rescue and First Aid**

If personnel have gone down in a known or suspect H<sub>2</sub>S area:

- CALL FOR HELP OR BACK-UP PERSONNEL
- Put on the approved breathing air equipment before attempting rescue
- Remove the victim immediately to an upwind location with plenty of fresh air
- If trained to do so, administer rescue breathing and CPR as needed.

**Health Effects**

Hydrogen sulfide is a mucous membrane and respiratory tract irritant; pulmonary edema, which may be immediate or delayed, can occur after exposure to high concentrations.

Symptoms of acute exposure include nausea, headaches, delirium, disturbed equilibrium, tremors, convulsions, and skin and eye irritation.

Inhalation of high concentrations of hydrogen sulfide can produce extremely rapid unconsciousness and death. Exposure to the liquefied gas can cause frostbite injury.

**Acute Exposure**

Hydrogen sulfide's can cause inhibition of the cytochrome oxidase enzyme system resulting in lack of oxygen use in the cells. Anaerobic metabolism causes accumulation of lactic acid leading to an acid-base imbalance. The nervous system and cardiac tissues are particularly vulnerable to the disruption of oxidative metabolism and death is often the result of respiratory arrest. Hydrogen sulfide also irritates skin, eyes, mucous membranes, and the respiratory tract. Pulmonary effects may not be apparent for up to 72 hours after exposure.

**CNS**

CNS injury is immediate and significant after exposure to hydrogen sulfide. At high concentrations, only a few breaths can lead to immediate loss of consciousness, coma, respiratory paralysis, seizures, and death. CNS stimulation may precede CNS depression. Stimulation manifests as excitation, rapid breathing, and headache; depression manifests as impaired gait, dizziness, and coma, possibly progressing to respiratory paralysis and death.



In addition, decreased ability to smell hydrogen sulfide occurs at concentrations greater than 100 ppm.

### **Respiratory**

Inhaled hydrogen sulfide initially affects the nose and throat. Low concentrations ( $\leq 50$  ppm) can rapidly produce irritation of the nose, throat, and lower respiratory tract. Pulmonary manifestations include cough, shortness of breath, and bronchial or lung hemorrhage. Higher concentrations can provoke bronchitis and cause accumulation of fluid in the lungs, which may be immediate or delayed for up to 72 hours. Lack of oxygen may result in blue skin color.

### **Cardiovascular**

High-dose exposures may cause insufficient cardiac output, irregular heartbeat, and conduction abnormalities.

### **Renal**

Transient renal effects include blood, casts, and protein in the urine. Renal failure as a direct result of hydrogen sulfide toxicity has not been described, although it may occur secondary to cardiovascular compromise.

### **Gastrointestinal**

Symptoms may include nausea and vomiting.

### **Dermal**

Prolonged or massive exposure may cause burning, itching, redness, and painful inflammation of the skin. Exposure to the liquefied gas can cause frostbite injury.

### **Ocular**

Eye irritation may result in inflammation (i.e., keratoconjunctivitis) and clouding of the eye surface. Symptoms include blurred vision, sensitivity to light, and spasmodic blinking or involuntary closing of the eyelid.

## **Section 24- Job Hazard Analysis**

### **Purpose**

To identify potential hazards and determine how best to reduce or eliminate them. To instill in site workers a greater awareness of job hazards, the need for greater efforts to improve safety, a reduction in accidents or “near misses”, and an increase in productivity.

### **Scope**

This policy applies to every BBC Electrical Services, Inc. project.

### **Definitions**

Jobsite Specific Safety Plan – A document outlining the major phases of a project identifying potential hazards that may have the potential to cause injury or property damage if not addressed properly.

Pre-construction Job Hazard Analysis – The process of identifying hazards associated with a project before it begins. This process may include a meeting among Project Managers, Superintendents, the Safety Officer, Architects, Owner Representatives, Employees and Subcontractors.

### **Responsibilities**

The Safety Officer and Project Managers will conduct the Job Hazard Analysis before each project and when new substances, procedures or process are introduced into the workplace, with the assistance of the craftsperson and subcontractors. Hazards are classified/prioritized and addressed based on the risk associated with the task

The Safety Officer and Project Manager will include recommendations in the jobsite specific safety plan. The Safety Officer and Project Manager will share recommendations with all site personnel and follow up with periodic jobsite safety inspections.

The Safety Officer and Project Manager will analyze any unforeseen hazards that arise and will update the plan throughout the project. Employees must implement recommendations as outlined in the plan.

### **Procedures**

Set Job Hazard Analysis Priorities

- Jobs or tasks that have the highest potential for causing accidents and injuries
- Jobs or tasks that have the highest potential for causing “near misses”
- New jobs tasks
- Jobs with a change in “normal” processes and procedures
- All other jobs

Create a jobsite specific safety plan prior to the start of work, to identify and correct hazards in conditions under which the job is performed.

List job steps and identify possible hazards associated with each phase of work:

- Include each step
- Describe each step in adequate detail
- Identify any machinery or exposures that could create risk of injury
- Note procedures to follow for hazardous work (lockout/tagout, confined space entry, fall protection, etc.)

- Include hazards created while performing job - dust, chemical, heat, and noise
- Determine best way to eliminate identified hazards
- Fix clear-cut problems, such as replacing missing machine guards
- Seek ways to eliminate
- Ensure all hazards are communicated to employees and subcontractors

Identify serious hazards associated with each phase and include safe working procedures.

- Is there adequate lighting?
- Could people trip over materials on the floor?
- Are there live electrical wires?
- Are tools, machines and other equipment in good repair?
- Do machines have guards in place?
- Are noise levels high enough to interfere with communication?
- Are fire alarms and portable extinguishers readily available?
- Are emergency exits clearly marked?
- Is personal protective equipment available, in good condition, and used when necessary?
- Is the work area ventilated?
- Is there adequate protection to the public?

Share plan with employees and subcontractors in the pre-construction meeting.

Post plan in jobsite office for reference throughout the project.

Notify the Safety Officer of deviations from the plan.

Notify management of corrective and preventative actions. Preventative actions are listed on the JHA form.

Daily job hazard analysis will be conducted when required by owner.

Hazards will be classified/prioritized and addressed based on the risk associated with the task.

Corrective actions will be reviewed to ensure a new hazard is not created due to the corrective measures.

### **Training Requirements**

A Job Hazard Analysis will be conducted by trained individuals.

Jobsite Specific Safety Plans will be reviewed with subcontractors in the pre-construction meeting.

The Jobsite Specific Safety Plan will be posted at the jobsite for review and upgrading as conditions change or are identified.

This policy will be reviewed during new hire orientation and annually thereafter.

## **Section 25- Lead**

### **Purpose**

To determine and define minimum BBC Electrical Services, Inc. requirements and responsibilities for the development and implementation of a lead exposure control program designed to protect employees from occupational hazards during the performance of work activities.

### **Scope**

This section applies to all construction work where an employee may be occupationally exposed to lead.

### **Definitions**

Action Level (AL) - An employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 ug/m<sup>3</sup> averaged over an 8-hour period.

Permissible Exposure Limit (PEL) - The permissible exposure limit, or PEL, sets the maximum worker exposure to lead. No employee may be exposed to lead at airborne concentrations greater than 50 ug/m<sup>3</sup> averaged over an 8-hour period without the appropriate personal protective equipment.

Competent Person - One who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.

Lead - Metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

### **Responsibilities**

Whenever there is determined a potential for lead to be present (either the Owner provides information or we suspect possible presence of lead) the project manager and/or superintendent will require an analysis of suspect materials, i.e., structural steel, door frames, and other painted surfaces.

### **Procedures**

Notify BBC Electrical Services, Inc. Safety Representative for assistance in determining appropriate action following a lead hazard analysis.

No employee shall be exposed to lead at concentrations greater than fifty micrograms per cubic meter of air averaged over an 8-hour period. BBC Electrical Services, Inc. will continuously examine an employee's exposure to airborne lead at work.

BBC Electrical Services, Inc. will implement engineering and work practice controls to exposures above the permissible limit for more than 30 days per year.

Determine which materials that will be disturbed during demolition or renovation that may contain lead. Contact the building Owner to determine the age of the building and other important information.

Develop a written plan that identifies the suspected lead containing material to be analyzed.

Determine if lead is present on these materials by utilizing the test kits, air monitoring and follow the specific instructions in their proper use.

Document where the above testing confirms the presence of lead.

Coordinate with the BBC Electrical Services, Inc. Safety Representative the collection and lab analysis of samples of these materials containing lead. (Likely this will require the use of an Industrial Hygiene consultant). The lab results will provide information on the concentration of lead present.

A description of each operation in which lead is emitted should be outlined.

Develop a written plan which details what activities will disturb the lead containing material, i.e., welding, cutting, burning, manual demolition, corrosive blasting, etc.

Conduct an initial assessment utilizing an Industrial Hygiene consultant who will collect personal and general area samples of airborne concentrations of lead during each different activity that disturbs lead containing material (see Initial Assessment for details). During this collection period and prior to receiving the test results it is necessary to assume that the exposure is above the PEL. All appropriate personal protective equipment shall be used. This step may not be necessary if objective data exist (current to within twelve (12) months) that demonstrates the intended work to be performed will not generate airborne concentrations at or above the action level of 30 ug/m<sup>3</sup> over an eight (8) hour period.

BBC Electrical Services, Inc. does not anticipate that the type of work generally performed will create an employee exposure greater than the action level. This assumption must be verified by representative air sampling.

Performing any task noted under "Exposure Monitoring" requires that BBC Electrical Services, Inc. communicate information concerning lead hazards according to our Hazard Communication Program including requirements of warning signs and labels, SDSs and training on the hazards and means of controlling the hazards associated with lead exposure (Review 1926.62 Appendix A).

Signs should be posted in and around work areas where there is a potential for lead exposure. These sign should not be defaced or removed. All employees will abide by the signage and not disturb the asbestos containing material.

## Health Effects

Common symptoms of acute lead poisoning are loss of appetite, nausea, vomiting, stomach cramps, constipation, difficulty in sleeping, fatigue, moodiness, headache, joint or muscle aches, and anemia. Long term (chronic) overexposure to lead may result in severe damage to the blood-forming, nervous, urinary, and reproductive systems.

## Exposure Monitoring

- Until the employer performs an initial exposure assessment and documents that employees are not exposed above the PEL, the employer must treat employees performing certain operations as if they were exposed above the PEL.

This means providing respiratory protection, protective work clothing and equipment, change areas, hand washing facilities, biological monitoring, and training as required by the standard for the following tasks:

- abrasive blasting, rivet busting, or welding, cutting, or burning on any structure where lead-containing coatings or paint are present;
- abrasive blasting;
- cleanup activities where dry expendable abrasives are used;
- power tool cleaning;
- manual demolition of structures (i.e., dry wall), manual scraping, manual sanding, and use of heat gun where lead-containing coatings or paints are present;
- lead burning;
- using lead-containing mortar or spray painting with lead-containing paint; and
- any other task the employer believes may cause exposures in excess of the PEL.

If employees working immediately adjacent to a lead abatement activity are exposed to lead due to the inadequate containment of such job, BBC Electrical Services, Inc. will either remove the employees from the area until the enclosure breach is repaired or perform an initial exposure assessment.

#### Initial Assessment

An initial assessment is required when performing the above tasks in the presence of lead.

The purpose of this initial assessment is to determine if any employee may be exposed to lead at or above the action level.

While the initial assessment is conducted and before the actual employee exposure is determined, BBC Electrical Services, Inc. will provide interim protection according to the following guidelines and Table 1 for Respiratory Protection:

#### **Task:**

- |  |   |
|--|---|
| - For manual demolition of structures (i.e., dry wall) | - Heat gun applications                           |
| - Manual scraping                                      | - Power tool cleaning with dust collection system |
| - Manual sanding                                       | - Spray painting with lead paint                  |

Assume not in excess of 10 x PEL or 500 ug/m<sup>3</sup> (Refer to Table 1 for Respiratory Protection).

#### **Task:**

- |  |   |
|--|---|
| - Lead containing mortar is used                   | - Lead burning  |
| - Rivet busting                                    | - Power tool cleaning without dust collection systems |
| - Cleanup where dry, expendable abrasives are used | - Abrasive blasting enclosure movement and removal    |

Assume exposure in excess of 500 ug/m<sup>3</sup> but less than 1250 ug/m<sup>3</sup>

**Task:**

- Abrasive blasting
- Cutting and torch burning
- Welding

Assume > 2500 ug/m<sup>3</sup> (Refer to Table 1 for Respiratory Protection)

During the initial assessment the following interim protection is required:

- Appropriate respiratory protection - refer to type of task and the assumed exposure level from above listing. Then refer to Table 1 for appropriate respiratory protection.
- Appropriate personal protective clothing and equipment will be offered to employees at no cost to prevent contamination of the employee and the employee's garments such as:
  - Coveralls or similar "full body" work clothing.
  - Gloves, hats and shoes or disposable shoe coverlets.
  - Face shields, vented goggles, or other equipment.

**NOTE:** Need to provide clean protective clothing weekly (daily to employees who exposure is > 200 ug/m<sup>3</sup>).

- All protective clothing is to be removed at the completion of the work shift in designated change areas and placed in a closed container to be sent for cleaning or disposal.
- Provide separate storage facilities for protective work clothing and for street clothes to prevent cross contamination. Change rooms will be provided.
- Contaminated clothing, which is to be cleaned, shall be properly labeled and the agency to clean the clothing shall be properly notified (contact your Safety Representative for specific instructions).
- No food, beverages, tobacco products or cosmetics are allowed in areas where lead exposure is present.
- Washing facilities need to be available. Showers should be provided where feasible. Employees shall wash their hands and face prior to eating, drinking, smoking, applying cosmetics, or before leaving for the day. Lunch rooms will be provided.
- BBC Electrical Services, Inc. will make available initial medical surveillance to all employees occupationally exposed on any day to lead at or above the action level. This medical surveillance consists of blood sampling and analysis for lead and zinc protoporphyrin levels.
- While conducting the initial assessment every effort shall be made to limit the duration of work activity by any employee to one day or less.

Exceptions to requiring initial assessment testing:

- If there is lead exposure monitoring data obtained within the past 12 months during work operations conducted under workplace conditions closely resembling the process, types of material, control methods, work practices, and environmental conditions used and prevailing in the current operations the Safety Representative will determine if this data will satisfy the initial assessment testing requirements.
- If BBC Electrical Services, Inc. has objective data, demonstrating that a particular product or material containing lead or a specific process, operation or activity involving lead cannot result in employee exposure at or above the action level during processing, use or handling, BBC Electrical Services, Inc. may rely upon such data instead of implementing initial monitoring. Consult with the Safety Director regarding the use of objective data.

What to do when the initial assessment results are determined:

- Negative Initial Determination - If the initial assessment indicates no employees are exposed to airborne concentrations of lead at or above the action level then a written record of such determination will be made to include: date of determination, location within the worksite, and name and social security number of each employee monitored. Results will be shared, in writing with each affected employee.
- All control measures utilized during the initial assessment such as ventilation/housekeeping, and removal procedures must be maintained for the duration of the project even if the project results are less than the action level.
- A competent person will need to be aware of changes in the environment or work activity that may warrant further analysis.

**NOTE:** Further exposure determination need not be repeated unless there is:

- Change of equipment
  - Change of process
  - Change of control
  - Change of personnel
  - A new task
- Within 5 working days after the completion of the exposure assessment, BBC Electrical Services, Inc. will notify each employee in writing of the results which represent that employee's exposure.
  - Positive Initial Monitoring - If the air monitoring indicates any employee exposure at or above the action level, BBC Electrical Services, Inc. will conduct monitoring which is representative of the exposure for each employee in the workplace who is exposed to lead. Results and corrective actions will be shared with each affected employee, in writing within 15 working days.
  - If the initial determination reveals employee exposure at or above the action level but below the PEL, BBC Electrical Services, Inc. will perform monitoring at least every 6 months until at least 2 consecutive measurements taken at least 7 days apart, are below the action level, at which time monitoring may be discontinued.



- If the initial determination reveals exposure above the PEL, the company will perform monitoring quarterly until at least 2 consecutive measurements taken 7 days apart, are below the PEL. If the tests remain at or above the action level then monitoring will be on a 6 month basis. If these tests are below the action level then monitoring may be discontinued. The Safety Director will make the decision on this issue.

## Lead exposure exceeding the PEL

### Compliance Program

Prior to each job where employee exposure exceeds the PEL, the employer must establish and implement a written compliance program to reduce employee exposure to the PEL or below. The compliance program must provide for frequent and regular inspections of job sites, materials, and equipment by a competent person. Written programs must be revised and updated at least every six months.

### Engineering, Work Practice, and Administrative Controls

- The lead in construction standard requires employers to use - when feasible - engineering, work practice, and administrative controls to reduce and maintain employee lead exposure to or below the PEL. When all feasible controls have been instituted but are not sufficient to reduce employee exposure to or below the PEL, they must be used to reduce exposure to the lowest feasible level and supplemented by respirators.
- Engineering controls reduce employee exposure in the workplace either by removing or isolating the hazard or isolating the worker from exposure through the use of technology. Under the lead in construction standard, mechanical ventilation may be used to control lead exposure. If used, the employer must evaluate, as necessary, the mechanical performance of the system in controlling exposure to maintain its effectiveness.
- Work Practice controls reduce the likelihood of exposure by altering the manner in which a task is performed. Safe work practices under the lead in construction standard include but are not limited to maintaining separate hygiene facilities (i.e., change rooms, showers, hand washing facilities, and lunch areas) and requiring proper housekeeping practices (i.e., cleanup methods).

### Respirators

The employer must provide respiratory protection and must ensure its use when:

- employee exposure to lead exceeds the PEL;
- engineering and work practice controls are not sufficient to reduce exposure levels to or below the PEL; or
- an employee requests a respirator.
- emergencies, time period to install/implement engineering/work practice controls

An appropriate respirator, which has been approved by the Mine Safety and Health Administration (MSHA) and NIOSH must be selected to protect against lead dust, fumes, and mists. An employee may choose this type of respirator at no extra cost to the employee.

Any BBC Electrical Services, Inc. employee required to wear a respirator will be evaluated and trained under the Respiratory Protection Program of our Safety Program.

All required PPE will be provided at no cost to the employee. Protective clothing shall be cleaned, laundered, properly disposed and repair or replaced as necessary.

### Medical Surveillance

BBC Electrical Services, Inc. is required to make available medical exams, at no cost, to employees exposed at or above the action level for more than thirty (30) days per year. The blood sampling and monitoring should be conducted every 6 months until two consecutive blood samples and analysis are acceptable. The sampling and monitoring should be performed at least monthly during the removal period. The medical surveillance program must be performed by or under the supervision of a licensed physician as follows:

- at least annually for each employee whose blood lead level within the past twelve (12) months was at or above 40 ug/dl;
- when the employee has developed signs or symptoms commonly associated with lead intoxication;
- when the employee is pregnant; and
- when medically appropriate for employees removed from lead exposure due to a sustained health risk or following a final medical determination.

Medical exams must include the following information:

- detailed work and medical histories, with particular attention to past lead exposure (occupational and non-occupational), personal habits (smoking and hygiene), and past gastrointestinal, hematologic, renal, cardiovascular, reproductive, and neurological problems;
- a thorough physical exam, with particular attention to gums, teeth, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems; evaluation of lung function if respirators are used;
- a blood pressure measurement; a blood sample and analysis to determine blood lead level, hemoglobin and hematocrit determinations, red cell indices, exam of peripheral smear morphology, zinc protoporphyrin, blood urea nitrogen, and serum creatinine;
- a routine urinalysis with microscopic exam; and
- any lab or other test the examining physician deems necessary.

### Medical Removal Protection

BBC Electrical Services, Inc. must remove employees with lead exposure at or above the action level each time:

- a periodic and follow-up blood sampling test indicates a blood lead level at or above 50 ug/dl; or
- a final medical determination indicates a detected medical condition that increases health risks from lead exposure.
- employees should be notified in writing within five days when lead levels are not acceptable.

## Training Requirements

BBC Electrical Services, Inc. must inform employees about lead hazards according to the requirement of OSHA's Hazard Communication standard for the construction industry, 29 CFR 1926.59, including, but not limited to, the requirements for warning signs and labels, safety data sheets (SDSs), and employee information and training.

It is BBC Electrical Services, Inc.'s policy to provide a training program and ensure participation by all employees subject to exposure to lead or lead compounds at or above the action level on any day. Initial training must be provided prior to initial job assignment. Training must be repeated at least annually and must include the following:

- the content of the standard and its appendices;
- the specific nature of operations that could lead to lead exposure above the action level;
- the purpose, proper selection, fit, use, and limitations of respirators;
- the purpose and a description of the medical surveillance program, and the medical removal protection program;
- the engineering and work practice controls associated with employees' job assignments;
- the contents of the compliance plan in effect;
- instructions to employees that chelating agents must not be used routinely to remove lead from their bodies and when necessary only under medical supervision; and
- the right to access records under "Access to Employee Exposure and Medical Records," 29 CFR 1910.20 and 29 CFR 1926.62.

This training will be documented and provided in the job file and the employee's personnel file.

All materials relating to the training program and a copy of the standard must be made readily available to all employees.

BBC Electrical Services, Inc. shall provide for the cleaning, laundering, or disposal of protective clothing and equipment.

Refer to Table 1 on the following page for Respiratory Protection from Lead Aerosols.

Table 1 - Respiratory Protection for Lead Aerosols

<b>Airborne concentration of lead or condition of use</b>	<b>Required respirator<sup>1</sup></b>
Not in excess of 0.5mg/m <sup>3</sup> . (10 x PEL)	Half mask air purifying respirator with high efficiency filters. <sup>2,3</sup>
	Half mask supplied air respirator operated in demand (negative pressure) mode.
Not in excess of 1250 mg/m <sup>3</sup> . (50 x PEL)	Loose fitting hood or helmet powered air purifying respirator with high efficiency filters. <sup>3</sup>

	Hood or helmet supplied air respirator operated in a continuous-flow mode - e.g., type CE abrasive blasting respirators operated in a continuous-flow mode.
Not in excess of 2,500 g/m <sup>3</sup> .	Full facepiece air purifying respirator with high efficiency filters. <sup>3</sup>
	Tight fitting powered air purifying respirator with high efficiency filters. <sup>3</sup>
	Full facepiece supplied air respirator operated in demand mode.
	Half mask supplied air respirator operated in a continuous-flow mode.
	Full facepiece self-contained breathing apparatus (SCBA) operated in demand mode.
Not in excess of 50,000 g/m <sup>3</sup> .	Half mask supplied air respirator operate in pressure demand or other positive-pressure mode.
Not in excess of 100,000 g/m <sup>3</sup> .	Full facepiece supplied air respirator operated in pressure demand or other positive-pressure mode - e.g., type CE abrasive blasting respirators operated in a positive-pressure mode.
Greater than 100,000 g/m <sup>3</sup> unknown concentration, or fire fighting	Full facepiece SCBA operated in pressure demand or other positive-pressure mode.
<sup>1</sup> Respirators specified for higher concentration can be used at lower concentrations of lead. <sup>2</sup> Full facepiece is required if the lead aerosols cause eye or skin irritation at the use concentrations. <sup>3</sup> A high efficiency particulate filter (HEPA) means a filter that is 99.97 percent efficient against particles of 0.3 micron size or larger.	

## **Section 26- Lockout Tagout**

### **Purpose**

To prevent the activation of equipment when it is installed, repaired or being adjusted and to control hazardous energy sources by means of lockout/tagout procedures.

### **Scope**

Valves, switches and other mechanical or electrical equipment must be properly locked and tagged out of service to prevent the system from operating while installation, maintenance or repair work is in progress.

### **Definitions**

Affected Employee - An employee 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. The affected employee is not trained or authorized to lockout equipment.

Authorized Employee - A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing, servicing, or maintenance covered under this section.

Energy Isolating Device - A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: a manually operated electrical circuit breaker, a disconnect switch, a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy.

Energy Source - Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Lockout - The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device - A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds. Only locks supplied by BBC Electrical Services, Inc. are to be used for program compliance.

Servicing and/or Maintenance - Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. The activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

Tagout - The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout Device - A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

## **Responsibilities**

The Safety Representative, Project Manager, or Superintendents shall survey field operations to determine if workers are required to perform tasks that may expose them to hazards associated with energized equipment.

The Safety Representative will establish an energy control and training program that includes written procedures for the control of potentially hazardous energy when craftpersons are engaged in maintenance and/or servicing activities.

The employer must ensure that before any employee performs any servicing or maintenance on a machine or equipment, the machine or equipment is isolated and rendered inoperative.

The Safety Representative or Superintendents will ensure that employee training has been accomplished, written certification will show employer names and dates of training.

## **Procedures**

### **General Requirements**

The program procedures must clearly outline the scope, purpose, authorization, rules, and techniques to be used for the control of hazardous energy, and the methods of compliance including:

- A specific statement of the intended use of the procedures.
- Steps for shutting down, isolating, blocking, and securing machines or equipment to control hazardous energy.
- Steps for the placement, removal, and transfer of lockout or tagout devices and the responsibility for them.
- Requirements for testing a machine or equipment to determine and verify the effectiveness of lockout/tagout devices, and other energy control measures.

The energy control program also must include procedures for conducting periodic inspections of the program (at least annually), to ensure that it meets the standard's requirements.

Locks and tags supplied by BBC Electrical Services, Inc. are not to be used for any other purpose than program compliance.

All equipment shall be locked out or tagged out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy isolating device when it is locked or tagged out.

Failure to follow all appropriate lockout procedures will result in disciplinary action.

## **Lockout/Tagout Equipment Specifications:**

- Equipment shall be provided by BBC Electrical Services, Inc. or the owner on which site craftpersons work.
- Lockout and tagout devices shall be singularly identified.
- Lockout and tagout devices shall not be used for any other purpose.
- (Durable) Lockout and tagout devices shall be capable of withstanding the environment to which they are exposed for the maximum amount of time that exposure is expected.
- (Standardized) Lockout and tagout devices shall be standardized within the facility in at least one of the following criteria: color, shape, or size. And in the case of tagout devices, print and format shall be standardized.
- (Substantial) Lockout devices shall be substantial enough to prevent removal without the use of excessive force or unusual techniques. Tagout devices including their means of attachment, shall be substantial enough to prevent inadvertent or accident removal. Tagout device attachment means shall be of a non-usable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds and having the general design and basic characteristics of being at least equivalent to a one-piece, all environment-tolerant nylon cable tie.
- (Identifiable) Lockout devices and tagout devices shall indicate the identity of the employee applying the device(s).

## ***Lockout/Tagout Procedures***

- *Application*
  - STEP 1: Preparation
    - Lockout and tagout procedures should only be carried out by "authorized employees". Before implementing the lockout/tagout procedure you must fully understand:
      - the type and magnitude of the energy to be controlled
      - the methods of controlling the hazardous energy
      - the means of controlling the hazardous energy
  - STEP 2: Notification
    - Before the application of lockout or tagout devices, notify all affected personnel. Tell workers that the energy control procedure is going to be used and the reasons why.
  - STEP 3: Shutdown
    - Shut down equipment in an orderly manner. This may simply mean to turn off the equipment. When the equipment is part of a production or manufacturing process all parts of the operation must be considered. An orderly shutdown will avoid increased hazards when the equipment is de-energized.

- STEP 4: Isolation
  - Locate all of the energy isolating devices. Operate the energy isolating devices so that the equipment is completely isolated from the energy source. When complete, all devices will be in the "safe" or "off" position.
- STEP 5: Application of Locks and Tags
  - Single-point Lockout/Tagout
    - Attach locks and/or tags to the energy isolating device so the device is held in the "safe" or "off" position. Separate locks or tags must be used for each authorized employee. Jobs requiring several employees to lockout energy sources will use multi-lock adapters or follow the multi-point lockout procedure. Tags must be securely attached to the energy isolating device so that they can not be accidentally detached during use. If you are not able to attach the tag directly to the energy isolating device, put it as close as safely possible. Place the tag in a position that will be immediately obvious to anyone attempting to operate the device.
  - Multi-point Lockout/Tagout
    - Jobs requiring multi-point lockout/tagout, where several locations or energy sources must be locked/tagged out, will require the use of a lockbox. A lock set will be used to lock out each multi-point location. The key from the lock set is then placed in a lockbox. Each authorized employee must then place their individual lock on the box.
- STEP 6: Control Stored and Residual Energy
  - Relieve, disconnect and restrain all stored or residual energy. Remember, hazardous energy can be found in springs, elevated machine members, capacitors, rotating flywheels, hydraulic systems, air, gas, steam and water pressure. This energy must be dissipated or restrained. Some common methods to restrain or dissipate stored energy are repositioning, blocking, and bleeding down systems.
- STEP 7: Verification
  - Check to be sure that all personnel are in a safe location. Verify that the equipment is properly isolated and all hazardous energy is safely controlled. Operate push buttons and other controls to verify isolation. Check circuits with electrical meters.



Inspect springs, pressure gauges, the location of moving parts and other sources of stored energy. Return operating controls to the "neutral" or "off" position after the test. Once you are absolutely sure the energy is isolated and safely controlled, proceed with the maintenance and service activities. **WARNING:** Some machinery and equipment can re-accumulate stored energy even after the system has been de-energized. If there is a possibility of stored energy building to a hazardous level, continue verification until maintenance or service is completed or until the possibility of accumulation no longer exists.

### **Extended Work Requirements**

If the job requiring lockout will last beyond one shift, special provisions must be made to ensure the integrity of the lockout. The foreman for the employees being relieved must physically show the locations of the lockout to the relieving foreman. Each new employee must then apply their lock following single or multi-point procedures.

### **Group lockout or tagout**

When servicing and/or maintenance is performed by a crew, craft, department or other group, BBC Electrical Services, Inc. shall utilize a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device.

The authorized employee should ascertain the exposure status of individual group members. Each employee shall attach a personal lockout tagout device to the group's device while he/she is working and then removes it when finished. During shift change or personnel changes, there should be specific procedures to ensure the continuity of lockout tagout procedures. Documentation should be specific.

- *Release of Energy Controls*
  - STEP 1: Inspection
    - Inspect the work area. Be sure all non-essential items such as tools, parts, and cleaning supplies have been removed. Check to be sure that all machine and equipment components are ready for operation. Be certain all affected employees have been safely positioned or removed.
  - STEP 2: Notification
    - Notify all affected employees that the lockout/tagout devices are being removed.
  - STEP 3: Remove Locks And Tags
    - Remove locks and tags. The lockout or tagout devices should only be removed by the authorized employee who applied them.

- If the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the employer, provided that specific procedures and training for such removal have been developed, documented, and incorporated into the employer's energy control program. The employer must demonstrate that the specific procedure provides equivalent safety to the removal of the device by the authorized employee who applied it.
- *Safety Testing*
  - Clear away all tools
  - Ensure all affected employees are removed from the area
  - Remove LOTO devices
  - Proceed with testing
  - De-energize and reapply control measures
  - This procedure shall be documented

### **Training Requirements**

The Safety Director shall document that all employee training is accomplished, along with written and signed certification to indicate employee names or dates of training.

Required for all BBC Electrical Services, Inc. employees and subcontractors who are authorized to apply locks when needed or are affected by an equipment lockout.

Authorized employees must be trained to recognize:

- Applicable hazardous energy sources;
- The type and magnitude of the energy present in the workplace; and
- The methods and means of necessary for energy isolation and control.

All other employees, whose work operations may be in an area where energy control procedures may be used, must be instructed about the energy control procedure. Training should emphasize that any attempts to restart or re-energize machines or equipment that are locked or tagged out is prohibited.

### **Tags**

When tagout systems are used, employees also must be trained in the limitations of tags. Training must convey the following information:

- Tags are essentially warnings affixed to energy isolating devices, and do not physically restrain energy controls as do locks.
- Only an authorized person may remove a tag that is attached to an energy isolation means. Tags must never be bypassed, ignored, or otherwise defeated.
- Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations may be in the area in order to be effective.
- Tags must be made of materials that will withstand the environmental conditions encountered in the workplace.

- Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
- Tags must be securely attached to an energy isolating devices so that they cannot be inadvertently or accidentally detached during use.

### **Retraining**

Retraining must be provided for all authorized and affected employees whenever there is a change in their job assignments; a change in machines, equipment, or processes that present a new hazard; or when there is a change in the energy control procedures.

If during an inspection an employer finds that there are deviations from or inadequacies in the employees' knowledge or use of the energy control procedures, employees must be retrained.

Retraining must reestablish employee proficiency and introduce new or revised control methods or procedures.

### **Program Inspection**

Company lockout/tagout procedures are reviewed annually, by the safety director to ensure that the procedures meet the standard's requirements. This review will be a certified inspection including the date, name of equipment, name of affected employees, and the name of the inspector shall be documented.

Company job foreman shall ensure that all appropriate lockout/tagout procedures are followed. Failure to follow appropriate lockout procedures may result in employee dismissal.

## **Section 27- Machine Guarding**

### **Purpose**

To protect employees from potential hazards from moving parts associated with machinery.

### **Scope**

This policy applies to BBC Electrical Services, Inc. employees while in the field or shop areas.

### **Responsibilities**

BBC Electrical Services, Inc. employees will leave guards in place during the operation of equipment. Employees will immediately report missing guards to the Project Manager.

Only authorized and trained BBC Electrical Services, Inc. employees will operate motorized equipment.

### **Procedures**

Control of dust exposure may be accomplished by equipping portable tools with low-volume, high-velocity exhaust systems or utilizing wind conditions to remove dust from the work area.

Any hose and hose connections used for conducting compressed air to utilization equipment must be designed for the pressure and service to which they are subjected.

## **Section 28-Material Handling**

### **Purpose**

Identify and control hazards associated with material handling operations.

### **Scope**

The section applies to all BBC Electrical Services, Inc. employees and shop operations.

### **Definitions**

Not applicable to this section

### **Responsibilities**

The basic responsibility for safe material handling practices rests with the supervisor in charge of the lifting operation.

### **Procedures**

No employee is allowed under suspended loads.

Tag lines will be used to help control loads.

Rigging equipment not in use will be removed from the work area and be properly stored.

Rigging equipment will not be loaded in excess of its safe working load. All rigging equipment will be supplied with a tag indicating the safe working load.

Defective rigging equipment will not be used. Defective rigging equipment will be tagged out of service and removed from the jobsite.

Rigging equipment will be inspected to ensure it is safe. Rigging equipment for material handling will be inspected prior to use on each shift and as necessary during its use to ensure that it is safe.

### **Wire Rope/Slings for Material, Handling Hoists, and Conveyers**

- All running rope in continuous service shall be visually inspected once every working shift. This inspection shall be performed by an operator who has been trained and qualified. The inspection should be noted and record all changes such as broken wires, severe abrasion, or damage resulting from abuse or wear. It shall include inspection of the rope at the equalizer sheaves and near both fastenings. In all cases, the operator conducting the inspection shall provide adequate lighting in order to perform the required hands on inspection.
- A quarterly detailed inspection shall be made by an experienced and qualified inspector. This inspection shall include all items listed below. An excellent time to perform a detailed inspection is after the rope has been cleaned and prepared for lubrication.
- A thorough inspection of all running ropes shall be made at least once a calendar quarter. A full written, dated and signed report of the rope condition shall be kept on file where readily available to appropriate personnel.

This inspection shall be performed by the assigned inspector and shall be designated in writing by the department foreman.

- The inspection and removal of wire rope shall transpire when any of the following conditions exists:
  - Six randomly distributed broken wires in one rope lay or three wires in one strand of one rope lay.
  - Wear of one-third the original diameter of outside individual wires.
  - Kinking, crushing, bird caging, or any other damage resulting in distortion of the rope structure.
  - Evidence of any heat damage.
  - Evidence of corrosion, either external or internal.
- Latches on hooks will be in place, eliminating the hook throat opening

Only qualified employees should be assigned to handle materials. In selecting appropriate individuals, the most useful procedure according to NIOSH is a medical history coupled with objective strength testing.

### **Training Requirements**

Superintendents shall be trained, competent and qualified persons competent in safe procedures. Field personnel will receive daily work instructions and information from tool box talks concerning safe rigging practices.

## **Section 29- Motor Vehicles**

### **Purpose**

To establish policies and procedures for all BBC Electrical Services, Inc. employees who operate company vehicles.

### **Requirements**

#### **General Driving**

- All state and local traffic laws will be obeyed. Driving too fast for conditions such as poor highway, poor visibility, icy roads, and highway congestion are the cause of the majority of accidents. Drivers should use good judgment and adjust driving according to road conditions.
- Reckless driving will not be tolerated. Defensive driving and the use of seat belts are required. Employees should take pride in the appearance of the Company vehicles they drive.
- Cell phone use prohibited while driving, do not manipulate radios or other equipment which may cause distraction, do not exceed the posted speed limit and maintain a safe distance between other vehicles.

#### **Operation of Company Vehicles**

- Company vehicles will be used only by authorized employees for authorized business reasons. Written authorization for any deviation must be obtained from the President of the Company. Employees whose driving records reflect irresponsibility and are not acceptable to our insurance carrier will not be permitted to operate Company vehicles.

#### **Condition of Company Vehicles**

- The Company and drivers share the responsibility for the maintenance of the Company vehicles. The vehicle will be fit for the purpose and maintained in safe working order. The cleanliness of the interior of each vehicle is the responsibility of its driver.

#### **Routine Inspection and Maintenance**

- The Company will establish routine inspection and maintenance schedules. The employee who is using the vehicle must check oil and vehicle condition often.

#### **Breakdowns**

- The Project Manager should be called in the event of a breakdown for instructions or authority to make any repairs. Before calling, the following information should be assembled to give to the Project Manager:
  - Date and time of breakdown
  - The vehicle location and your location
  - Type of problem
  - Vehicle unit number

#### **Vehicle Modifications**

- Vehicles will not be modified in any form, except by the Maintenance Department. Examples include tampering with the governors, tachometer, or any other operating components of the vehicle, drilling holes, removing radios, installing heavy gear shift extensions or knobs, or affixing bumper stickers or license plates.

### Vehicle Abuse

- Employees are responsible for any Company vehicle they use. The employee will be liable for repairs or replacement of any damage caused by abuse, including ruining tires by running flat, side wall damage by hitting curbs, running low on oil, etc.

### Vehicle Accidents

- BBC Electrical Services, Inc. is required by our insurance carrier to do a “first report of accident” within 24 hours of any motor vehicle accident involving a BBC Electrical Services, Inc. vehicle.
  - If the accident involves a BBC Electrical Services, Inc. vehicle, the Vehicle Accident Report Form—which should be in the glove compartment of every BBC Electrical Services, Inc. vehicle—is to be used.
  - The insurance information should be offered to the other party or parties and the accident report form completed. This information should also be provided to any responding law enforcement officers.
  - A police report shall be obtained whenever an accident involving a BBC Electrical Services, Inc. vehicle occurs. If the owner of a vehicle that is damaged in an accident is not present and cannot be located, notification shall be left on the other vehicle with clear information as to the time and date of the accident and the name, address, and phone number of BBC Electrical Services, Inc. and the BBC Electrical Services, Inc. vehicle involved. A police officer shall also be requested to come to the accident location to make a traffic report.
  - If medical treatment is required as a result of the accident, an Employer Investigation of Accident Report Form must be completed as with any other work-related injury.

### Passengers

- Employees will not allow anyone, other than employees of the Company who are on duty, to ride in any Company vehicle, except by written authorization of an officer of the Company. Under no circumstances will others be allowed to drive a Company vehicle.

### Driver's License

- Every individual whose duties require them to operate a vehicle on Company business will have in his/her possession a valid driver's license. A photocopy of the employee's current driver's license must be furnished to the Safety Officer. The employee is responsible for any fines incurred as a result of driving and the individual will pay parking violations.

### Insurance

- The Company expects you to carry your own personal liability and physical damage insurance for your own vehicle and any other vehicle you drive per Indiana Bureau of Motor Vehicle regulations.

### Miscellaneous

- Driving while under the influence of alcohol or any drugs is prohibited.
- No alcoholic beverages or liquors will be transported in a company vehicle.
- Keys will always be removed and vehicle will be locked when not in use. An extra set of keys will be kept at the office.



- Employees are recommended to keep their vehicles locked while in the parking lot. The Company assumes no responsibility for any damage to, or theft of, any vehicle or personal property on Company property.
- No employee will be required to operate a vehicle that is mechanically unsafe.
- Employees will report all unsafe vehicles to Project Manager.
- Loads shall be secure and shall not exceed the manufacturer's specifications and legal limits for the vehicle.
- Compressed cylinders must be capped, standing upright and secured in place.
- All containers of flammables must be covered and secured.
- The driver should make sure area is clear to the rear before backing up. The driver will use a signal person if view is obstructed.
- When towing equipment, the driver will make sure the hitch is in good shape and securely closed. Safety chains will also be attached.
- When battery jump-starting, the driver will make certain both batteries are the same voltage.
- Cables will be kept away from radiator fan and belts.
- The driver will always shut off the engine when filling the fuel tank.
- Vehicles will be the correct size and designed for intended use.
- Authorized drivers will report any collision or traffic violation while driving on company duties to their supervisor immediately.
- On parked equipment, parking brakes must be set and wheels chocked are required when parked on an incline.

#### Violation

- A violation of any part of the above policy may be cause for immediate discharge or loss of use of the vehicle.

## **Section 30- NFPA 70E**

### **Purpose**

The purpose of this program is to set forth procedures for the safe use of electrical equipment, tools, and to comply with NFPA 70E requirements.

### **Scope**

This program applies to all BBC Electrical Services, Inc. employees, temporary employees, and contractors. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers BBC Electrical Services, Inc. employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent.

### **Definitions**

N/A

### **Responsibilities**

The supervisors will develop electrical safety programs and procedures in accordance with OSHA requirements and/or as indicated by events and circumstances.

Employees are responsible to use electrical equipment, tools, and appliances according to this program, for attending required training sessions when directed to do so and to report unsafe conditions to their supervisor immediately.

Only qualified employees may work on electric circuit parts or equipment that has not been de-energized. Such employees shall be made familiar with the use of special precautionary techniques, PPE, insulating and shielding materials and insulated tools.

### **Procedures**

The contract employer shall advise the host employer of:

- Any unique hazards presented by the contract employer's work,
- Any unanticipated hazards found during the contract employer's work that the host employer did not mention, and
- The measures the contractor took to correct any hazards reported by the host employer to prevent such hazards from recurring in the future.

Unqualified persons shall not be permitted to enter spaces that are required to be accessible to qualified employees only, unless the electric conductors and equipment involved are in an electrically safe work condition.

Only qualified employees will perform tasks such as testing, troubleshooting, and voltage measuring within the limited approach boundary of energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists.

All electrical parts are considered live until proven otherwise.

### **Working Within the Limited Approach Boundary and Addressing Procedures:**

Prior to any work being done within the Limited Approach Boundary a hazard risk analysis shall be performed. The analysis shall contain event severity, frequency, probability and avoidance to determine the level of safe practices employed.

Work on energized electrical conductors or circuit parts that are not placed in an electrically safe work condition, shall be considered energized electrical work and shall be performed by written permit only.

The limited approach boundary is the distance from an exposed live part within which a shock hazard exists.

The restricted approach boundary is the closest distance to exposed live parts a qualified person can approach with without proper PPE and tools. Inside this boundary, accidental movement can put a part of the body or conductive tools in contact with live parts or inside the prohibited approach boundary. To cross the restricted approach boundary, the qualified person must:

- Have an energized work permit that is approved by the supervisor or manager responsible for the safety plan.
- Use PPE suitable for working near exposed live parts and rated for the voltage and energy level involved.
- Be certain that no part of the body enters the prohibited space.
- Minimize the risk from unintended movement, by keeping as much of the body as possible out of the restricted space; body parts in the restricted space should be protected.

The prohibited approach boundary is the minimum approach distance to exposed live parts to prevent flashover or arcing. Approaching any closer is comparable to making direct contact with a live part. To cross the prohibited approach boundary, the qualified person must:

- Have specified training to work on exposed live parts.
- Have a permit with proper written work procedures and justifying the need to work that close.
- Do a risk analysis.
- Have (2) and (3) approved by the appropriate supervisor.
- Use PPE appropriate for working near exposed live parts and rated for the voltage and energy level involved.

### **Arc Flash Hazard Analysis:**

An arc flash hazard analysis includes the following:

- Collect data on the facility's power distribution system.
  - Arrangement of components on a one-line drawing with nameplate specifications of every device.
  - Lengths and cross-section area of all cables.
- Contact the electric utility for information including the minimum and maximum fault currents that can be expected at the entrance to the facility.
- Conduct a short circuit analysis followed by a coordination study is performed.
- Feed the resultant data into the NFPA 70E equations.
  - These equations produce the necessary flash protection boundary distances and incident energy to determine the minimum PPE requirement.
  - The flash protection boundary is the distance at which PPE is needed to prevent incurable burns (2nd degree or worse) if an arc flash occurs. (It is still possible to suffer 1st or 2nd degree burns.)
- For systems of 600 volts and less, the flash protection boundary is 4 feet, based on an available bolted fault current of 50 kA (kiloamps) and a clearing time of 6 cycles

(0.1 seconds) for the circuit breaker to act, or any combination of fault currents and clearing times not exceeding 300 kA cycles (5000 ampere seconds).

**Prior Job Briefings:**

A job briefing should be held before starting each job and include all employees involved. The briefing should cover hazards associated with the job, work procedures involved, special precautions, energy source controls, and PPE requirements.

**Test Instruments:**

Test instruments, equipment, and their accessories shall meet the requirements of ANSI/ISA-61010-1-Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use -Part 1 General Requirements, for rating and design requirements for voltage measurement and test instruments intended for use on electrical systems 1000 Volts and below.

When test instruments are used for the testing for the absence of voltage on conductors or circuit parts operating at 50 volts or more, the operation of the test instrument shall be verified before and after an absence of voltage test is performed.

**Inspection and Maximum Test Intervals of Insulating PPE:**

All insulating PPE must be inspected before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves shall be given an air test, along with the inspection.

Such tests include:

- 1) Blankets-before first issue/every 12 months thereafter,
- 2) Gloves-before first issue and every 6 months,
- 3) Sleeves before first issue and every 12 months.

Covers and Line hose shall be testing if insulating value is suspect.

**Requirement for an Energized Electrical Work Permit:**

Work on energized electrical conductors or circuit parts that are not placed in an electrically safe work condition, shall be considered energized electrical work and shall be performed by written permit only.

**Proper illumination of work areas:**

BBC Electrical Services, Inc. employees shall not enter spaces containing electrical hazards unless illumination is provided that enables the employees to perform the work safely. Where lack of illumination or an obstruction precludes observation of the work to be performed, employees shall not perform any task within the Limited Approach Boundary of energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists.

**Training:**

BBC Electrical Services, Inc. employees shall be trained in safety-related work practices and procedural requirements as necessary to provide protection from the electrical hazards associated with their respective jobs. BBC Electrical Services, Inc. employees shall be trained to identify and understand the relationship between electrical hazards and possible injury.

Documentation shall be made when the employee demonstrates proficiency, be maintained for the duration of the employee's employment, and contain each employee's name and date of training.

Employees shall be trained in the skills and techniques to: distinguish exposed energized electrical conductors and circuit parts from other parts of electrical equipment, to determine the nominal voltage of exposed energized electrical conductors and circuit parts, the approach distances specified in Table 130.2, and the decision making process necessary to determine the degree and extent of the hazard and the personal protective equipment and job planning necessary to perform the task safely.

Retraining is required under any of the following conditions:

- If the supervision or annual inspections indicate that the employee is not complying with the safety-related work practices;
- If new technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different from those that the employee would normally use; or
- If he or she must employ safety-related work practices that are not normally used during his or her regular job duties.

Retraining shall be performed at intervals not to exceed 3 years.

<b>Limited Approach Boundary</b>				
<b>Nominal system voltage range, phase to phase</b>	<b>Exposed movable conductor</b>	<b>Exposed fixed-circuit part</b>	<b>Restricted approach boundary (allowing for accidental movement)</b>	<b>Prohibited approach boundary</b>
0 to 50 volts	Not specified	Not specified	Not specified	Not specified
51 to 300 volts	10 ft. 0 in.	3 ft. 6 in.	Avoid contact	Avoid contact
301 to 750 volts	10 ft. 0 in.	3 ft. 6 in.	1 ft. 0 in.	0 ft. 1 in.
751 to 15 KV KV	10 ft. 0 in.	5 ft. 0 in.	2 ft. 2 in.	0 ft. 7 in.
15.1 kV to 36 KV	10 ft. 0 in.	6 ft. 0 in.	2 ft. 7 in.	0 ft. 10 in.
36.1 KV to 46 kV	10 ft. 0 in.	8 ft. 0 in.	2 ft. 9 in.	1 ft. 5 in.
46.1 KV to 72.5 KV	10 ft. 0 in.	8 ft. 0 in.	3 ft. 2 in.	2 ft. 1 in.
72.6 KV to 121 KV	10 ft. 8 in.	8 ft. 0 in.	3 ft. 3 in.	2 ft. 8 in.
138 to 145	11 ft 0 in	10 ft. 0 in.	3 ft. 7 in	3 ft. 1 in.
161 KV to 169 KV	11 ft 8 in.	11 ft. 8 in.	4 ft. 0 in.	3 ft. 6 in.
230 KV to 242 KV	13 ft. 0 in.	13 ft. 0 in.	5 ft. 3 in.	4 ft. 9 in.
345 KV to 262 KV	15 ft. 4 in	15 ft. 4 in.	8ft. 6 in.	8 ft. 0 in.

## **Section 31- Personal Protective Equipment**

### **Purpose**

To specify safety requirements and policy guidance on the usage of personal protective equipment (PPE) to protect employees in the work place.

### **Scope**

This policy applies to all BBC Electrical Services, Inc. employees who perform tasks requiring PPE to include: equipment for eyes, face and head, arms, legs, clothing and protective shields. All safety equipment must meet American National Standards Institute (ANSI) Standards and will carry markings of approval. All PPE will be maintained in a sanitary and reliable condition. Employee owned PPE is prohibited.

### **References**

1910.132, Subpart I

### **Definitions**

PPE - Personal Protective Equipment.

Foot and Leg Protection - Safety-toe footwear for employees will meet the requirements and specifications in American National Standard for Men's Safety-Toe Footwear, Z41.1-1967. Examples of types of foot and leg protection include: steel-toed boots or work boots, metacarpal guards, metatarsal guards, etc.

Hand Protection - Protective gloves or glove system that will provide protection against cuts, punctures, and direct contact with chemicals including concrete.

Eye and Face Protection - Eye and face protection for employees will meet the requirements and specifications in American National Standards Institute, Z87.1-1968, Practice for Occupational and Educational Eye and Face Protection. Examples include: glasses, goggles, face shields, welding hood, etc.

Head Protection - Head protection for employees will meet the requirements and specifications in American National Standards Institute, Z89.1-1969, Safety Requirements for Industrial Head Protection.

### **Procedures**

#### **PPE Analysis**

- Administrative and Engineering controls will be the first priority (where applicable) to avoid using PPE. A written job hazard analysis will be conducted to determine if hazards are present or likely to be present. This will necessitate the required PPE based on the hazard. The job hazard analysis will include the certified assessor's name, signature and date of assessments.

#### **Eye and Face**

- Safety glasses with side shields are to be worn in all manufacturing areas as well as whenever there is a hazard present to the eyes. Employees who wear prescription glasses must have eye protection that meets ANSI Z87.1 Standards.
- Employees must use eye and face protection when they are exposed to hazards such as flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.

- The protective equipment must be marked to identify the manufacturer.
- Protective eye and face devices bought after July 5, 1994 must comply with ANSI Z87.1 - 1989, "American National Standard Practice for Occupational and Educational Eye and Face Protection."
- Equipment bought before July 5, 1994 must comply with ANSI Z87.1-1968, "USA Standard for Occupational and Educational Eye and Face Protection."
- In general, eye protection and face shields must be appropriate for the particular hazards to which the employees are exposed. Visors are appropriate for those operations where splashing is a hazard. In high heat environments, a special wire screen visor may be worn that allows the heat to dissipate and permits maximum vision for the wearer. Goggles are recommended in situations involving dust, flying particles, sparks, noxious gases, corrosive liquid splashes, and radiation from welding.
- Cup goggles provide added protection where there is the combined hazard of flying particles and severe impact. Some cup goggles also provide ventilation, protection against dust hazards in cement plants, foundries, and compressed air operations. When worn in conjunction with a face shield, cup goggles provide good protection against acids, caustics, and chemicals, and are recommended for babbitting, hot metal casting, and hot metal bath dipping. Face shields are not recommended for use by themselves as basic eye protection since they do not provide impact protection; instead they should be worn over basic eye protection.
- Eye and face equipment should be comfortable, easy to clean, and capable of being disinfected. The fit must be snug enough to protect properly and not restrict the movement of the wearer.
- Eye protection should be cleaned regularly and checked daily for cracks, scratches, pits, or fading. Badly chipped, scratched, or pitted lenses indicate that the surface is broken and should not be used. Safety glasses should be evaluated periodically to ensure that the optical density provided is still at the desired wavelength.
- In addition to providing employees with appropriate eye protection, easily accessible emergency eyewash stations should be provided.

## Head

- Hard hats are to be worn whenever there is a danger of falling objects from above. Hard hats are to be worn with the bill protecting the face and in accordance with pertinent safety standards.
- Hard hats bought after July 5, 1994 must comply with ANSI Z98-1986, "American National Standard for Personal Protection - Protective Headwear for Industrial Workers-Requirements."
- Hard hats purchased before July 5, 1994 must comply with the ANSI Z98.1-1969, "American National Standard Safety Requirements for Industrial Head Protection."
- Class E (Electrical) hard hats are designed to reduce exposure to high voltage conductors, and offer dielectric protection up to 20,000 volts (phase to ground). Class E hard hats will be provided and donned when electrical hazards are present.

## Foot

- Steel toed boots are not mandatory, but are recommended. Employees who actively work in construction areas must wear work boots.
- Protective footwear purchased after July 5, 1994 must comply with ANSI Z41-1991, "American National Standard for Personal Protection - Protective Footwear." Protective footwear purchased before July 5, 1994 must comply with ANSI Z41.1-1967, "USA Standard for Men's Safety-Toe Footwear."

## Hand

- Various types of gloves may be required. Hazards from which hands need to be protected include skin absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns, and harmful temperatures.

## Hearing Protection

- Employees will not be exposed to more than an average of 90 dB over an 8 hour period and hearing protection is required when noise is above 85 dB.
- Employees will be informed of the areas where hearing protection is required.
- Employees wearing hear protection must stay aware of the environment around them.

## Protective Clothing

- Employees are to wear appropriate clothing for the tasks being preformed.
- Employees who wear jewelry are to use caution around moving machinery.
- Employees are to wear shirts with sleeves and pants that cover the legs.
- In the warm weather employees should wear light colored clothing that allows the skin to stay cool.
- In the colder weather employees are to wear warm layers of clothing.
- Employees working on the ground within road right of way or as a flagger will be provided with and don high visibility clothing. A minimum of class 2 Hi-Viz vests will be utilized.
- Arc flash protective clothing will be provided and donned based upon exposure and an owner's incident energy analysis.

Damaged or defective PPE will not be used.

All PPE will be fitted to the individual employee.

## Training Requirements

BBC Electrical Services will provide employees with training on the following:

- When PPE is necessary;
- What PPE is required;
- Proper donning and doffing of PPE;
- The limitations of PPE;
- The proper care, maintenance, useful life and disposal of PPE.

Documentation of this training will be maintained.

When the Safety Officer or Project Manager has reason to believe that any affected employee who has already been trained does not have the understanding and skill required, the Safety Officer or his designated competent person will retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where:

- Changes in the workplace render previous training obsolete; or
- Changes in the types of PPE to be used render previous training obsolete; or
- Inadequacies in an employee's knowledge and/or use of PPE indicate that the employee has not retained the requisite understanding or skill.



ISSUED TO EACH EMPLOYEE	ISSUED FOR SPECIFIC TASKS
Hard Hat	Respirators
Safety Glasses	Full Body Harness with lanyard
Ear Plugs	Face Shields/Goggles
	Other PPE as needed

## **Section 32- Pole Inspections and Work Performed On or Near Overhead Lines**

### **Purpose**

To ensure wood poles and concrete/metal structures are properly inspected, prior to the start of work activities.

### **Scope**

This section applies to all BBC Electrical Services subcontractors, employees and job classifications that work on or around poles.

### **Responsibilities**

The Project Manager will determine when a qualified employee is required to perform a pole inspection. No employee will be allowed to climb a pole without a proper inspection being completed by a qualified employee. All pole inspections will be in compliance with all OSHA regulations and client specific requirements.

### **Procedures**

General Requirements:

When work is to be performed on a pole, it is important to determine the condition of the pole before it is climbed. The weight of the employee, the weight of equipment being installed, and other working stresses (such as the removal or re-tensioning of conductors) can lead to the failure of a defective pole or one that is not designed to handle the additional stresses. For these reasons, it is essential that an inspection and test of the condition of a pole be performed before it is climbed.

If the pole is found to be unsafe to climb or to work from, it must be secured so that it does not fail while an employee is on it. The pole can be secured by a line truck boom, by ropes or guys, or by lashing a new pole alongside it. If a new one is lashed alongside the defective pole, work should be performed from the new one.

Inspection of Wood Poles:

Wood poles should be inspected by a qualified employee for the following conditions:

- General Condition - The pole should be inspected for buckling at the ground line and for an unusual angle with respect to the ground. Buckling and odd angles may indicate that the pole has rotted or is broken.
- Cracks -The pole should be inspected for cracks. Horizontal cracks perpendicular to the grain of the wood may weaken the pole. Vertical ones, although not considered to be a sign of a defective pole, can pose a hazard to the climber, and the employee should keep his or her gaffs away from them while climbing.
- Holes - Hollow spots and woodpecker holes can reduce the strength of a wood pole.
- Shell Rot and Decay - Rotting and decay are cutout hazards and are possible indications of the age and internal condition of the pole.
- Knots - One large knot or several smaller ones at the same height on the pole may be evidence of a weak point on the pole.

- Depth of Setting - Evidence of the existence of a former ground line substantially above the existing ground level may be an indication that the pole is no longer buried to a sufficient extent.
- Soil Conditions - Soft, wet, or loose soil may not support any changes of stress on the pole.
- Burn Marks - Burning from transformer failures or conductor faults could damage the pole so that it cannot withstand mechanical stress changes.

#### Testing of Wood Poles:

The following tests, which have been taken from OSHA's 1910.268(n)(3), are recognized as acceptable methods of testing wood poles:

- Hammer Test - Rap the pole sharply with a hammer weighing about 3 pounds, starting near the ground line and continuing upwards circumferentially around the pole to a height of approximately 6 feet. The hammer will produce a clear sound and rebound sharply when striking sound wood. Decay pockets will be indicated by a dull sound or a less pronounced hammer rebound. Also, prod the pole as near the ground line as possible using a pole prod or a screwdriver with a blade at least 5 inches long. If substantial decay is encountered, the pole is considered unsafe.
- Rocking Test - Apply a horizontal force to the pole and attempt to rock it back and forth in a direction perpendicular to the line. Caution must be exercised to avoid causing power lines to swing together. The force may be applied either by pushing with a pike pole or pulling with a rope. If the pole cracks during the test, it shall be considered unsafe.

#### Working with Poles and Overhead Lines

When a pole is set, moved, or removed near an exposed energized overhead conductor, BBC Electrical Services will ensure that each employee wears electrical protective equipment or uses insulated devices when handling the pole and that no employee contacts the pole with uninsulated parts of his or her body. BBC Electrical Services will protect employees from falling into holes used for placing poles by physically guarding holes, or attend the holes whenever anyone is working nearby.

When lines that employees are installing or removing can contact energized parts, the tension-stringing method will be used, or barriers, or other equivalent measures to minimize the possibility that conductors and cables the employees are installing or removing will contact energized power lines or equipment.

When used, reel-handling equipment, including pulling and tensioning devices, must be in maintained in safe operating condition and be leveled and aligned. Supervisors will ensure that employees do not exceed load ratings of stringing lines, pulling lines, conductor grips, load-bearing hardware and accessories, rigging, and hoists.

Supervisors will ensure that employees do not perform work when "adverse weather" conditions would make the work hazardous.

Additionally, employees may not perform work when winds reduce the phase-to-phase or phase-to-ground clearances at the work location below the minimum approach distances, unless insulating guards cover the grounded objects and other lines and equipment.

Thunderstorms in the vicinity, high winds, snow storms, and ice storms are examples of adverse weather conditions that make liveline barehand work too hazardous to perform safely.

### **Training Requirements**

Only qualified employees will be permitted to conduct wood pole inspections.

Before an employee uses or supervises the use of the live-line barehand technique on energized circuits, BBC Electrical Services will ensure that the employee completes training requirements in 1910.269(a)(2).

## **Section 33- Powered Industrial Trucks**

### **Purpose**

Requirements and responsibilities for driver, traffic and vehicle controls to reduce personal injury, vehicle and property damage.

### **Scope**

This section applies to all BBC Electrical Services, Inc. operations, and to vehicles used for BBC Electrical Services, Inc. business.

### **Definitions**

Not applicable to this section.

### **Responsibilities**

Project Managers shall ensure that all motor vehicle operators are properly licensed.

Motor vehicle operators will have in their possession applicable vehicle licenses at all times.

### **Procedures**

#### **Fuel handling and storage:**

- The storage and handling of gasoline fuel shall be in accordance with NFPA Flammable and Combustible Liquids Code (NFPA No. 30-1969).
- Changing and charging storage batteries:
- Battery charging installations shall be located in areas designated for that purpose.
- Facilities shall be provided for flushing and neutralizing spilled electrolyte, for fire protection, for protecting charging apparatus from damage by trucks, and for adequate ventilation for dispersal of fumes from gassing batteries.
- When charging batteries, acid shall be poured into water; water shall not be poured into acid.
- Trucks shall be properly positioned and brake applied before attempting to change or charge batteries.
- Care shall be taken to assure that vent caps are functioning. The battery (or compartment) cover(s) shall be open to dissipate heat.
- Smoking shall be prohibited in the charging area.
- Precautions shall be taken to prevent open flames, sparks, or electric arcs in battery charging area.
- Tools and other metallic objects shall be kept away from the top of uncovered batteries.

## Truck Operations:

- Trucks shall not be driven up to anyone standing in front of a bench or other fixed object.
- No person shall be allowed to stand or pass under the elevated portion of any truck, whether loaded or empty.
- Passengers will not be permitted to ride on powered industrial trucks, unless the powered industrial truck (PIT) is equipped to accommodate passengers.
- The employer shall prohibit arms or legs from being placed between the uprights of the mast or outside the running lines of the truck.
- When a powered industrial truck is left unattended, load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set. Wheels shall be blocked if the truck is parked on an incline.
- A powered industrial truck is left unattended when the operator is 25 feet or more away from the vehicle which remains in his view, or whenever the operator leaves the vehicle and it is not in his view.
- When the operator of an industrial truck is dismounted and within 25 feet of the truck is still in his view, the load engaging means shall be fully lowered, controls neutralized, and the brakes set to prevent movement.
- A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock, or platform or freight car. Trucks shall not be used for opening or closing freight doors.
- Brakes shall be set and wheel blocks shall be in place to prevent movement of trucks, trailers, or railroad cars while loading or unloading. Fixed jacks may be necessary to support a semitrailer during loading or unloading when the trailer is not coupled to a tractor. The flooring of trucks, trailers, and railroad cars shall be checked for breaks and weakness before they are drive onto.
- There shall be sufficient headroom under overhead installations, lights, pipes, sprinkler system, etc.
- An overhead guard shall be used as protection against falling objects. It should be noted that an overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application, but not to withstand the impact of a falling capacity load.
- Fire aisles, access to stairways and fire equipment shall be kept clear.
- Industrial trucks will be equipped with functioning backup alarms.
- Employees are instructed to enter and exit the truck by means provided by the manufacturer.

- If at any time a powered industrial truck is found to be in need of repair, defective, or in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition.
- Fuel tanks shall not be filled while the engine is running. Spillage shall be avoided.
- Spillage of oil or fuel shall be carefully washed away or completely evaporated and the fuel tank cap replaced before restarting engine.
- No truck shall be operated with a leak in the fuel system until the leak has been corrected.
- Eye protection is required in PIT's that do not have enclosed cabs. Seat belts are required while operating PIT's that are equipped with seat belts.
- PIT's will only be used for their intended purpose.

### **Traveling:**

- All traffic regulations shall be observed, including authorized plant speed limits. A safe distance shall be maintained approximately three truck lengths from the truck ahead, and the truck shall be kept under control at all times.
- Other trucks traveling in the same direction at intersections, blind spots, or other dangerous locations shall not be passed.
- The driver shall be required to slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing.
- The driver shall be required to look in the direction of, and keep a clear view of the path of travel.
- Grades shall be ascended or descended slowly.
- When ascending or descending grades in excess of 10 percent, loaded trucks shall be driven with the load upgrade.
- On all grades the load and load engaging means shall be tilted back if applicable, and raised only as far as necessary to clear the road surface.
- Under all travel conditions the truck shall be operated at a speed that will permit it to be brought to a stop in a safe manner.
- Stunt driving and horseplay shall not be permitted.
- The driver shall be required to slow down for wet and slippery floors.
- Dockboard or bridgeplates shall be properly secured before they are driven over.

- Dockboard or bridgeplates shall be driven over carefully and slowly and their rated capacity never exceeded.
- Running over loose objects on the roadway surface shall be avoided.
- While negotiating turns, speed shall be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion.
- Except when maneuvering at a very low speed, the hand steering wheel shall be turned at a moderate, even rate.
- PIT's will not be loaded past the rated load limit. All loads will be secured in place for safe transport.

### **Loading:**

- Only stable or safely arranged loads shall be handled.
- Caution shall be exercised when handling off-center loads which cannot be centered.
- Only loads within the rated capacity of the truck shall be handled.
- The long or high (including multiple-tiered) loads which may affect capacity shall be adjusted.
- Trucks equipped with attachments shall be operated as partially loaded trucks when not handling a load.
- A load engaging means shall be placed under the load as far as possible; the mast shall be carefully tilted backward to stabilize the load.
- Extreme care shall be used when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevated shall be prohibited except to pick up a load. An elevated load shall not be tilted forward except when the load is in a deposit position over a rack or stack. When stacking or tiering, only enough backward tilt to stabilize the load shall be used.
- The operator must verify the trailer wheels are chocked, supports, and dock plates are in place prior to loading/unloading trailers.

### **Maintenance of Industrial Trucks:**

- Any power-operated industrial truck in safe operating condition shall be removed from service. All repairs shall be made by authorized personnel.
- No repairs shall be made in Class I, II and III locations.
- Those repairs to the fuel and ignition systems of industrial trucks which involve fire hazards shall be conducted only in locations designated for such repairs.
- Trucks in need of repairs to the electrical system shall have the battery disconnected prior to such repairs.



- Open flames shall not be used for checking electrolyte level in storage batteries or gasoline level in fuel tanks.
- All parts of any such industrial truck requiring replacement shall be replaced only by parts equivalent as to safety with those used in the original design.
- Industrial trucks shall be examined before being placed in service and shall not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Such examination shall be made at least daily.
- When the temperature of any part of any truck is found to be in excess of it's normal operating temperature, thus creating a hazardous condition, the vehicle shall be removed from service and not returned to service until the cause of such overheating has been eliminated.
- Industrial trucks shall be kept in a clean condition, free of lint, excess oil and grease. Noncombustible agents should be used for cleaning trucks. Low flash point (below 100 deg. F) solvents shall not be used. High flash point (at or below 100 deg. F) solvents may be used.
- Precautions regarding toxicity, ventilation and fire hazard shall be consonant with the agent or solvent used.

### **Inspections:**

- Powered industrial trucks will be inspected before each use and/or during shift changes, utilizing the inspection form.

### **Training Requirements**

Only trained, certified and authorized operators will be permitted to operate a powered industrial truck. Methods will be devised to train operators in the safe operation of powered industrial trucks. Trainers must have the knowledge and ability to teach and evaluate operators.

The first part of the training program will include explanations of safe operation, load limits, distances, car versus PIT, refueling/recharging, instruction, visibility, balance/counterbalance, controls, truck instrumentation, attachments and general usage information.

The second part of the program shall also include training on maintenance procedures, specific to the forklift.

The third part of the program will include supervised operation of the forklift.

Mandatory refresher training will be conducted when employee demonstrates unsafe acts, accident, change in conditions and/or a different vehicle type.

Trained employees will receive a certification card indicating the operators name, date of training, name of trainer and evaluation date. Re-certification is required every three (3) years.

## **Section 34- Process Safety Management**

### **Purpose**

This section contains requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. These releases may result in toxic, fire or explosion hazards.

### **Scope**

This policy applies to employees performing maintenance or repair, turnaround, major renovation, or specialty work on or adjacent to a covered process.

### **Definitions**

"Atmospheric tank" means a storage tank which has been designed to operate at pressures from atmospheric through 0.5 p.s.i.g. (pounds per square inch gauge, 3.45 Kpa).

"Boiling point" means the boiling point of a liquid at a pressure of 14.7 pounds per square inch absolute (p.s.i.a.) (760 mm.). For the purposes of this section, where an accurate boiling point is unavailable for the material in question, or for mixtures which do not have a constant boiling point, the 10 percent point of a distillation performed in accordance with the Standard Method of Test for Distillation of Petroleum Products, ASTM D-86-62, which is incorporated by reference as specified in Sec. 1910.6, may be used as the boiling point of the liquid.

"Catastrophic release" means a major uncontrolled emission, fire, or explosion, involving one or more highly hazardous chemicals, that presents serious danger to employees in the workplace.

"Facility" means the buildings, containers or equipment which contains a process.

"Highly hazardous chemical" means a substance possessing toxic, reactive, flammable, or explosive properties and specified by paragraph (a)(1) of this section.

"Hot work" means work involving electric or gas welding, cutting, brazing, or similar flame or spark producing operations.

"Normally unoccupied remote facility" means a facility which is operated, maintained or serviced by employees who visit the facility only periodically to check its operation and to perform necessary operating or maintenance tasks. No employees are permanently stationed at the facility. Facilities meeting this definition are not contiguous with, and must be geographically remote from all other buildings, processes or persons.

"Process" means any activity involving a highly hazardous chemical including any use, storage, manufacturing, handling, or the on-site movement of such chemicals, or combination of these activities. For purposes of this definition, any group of vessels which are interconnected and separate vessels which are located such that a highly hazardous chemical could be involved in a potential release shall be considered a single process.

"Replacement in kind" means a replacement which satisfies the design specification.

"Trade secret" means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it. All contract employers must respect the confidentiality of trade secret information when the process safety information is released to them. Appendix D contained in 1910.1200 sets out the criteria to be used in evaluating trade secrets.

## **Responsibilities**

Owners shall inform BBC Electrical Services, Inc. employees of the known potential fire, explosion, or toxic release hazards related to the work and the process.

Owners shall explain to BBC Electrical Services, Inc. employees the applicable provisions of the emergency action plan.

The Owner shall develop and implement safe work practices to control the entrance, presence and exit of contract employers and contract employees in covered process areas.

BBC Electrical Services, Inc. shall assure that each contract employee is trained in the work practices necessary to safely perform his/her job.

BBC Electrical Services, Inc. shall assure that on all jobsites there will be an updated list and binder for all hazardous materials onsite.

BBC Electrical Services, Inc. shall assure that each contract employee is instructed in the known potential fire, explosion, or toxic release hazards related to his/her job and the process, and the applicable provisions of the emergency action plan.

BBC Electrical Services, Inc. shall document that each contract employee has received and understood the training required by this paragraph. The contract employer shall prepare a record which contains the identity of the contract employee, the date of training, and the means used to verify that the employee understood the training.

BBC Electrical Services, Inc. shall assure that each contract employee follows the safety rules of the facility including the safe work practices.

BBC Electrical Services, Inc. shall advise the employer of any unique hazards presented by their work, or of any hazards found by their work.

## **Procedures**

### **Pre-startup safety review**

Owner shall perform a pre-startup safety review for new facilities and for modified facilities when the modification is significant enough to require a change in the process safety information.

- The pre-startup safety review shall confirm that prior to the introduction of highly hazardous chemicals to a process:
- Construction and equipment is in accordance with design specifications;
- Safety, operating, maintenance, and emergency procedures are in place and are adequate;

- For new facilities, a process hazard analysis has been performed and recommendations have been resolved or implemented before startup; and modified facilities meet the requirements contained in management of change.
- Training of each employee involved in operating a process has been completed.

The owner shall establish and implement written procedures to maintain the on-going integrity of process equipment.

Inspections and tests shall be performed on process equipment.

The owner shall correct deficiencies in equipment that are outside acceptable limits before further use or in a safe and timely manner when necessary means are taken to assure safe operation.

In the construction of new plants and equipment, the owner shall assure that equipment as it is fabricated is suitable for the process application for which they will be used.

The owner shall issue a hot work permit for hot work operations conducted. Hot work will not be conducted until a hot work permit is obtained from the owner.

The owner shall establish and implement written procedures to manage changes (except for "replacements in kind") to process chemicals, technology, equipment, and procedures; and, changes to facilities that affect a covered process.

Employees involved in operating a process and maintenance and contract employees whose job tasks will be affected by a change in the process shall be informed of, and trained in, the change prior to start-up of the process or affected part of the process.

Employees will immediately report accidents injuries and near misses. The owner shall investigate each incident which resulted in, or could reasonably have resulted in a catastrophic release of highly hazardous chemical in the workplace. An incident investigation must be initiated within 48 hours. Resolutions and corrective actions must be documented and maintained for 5 years.

The owner shall establish and implement an emergency action plan for the entire plant in accordance with the provisions of 29 CFR 1910.38(a). In addition, the emergency action plan shall include procedures for handling small releases. Owners covered under this standard may also be subject to the hazardous waste and emergency response provisions contained in 29 CFR 1910.120(a), (p) and (q).

Owners shall certify that they have evaluated compliance with the provisions of this section at least every three years to verify that the procedures and practices developed under the standard are adequate and are being followed.

Owners shall make all information necessary to comply with the section available to those persons responsible for compiling the process safety information, those assisting in the development of the process hazard analysis, those responsible for developing the operating procedures, and those involved in incident investigations, emergency planning and response and compliance audits without regard to possible trade secret status of such information.

**Training Requirements**

The employer shall train each employee involved in maintaining the on-going integrity of process equipment in an overview of that process and its hazards and in the procedures applicable to the employee's job tasks to assure that the employee can perform the job tasks in a safe manner.

BBC Electrical Services, Inc. employees performing such work will need additional training before working in such areas.

## **Section 35- Respiratory Protection**

### **Purpose**

To protect employees from harmful exposure to dusts, fumes, mists, gases, smokes, sprays, or vapors, when all other engineering or administrative controls are either not feasible or have failed.

### **Scope**

This procedure applies to all BBC Electrical Services, Inc. operations and employees who may be required to use respiratory protection in the course of their employment.

### **Definitions**

Respiratory Hazards - The normal atmosphere consists of 78% nitrogen, 21 % oxygen, 0.9% inert gases and 0.04% carbon dioxide. An atmosphere containing toxic contaminants, even at very low concentrations, could be a hazard to the lungs and body. A concentration large enough to decrease the percentage of oxygen in the air can lead to asphyxiation, even if the contaminant is an inert gas.

Oxygen Deficiency - The body requires oxygen to live, if the oxygen concentration decreases, the body reacts in various ways. Death occurs rapidly when the concentration is decreased to 6%.

- Physiological effects of oxygen deficiency are not apparent until the concentration decreases to 16%. The various regulations and standards dealing with the respirator use recommends that concentrations ranging from 16 - 19.5% be considered indicative of an oxygen deficiency. Such numbers take into account individual physiological response, errors in measurement, and other safety consideration. In hazardous material response operations 19.5% oxygen in air is considered the lowest "safe" working concentrations.
- An oxygen-enriched atmosphere is also recognized not only as a physical hazard but an explosion hazard. Enriched oxygen atmospheres increase the likelihood of combustion and possible explosion, therefore, BBC Electrical Services, Inc., will not place employees in these areas.

Aerosols - Aerosol is a term used to describe fine particulates (solid or liquid) suspended in air. Particulates ranging in diameter from 50 to 30 microns are deposited in the nasal and pharyngeal passages. The trachea and smaller conducting tubes collect particulates 1-5 microns in diameter. For particulates to diffuse from the bronchioles into alveoli they must be less than 0.5 microns in diameter. Larger particulates reach the alveoli due to gravity. The smallest particulates may never be deposited in the alveoli and so may diffuse back into the conducting tubes to be exhaled.

- Aerosols can be classified in two ways: by their physical form and origin and by the physiological effect on the body.

#### Physical Classification:

- Mechanical Dispersoid: liquid or solid particle mechanically produced.
- Condensation Dispersoid: liquid or solid particle often produced by combustion.

- Spray: visible liquid mechanically dispersed.
- Fume: extremely small solid condensation Dispersoid.
- Mist: liquid condensation Dispersoid.
- Fog: mist dense enough to obscure vision.
- Smoke: liquid or solid organic particles resulting from incomplete combustion.
- Smog: mixture of smoke and fog.

#### Physiological Classification:

- Nuisance: no lung injury but proper lung functioning inhibited.
- Inert Pulmonary Reaction Causing: non-specific reaction.
- Pulmonary Fibrosis Causing: effects ranging from nodule production in lungs to serious diseases such as asbestosis
- Chemical Irritation: irritation, inflammation, or ulceration of lung issue.
- Systemic Poison: diseases in other parts of the body.
- Allergy-Producing: allergic hypersensitivity reactions such as itching or sneezing.

Gaseous Contaminants: Gases and vapors are filtered to some degree through the respiratory tract. Soluble gases and vapors are absorbed by the conducting tubes in route to the alveoli. Not all will be absorbed and so along with insoluble gases, finally diffuse into the alveoli, where they can be directly absorbed into the bloodstream. Gaseous contaminants can be classified chemically and physiologically.

#### Chemical Classification:

- Acidic: acids react with water to form acids.
- Alkaline: bases react with water to form bases.
- Organic: compounds which may range from methane to chlorinated organic solvents.
- Organometallic: organic compounds containing metals.
- Hydrides: compound in which hydrogen is bonded to another metal.
- Inert: no chemical reactivity.

#### Physiological Classification:

- Irritants: corrosive substances which injure and inflame issue.
- Asphydant: substances that displace oxygen or prevent the use of oxygen in the body.
- Anesthetics: substances that depress the central nervous system, causing a loss of sensation or intoxication.
- Systemic Poisons: substances that can cause disease in various organ systems.

### Responsibilities

The safety officer will be responsible for implementing all aspects of this policy, including training, fit-testing, medical evaluations, maintenance of respirators and storage.

## Procedures

### *General*

- When working in areas where the potential exists for overexposure to air contaminated with harmful dusts, fogs, mists, gases, smokes, sprays, or vapors, employees will be required to wear the appropriate respirator that meets NIOSH requirements.
- The safety representative will administer this program for BBC Electrical Services, Inc.
- Employees must be clean-shaven if they are required to wear respiratory protection as part of their job requirements.
- Employees may be required to wear respiratory protection as part of their job, must be medically qualified by a physician to do so. Because of this, pulmonary function tests will be required for each employee on an annual basis.

### *Hazard Identification*

- All job classifications, operations and/or areas where respiratory protection devices must be used to prevent employee overexposure against specific health risks will be identified. This may be accomplished by one more of the following:

Review of company operations, processes and procedures.

- Industrial hygiene monitoring results.
- Information contained on Safety Data Sheets (SDS).

### *Types of Respiratory Protection Available*

- *Air Supplying*
  - Air line supplied: (SAR) means an atmosphere supplying respirator for which the source of breathing air is not designed to be carried by the user.
  - Self Contained Breathing Apparatus (SCBA) means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.
  - Air must be Grade D or better. The atmosphere will be monitored frequently while SAR or SCBA are used.
- *Air Purifying*
  - Air purifying respirators only "purify" contaminants from the ambient air. They add NO oxygen. Because of this, air purifying respirators can only be used when the identify and concentration of the contaminant is known, the oxygen content in the air is at least 19.5%, there is no periodic monitoring of the work area, the respirator assembly is approved for protection against the specific contaminant and concentration level, and the type of respirator has been fit-tested on the employee.
  - Filtering Facepiece Respirators: A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium. Approved disposable filtering facepiece respirators provide protection against nuisance dusts and sometimes asbestos. It is difficult to fit-test, obtain, and maintain a good facepiece to face seal.
  - Half-Mask Respirators: Two cartridges are used to filter the air and discarded once the use of limits are reached. The half-mask respirators have approved cartridges for pesticides, organic vapors, dusts, mists, fumes, acid gases, ammonia, and several combinations.



- **Full-Face Respirator:** The entire face is protected by this form of respirator. It gives 10 times the protection of a half-mask. The full-faced mask also uses cartridges or canisters which filter out hazardous contaminants from the air. Filters are available for the same materials as for the half-mask, with several additional ones available.
- **Powered Respirators:** Powered respirators give no breathing resistance. They are used with half or full face masks, and special helmets.

### *Selection*

- Potential areas of exposure previously identified shall be reviewed by the Safety representative to determine appropriate respiratory protection.

Proper selection of respiratory protection will be made only by a competent person, who has been trained on the specific hazards and the requirements of the standard. Respirators shall be selected only after each of the following has been considered:

- Identity of the substance(s) present in the work environment.
  - The physical state of the contaminant.
  - The PEL and toxicity of the substance.
  - Exposure measurements showing the concentrations likely to be encountered.
  - The protection factor listed for the respirator.
  - The possibility of an oxygen deficient atmosphere.
  - Any limitations or restrictions applicable to the types of respirators being considered.
- Selection of respirators shall be made in accordance with the following table:

HAZARD	RESPIRATOR
Oxygen Deficiency	Self-contained breathing apparatus. Hose mask with blower. Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm
Gas and vapor contaminants immediately dangerous to life and health	Self-contained breathing apparatus. Hose mask with blower. Air-purifying, full facepiece respirator with chemical canister (gas mask). Self-rescue, mouthpiece respirator (for escape only). Combination, air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.
Not immediately dangerous to life and health	Self-contained breathing apparatus. Hose mask with blower. Air-purifying, half-mask or mouthpiece respirator with chemical cartridge.
Particulate contaminants immediately dangerous to life and health	Self-contained breathing apparatus. Hose mask with blower. Air-purifying, full face-facepiece respirator with appropriate filter.

	Self-rescue mouthpiece respirator (for escape only). Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.
Not immediately dangerous to life and health	Air-purifying, half-mask or mouthpiece respirator with filter pad or cartridge. Air-line respirator. Air-line abrasive-blasting respirator. Hose-mask without blower.
Combination gas, vapor, and particulate contaminants immediately dangerous to life and health	Self-contained breathing apparatus. Hose-mask with blower. Air-purifying, full facepiece respirator with chemical canister and appropriate filter (gas mask with filter). Self-rescue mouthpiece respirator (for escape only). Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.
Not immediately dangerous to life and health	Air-line respirator. Hose mask without blower. Air-purifying, half-mask or mouthpiece respirator with chemical cartridge and appropriate filter.

Identification of gas mask canisters for half or quarter mask respirators being used can be determined on the label or the color coding scheme as described in the OSHA standards.

#### Use

- When SCBAs or hose masks with blowers are used in IDLH atmospheres, attendants must be present with suitable rescue equipment.
- Persons using air line respirators in IDLH atmospheres shall be equipped with safety harnesses and lifelines for lifting or removing persons from hazardous atmospheres. Attendants must also be used.
- Employees required to wear respiratory protection must be clean-shaven, as facial hair will not allow a proper seal.
- Every respirator wearer shall perform the following test before using the respirator:
  - Close off the inlet ports of the respirator with the palms.
  - Inhale so that the face piece collapses slightly and hold breath for 10 seconds. If the face piece remains collapsed and no inward leakage is noticed, the fit is considered tight adequate.

#### *Procedures for IDLH Atmospheres*

##### Ensure that:

- One employee or, when needed, more than one employee is located outside the IDLH atmosphere;
- Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;

- The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue;
- The employer or designee is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue;
- The employer or designee authorized to do so by the company, once notified, provides necessary assistance appropriate to the situation;
- Employee(s) located outside the IDLH atmospheres are equipped with:
  - Pressure demand or other positive pressure self-contained breathing apparatuses (SCBAs), or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either:
  - Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or
  - Equivalent means for rescue where retrieval equipment is not required under the bullet item above this one.

#### Medical Evaluations

- BBC Electrical Services, Inc. shall provide a medical evaluation to determine the employee's ability to use a respirator before the employee is fit tested or required to use the respirator.
- Medical Evaluation Procedures
  - Identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire.
  - The medical evaluation shall obtain the information requested by the questionnaire.
  - The medical questionnaire and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee.
  - The medical questionnaire shall be administered in a manner that ensures that the employee understands its content.
- Supplemental information for the PLHCP
  - This information must be supplied to the PLHCP before the PLHCP makes a recommendation concerning the employee's ability to use a respirator.
    - The type and weight of the respirator to be used by the employee.
    - The duration and frequency of respirator use (including use for rescue and escape).
    - The expected physical work effort.
    - Additional protective clothing and equipment to be worn.
    - Temperature and humidity extremes that may be encountered.
  - Any supplemental information provided previously to the PLHCP regarding an employee need not be provided for a subsequent medical evaluation if the information and the PLHCP remain the same.
  - BBC Electrical Services, Inc. shall provide the PLHCP with a copy of the written respiratory protection program and a copy of this section.

- Additional Medical Evaluations

At a minimum, BBC Electrical Services, Inc. shall provide additional medical evaluations that comply with the requirements of this section if:

- An employee reports medical signs or symptoms that are related to ability to use a respirator.
- A PLHCP, Project Manager, or the safety representative informs BBC Electrical Services, Inc. that an employee need to be reevaluated.
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need to employee reevaluation.
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee.

## Training

- Training will be performed prior to initial assignment and annually thereafter for those employees who may be required to wear respirators as part of their normal job. This training shall include at a minimum:
  - Nature of the respiratory hazard and what may happen if the respirator is not used properly.
  - Engineering and administrative controls being used and the need for the respirator as added protection.
  - Reason for the selection for a particular respirator.
  - Proper use and limitations of the respirator.
  - Proper maintenance and storage.
  - Proper method for handling emergency situations.
  - Ensure employees are aware to leave the hazardous area if they detect a breakthrough or resistance.

Training, respirators and medical evaluations will be provided to employees required to wear respirators at no cost.

Fit-Testing will be conducted prior to wearing a respirator and annually thereafter.

- Qualitative: A pass/fail test to assess the adequacy of respirator fit that relies on the individual's response to the test agent. This type of fit testing is not as dependable because of its qualitative nature. Accurate results rely on the individual being tested. Each individual being tested has different sensory levels for detection of a smell or a taste. Irritant smoke may be considered the best option for qualitative testing but it can cause respiratory problems in some individuals who are more sensitized.
  - Saccharin
  - Employee must choose proper mask
  - Perform a negative or positive fit check
  - Attach HEPA filters to chosen face mask
  - Allow the user to smell a weak concentration of the saccharin
  - In a fit testing hood:
    - Activate saccharin nebulizer
    - Begin with only a small amount of smoke

- Allow user to adjust the mask if they smell smoke
- Slowly add more smoke and ask the test subject to perform the following for one minute each:
  - Normal breathing
  - Deep breathing
  - Grimace
  - Turn head side-to-side while breathing normally
  - Nodding head up-and-down while breathing normally
  - Talking (Rainbow Passage)
  - Jogging in place
  - Normal breathing

### ***RAINBOW PASSAGE***

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond his reach, his friends say he is looking for the pot of gold at the end of the rainbow.

- If the test subject does not smell saccharin, they have passed the test and can be allowed to wear that in approved atmospheres.
  - Fill out test form and card.
- 
- Quantitative: An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator. Relies on a sensitive device inside the face piece, which records actual numerical levels of contaminant inside and outside of the respirator.

### **Maintenance and Care**

- Inspection
  - Respirators must be inspected regularly, by the safety director (during cleaning and on a monthly basis) and all worn or defective parts shall be replaced. Respirator inspection shall include, but will not be limited to:
    - Inspect the inside sealing surface for cracks or distortions (if they are found, the face piece must be disregarded);
    - The valves must be inspected for severe distortion which would cause them not to seal properly (faulty valves must be replaced);
    - If headbands are severely overstretched, frayed or mutilated, they must be replaced;
    - Inspect to insure that the filter element is secured tightly to the face piece.
  - Respirators shall be inspected routinely before and after each use.
  - SCBA's are inspected on a monthly schedule.
  - Inspection records shall be kept and documented on the forms provided. (See Inspection and Maintenance Check List)

- Cleaning
  - Routinely used respirators shall be collected, cleaned and disinfected, by the safety director, as frequently as necessary to insure the respirator is clean and in good operating condition. Specific information and procedures for cleaning and disinfecting of respirators is included at the back of this section.
- Repair
  - Replacement or repair shall be done only by experienced persons with parts designed for the respirator.
- Storage
  - Shall be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals.
  - Store the respirator so that the facepiece and exhalation valves rest in a normal position. Do not hang the respirator by its straps.
  - Respirators placed at workstations for emergency use should be quickly accessible at all times and stored in compartments built for that purpose. The compartments should be clearly marked.
- Program Monitoring
  - Respiratory protection program will be monitored by the Safety representative on each project as part of the quarterly inspection.
  - The Safety representative will review this program at least annually to determine any needed changes or updates.
  - Periodically the Safety representative will verify with the employees the effectiveness of their respirator. Such as fit, selection, use and maintenance.
- Record Keeping
  - Medical evaluation records will be kept in the main office and made available upon request.
  - Respirator maintenance schedule log will be maintained in the main office.
  - Fit testing records will be maintained in the main office.
  - The Safety representative will maintain all recording keeping in accordance with 29 CFR 1910.1020.

## **Section 36- Safety Inspections**

### **Purpose**

To document our efforts by evaluating BBC Electrical Services, Inc. jobsites, shop areas and employees thereby identifying safety deficiencies and correcting them.

### **Definitions**

Safety Inspection - A systematic approach to evaluate and document the current status of an organization's safety program.

### **Responsibilities**

All levels of management will be responsible for continually assessing working conditions for compliance with safety and health standards.

All employees are to report any unsafe conditions immediately to their Project Manager.

The Project Manager will periodically utilize the Safety Inspection Report form to document the findings of ongoing safety evaluations.

### **Procedures**

Inspections are performed by the Project Manager or Safety Officer and may be documented by using the Safety Inspection Report form or similar means.

A copy of the Safety Inspection Report form or other form of report will be forwarded to parties responsible for corrective action.

The measures taken to correct deficiencies will be noted on the inspection report and returned to the job file for recordkeeping.

Employees will be continuously evaluated for their safety performance. Any employee who works with equipment that is unsafe or allows a known unsafe condition to exist and exposes other employees to danger may be subject to disciplinary action. Each employee will be evaluated for their safety performance during their annual review.

## **Section 37- Safety Orientation**

### **Purpose**

To provide all new employees with safety training prior to beginning work for BBC Electrical Services, Inc.

### **Definitions**

New Hire Orientation - Sets the BBC Electrical Services, Inc. safety foundation. Presents general information that will be addressed and reinforced in more detail throughout the orientation process.

### **Procedures**

Within the first day of work, the Safety Officer will provide an orientation to all new employees. The New Hire Orientation Form will be completed and signed by both the employee and the Safety Officer. The completed form will detail specific policies discussed and become part of the employee's personnel file.

During the new-hire orientation a review of specific safety procedures and requirements as well as task specific hazards and controls that the new employee needs to understand.

Topics include:

- Hazardous elements specific to the workplace, including hazardous materials, machinery, or noise.
- Hazard control measures such as administrative or engineering controls, safe operating procedures and personal protective equipment.
- Emergency response procedures, evacuation routes, and access to medical assistance.

Items to be covered during the orientation include all policies from safety program as listed in the table of contents.



## **Section 38- Safety Training and Education**

### **Purpose**

To ensure that employees understand established safety and health policies and procedures as mandated by the company or IOSHA.

### **Scope**

This policy applies to all employees so that they may be well trained on their safety responsibilities.

### **Definitions**

Competent Person - Capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and authorized to take prompt corrective action.

Qualified Person - A recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience enabling successful demonstration of ability to solve or resolve problems relating to the subject matter, the work, or the project.

### **Procedures**

Safety training and education will be based on OSHA Regulations 29 CFR 1926, Occupational Safety and Health Standards for Construction Industry, and other internal company safety training requirements.

The following topics should be discussed and reinforced as needed:

- Special conditions, hazards or work practices
- Specialized equipment and personal protective equipment usage
- SDSs pertaining to the work performed
- Accidents and/or incidents that may occur at any BBC Electrical Services, Inc. jobsite

BBC Electrical Services, Inc. will send all Project Managers to an OSHA Construction 10 hour class.

Safety Officer will document BBC Electrical Services, Inc.'s safety training activities and file documentation in the BBC Electrical Services, Inc. office.

All Project Managers, Job Superintendents, and Foreman will be trained on the company's safety policy.

## **Section 39- Scaffolding**

### **Definitions**

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

Qualified Person - One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work of the project.

Supported Scaffolds - One or more platforms supported by outrigger beams, brackets, poles, legs, uprights, posts, frames, or similar rigid support. Examples include mobile scaffold, stationary scaffold, mason scaffold, and pump jack scaffold.

Suspension Scaffolds - One or more platforms suspended by ropes or other non-rigid means from an overhead structure(s). Examples include catenary scaffold, float (ship) scaffold, and masons' multi-point adjustable suspension scaffold.

### **Procedures**

#### **General Requirements**

- All scaffolds are to conform to the appropriate General Requirements listed. Additional requirements listed under the section 1926.452 "Additional requirements applicable to specific types of scaffolds" also shall be followed when using scaffold types indicated in section .452.
- Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.
- Capacity
  - Scaffolds and scaffold components shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load.
  - Scaffolds shall be designed by a qualified person and shall be constructed and loaded in accordance with that design.
- Scaffold Platform Construction
  - Each platform on all working levels of scaffolds shall be fully planked or decked between the front uprights and the guardrail supports.
  - Each platform unit shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 1 inch wide, except where the contractor can demonstrate that a wider space is necessary.
  - Each scaffold walkway shall be at least 18 inches wide.
  - The front edge of all platforms shall not be more than 14 inches from the face of the work, unless the type of work indicates guardrail systems are erected along the front edge and/or personal fall arrest systems are used.

- Each end of a platform, unless cleated or otherwise restrained by hooks or equivalent means, shall extend over the centerline of its support at least 6 inches.
  - Each end of a platform 10 feet or less in length shall not extend over its supports more than 12 inches unless designed and installed so that the extended portion of the platform is able to support employees and/or materials without tipping, or has guardrails which block employee access to the extended portion.
  - Each platform greater than 10 feet shall not extend over its support more than 18 inches, unless it is designed and installed so that the extended portion of the platform is able to support employees without tipping, or has guardrails which block employee access to the extended end.
  - Scaffold platforms joined to create a long platform shall rest on a separate support surface.
  - Scaffold platforms that overlap to create a long platform, shall overlap only over supports and not be less than 12 inches unless the platforms are nailed together or otherwise restrained.
  - At all points of a scaffold where the platform changes direction, any platform that rests on a bearer at an angle other than a right angle shall be laid first, and platforms which rest at right angles over the same bearer shall be laid second.
  - Wood platforms shall not be covered with opaque finishes.
  - Scaffold components manufactured by different manufacturers shall not be intermixed unless the components fit together without force and the scaffold's structural integrity is maintained by the user.
- Criteria for Supported Scaffolds
  - Supported scaffolds with a height to base width ratio of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means.
  - Guys, ties, and braces shall be installed according to the scaffold manufacturer's recommendations or at the closest horizontal member to the 4:1 height and be repeated vertically at locations of horizontal members every 20 feet or less thereafter for scaffolds 3 feet wide or less, and every 26 feet or less thereafter for scaffolds greater than 3 feet wide.
  - The top guy, tie or brace of completed scaffolds shall be placed no further than 4:1 height from the top. Such guys, ties and braces shall be installed at each end of the scaffold and at horizontal intervals not to exceed 30 feet.
  - Supported scaffold poles, legs, posts, frames, and uprights shall be on base plates, mud sills or other adequate firm foundations.
  - Supported scaffold poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement.
  - Access
  - When scaffold platforms are more than 2 feet above or below a point of access, ladders, stairtowers, ramps, walkways, integral prefabricated scaffold access, or direct access from another scaffold, structure, personnel hoist, or similar surface shall be used.

- Portable, hook-on, and attachable ladders shall be positioned so as not to tip the scaffold.
  - Hook-on and attachable ladders shall be positioned so that their bottom rung is not more than 24 inches above the scaffold supporting level.
  - When hook-on and attachable ladders are used on a supported scaffold more than 35 feet high, they shall have rest platforms at 35-foot maximum vertical intervals.
  - Hook-on and attachable ladders shall be specifically designed for use with the type of scaffold used.
  - Hook-on and attachable ladders shall have a minimum rung length of 11½ inches.
  - Hook-on and attachable ladders shall have uniformly spaced rungs with a maximum spacing between rungs of 16 ¾ inches.
- Steps and rungs of ladder and stairway type access shall line up vertically with each other between rest platforms.
  - Direct access to or from another surface shall be used only when the scaffold is not more than 14 inches horizontally and not more than 24 inches vertically from the other surface.
  - Requirements for Stairway-type Ladders:
    - Be positioned such that their bottom step is not more than 24 inches above the scaffold supporting level.
    - Be provided with rest platforms at 12- foot maximum vertical intervals.
    - Have a minimum step width of 16 inches except that mobile scaffolds stairway-type ladders shall have a minimum step width of 11 ½ inches.
    - Have slip-resistant treads on all steps and landings.
  - Requirements for Stairtowers:
    - Be positioned such that their bottom step is not more than 24 inches above the scaffold supporting level.
    - A stairrail consisting of a toprail and a midrail shall be provided on each side of each scaffold stairway.
    - Stairrail systems and handrails shall be surfaced to prevent injury to contractor employees from punctures or laceration, and to prevent snagging of clothing.
    - The ends of stairrail systems and handrails shall be constructed so that they do not constitute a projection hazard.
    - Handrails and toprails that are used as handrails shall be at least 3 inches from other objects.
    - Stairrails shall not be less than 28 inches nor more than 37 inches from the upper surface of the stairrail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.
    - A landing platform at least 18 inches wide by at least 18 inches long shall be provided at each level.
    - Each scaffold stairway shall be at least 18 inches between stairrails.
    - Treads and landings shall have slip-resistant surfaces.
    - Stairways shall be installed between 40 degrees and 60 degrees from horizontal.

- Guardrails meeting the standards requirements shall be provided on the open sides and ends of each landing.
- Riser heights shall be uniform, within  $\frac{1}{4}$  inch, for each flight of stairs.
- Tread depth shall be uniform, within  $\frac{1}{4}$  inch, for each flight of stairs.

- Requirements for Integrated Prefabricated Scaffold Access Frames:

- Be specifically designed and constructed for use as ladder rungs.
- Have a rung length of at least 8 inches.
- Not be used as work platforms when rungs are less than  $11\frac{1}{2}$  inches in length, unless affected employee uses fall protection, or a positioning device, which complies with 1926.502.
- Be uniformly spaced within each frame section.
- Be provided with rest platforms at 35-foot maximum vertical intervals all supported scaffolds more than 35 feet high.
- Have a maximum spacing between rungs of  $16\frac{3}{4}$  inches. Non-uniform rung spacing caused by joining end frames together is allowed, provided the resulting spacing does not exceed  $16\frac{3}{4}$  inches.
- The contractor shall provide safe means of access for each employee erecting or dismantling a scaffold where the provision of safe access is feasible and does not create a greater hazard. The contractor shall have a competent person determine whether it is feasible or would pose a greater hazard to provide, and have employees use a safe means of access. This determination shall be based on site conditions and the type of scaffold being erected or dismantled.
- Hook-on or attachable ladders shall be installed as soon as scaffold erection has progressed to a point that permits safe installation and use.
- When erecting or dismantling tubular welded frame scaffolds, (end) frames with horizontal members that are parallel, level and are not more than 22 inches apart vertically may be used as climbing devices for access, provided they are erected in a manner that creates a usable ladder and provides good hand hold and foot space.
- Cross braces on tubular welded frame scaffolds shall not be used as a means of access or egress.

▪ Use

- Scaffolds and scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.
- Scaffolds and scaffold components shall be inspected for visible defects by a competent person before each work shift, and after any occurrence that could affect a scaffold's structural integrity.
- Any part of a scaffold damaged or weakened so that its strength is less than that required by this standard shall be immediately tagged by a competent person to provide warning to employees of the unsafe condition. Employees are to comply with the tagging system.

- Scaffolds shall not be moved horizontally while employees are on them, unless they have been designed by a registered professional engineer specifically for such movement or, for mobile scaffolds, where the provisions of 1926.452(w) are followed.
- Adequate clearance between scaffolds and power lines shall be maintained.
- Employees shall be prohibited from working on scaffolds with snow, ice, or other slippery material except as necessary for removal of such materials.
- Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system or wind screens. Wind screens shall not be used unless the scaffold is secured against the anticipated wind forces imposed.
- Where swinging loads are being hoisted onto or near scaffolds such that the loads might contact the scaffold, tag lines or equivalent measures to control the loads shall be used.
- Debris shall not be allowed to accumulate on platforms.
- Makeshift devices, such as but not limited to boxes and barrels, shall not be used on top of scaffold platforms to increase the working level height of personnel.
- Ladders shall not be used on scaffolds to increase the working level height of employees, except on large area scaffolds where employees have satisfied the following criteria:
  - When the ladder is placed against a structure that is not part of the scaffold.
  - The platform units shall be secured to the scaffold to prevent their movement.
  - The ladder legs shall be on the same platform or other means shall be provided to stabilize the ladder against unequal platform deflection.
  - The ladder legs shall be secured to prevent them from slipping or being pushed off the platform.
  - Platform shall not deflect more than 1/60 of the span when loaded.
- Fall Protection
  - Each employee on a scaffold more than 10 feet above a lower level shall be protected from falling to that lower level.
  - The contractor shall have a competent person determine the feasibility and safety of providing fall protection for personnel erecting or dismantling supported scaffolds. Contractors are required to provide fall protection for personnel erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.
  - Personal fall arrest systems used on scaffolds shall be attached by a lanyard to a vertical lifeline, horizontal lifeline, or scaffold structural member.
  - Guardrail systems installed to meet the requirements of the section shall comply with the following provisions:

- Guardrail systems shall be installed along all open sides and ends of platforms.
- Guardrail systems shall be installed before the scaffold is released for use by personnel other than erection/dismantling crews.
- The top edge height on supported scaffolds manufactured and placed in service before January 1, 2000, and on all suspended scaffolds where both a guardrail and a personal fall arrest system are required shall be between 36 and 45 inches.
- When midrails, screens, mesh, intermediate vertical members, solid panels, or equivalent structural members are used, they shall be installed between the top edge of the guardrail system and the scaffold platform.
- Each toprail or equivalent member of a guardrail system shall be capable of withstanding, without failure, a force applied in any downward or horizontal direction at any point along its top edge of at least 100 pounds for guardrail systems installed on single-point adjustable suspension scaffolds or two-point adjustable suspension scaffolds, and at least 200 pounds for guardrail systems installed on all other scaffolds.
- Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members of a guardrail system shall be capable of withstanding, a force applied in any downward or horizontal direction at any point along the midrail or other member of at least 75 pounds for guardrail systems with a minimum 100 pound toprail capacity, and at least 150 pounds for a guardrail system with a minimum 200 pound toprail capacity.
- Guardrails shall be surfaced to prevent injury to a contractor employee from punctures or lacerations, and to prevent snagging of clothing.
- The ends of all rails shall not overhang the terminal posts except when such overhang does not constitute a projection hazard to employees.
- Cross bracing is acceptable in the place of a midrail when the crossing point of the two braces is between 20 inches and 30 inches above the work platform or as a toprail when the crossing point of the two braces is between 38 inches and 48 inches above the work platform. The end points at each upright shall be no more than 48 inches apart.

#### ▪ Falling Object Protection

- In addition to wearing hard hats each employee on a scaffold shall be provided with additional protection from falling hand tools, debris, and other small objects through the installation of toeboards, screens, or guardrails systems, or through the erection of debris nets, catch platforms, or canopy structures that contain or deflect the falling objects.
- Where there is danger of tools, material, or equipment falling from a scaffold and striking personnel below, the following provisions apply:
  - The area below the scaffold to which objects can fall shall be barricaded, and personnel shall not be permitted to enter the hazard area.
  - A toeboard shall be erected along the edge of the platforms more than 10 feet above lower levels for a distance sufficient to protect personnel below.
  - Where tools, materials, or equipment are piled to a height higher than the top edge of the toeboard, paneling or screening extended from the toeboard or platform to the top of the guardrail shall be erected for a distance sufficient to protect personnel below.

- A guardrail system shall be installed with openings small enough to prevent passage of potential falling objects.
- A canopy structure, debris net, or catch platform strong enough to withstand impact forces of the potential falling objects shall be erected over the personnel below.
- Where used, toeboards shall be:
  - Capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or horizontal direction at any point along the toeboard.
  - At least three and one-half inches high from the top edge of the toeboard to the level of the walking/working surface. Toeboards shall be securely fastened in place at the outermost edge of the platform and have not more than 3 inch clearance above the walking/working surface. Toeboards shall be solid or with openings not over one inch in the greatest dimension.

## Training Requirements

- Each employee who performs work while on a scaffold must be trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. The training shall include the following areas, as applicable:
  - The nature of any electrical hazards, fall hazards, and falling object hazards in the work area;
  - The correct procedures for dealing with electrical hazards and for erecting, maintaining and disassembling the fall protection systems and falling object protection systems being used;
  - The proper use of the scaffold, and the proper handling of materials on the scaffold;
  - The maximum intended load and the load carrying capacities of the scaffolds used; and;
  - The proper procedures in the use of PPE.
- Each employee involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold must be trained by a competent person to recognize any hazards associated with the work in question. The training shall include the following areas, as applicable:
  - The nature of scaffold hazards;
  - The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting and maintaining the type of scaffold in question;
  - The design criteria, maximum intended load-carrying capacity and intended use of the scaffold in question;
  - The proper procedures in the use of PPE.
- When there is reason to believe that a contractor employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the employee shall be retrained so that the requisite proficiency is regained.



- Retraining is required in at least the following situations:
  - Where changes at the worksite present a hazard about which an employee has not been previously trained;
  - Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained;
  - Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.

## **Section 40- Signs and Barricades**

### **Purpose**

To provide protection to the public and employees.

### **Definitions**

Barricades - obstructions to deter the passage of persons or vehicles.

Signs - warnings of hazard, temporarily or permanently affixed, placed at locations where hazard exist.

Signals - moving signs provided by workers, such as flagmen, or by devices such as flashing lights, to warn of possible or existing hazards.

### **Responsibilities**

BBC Electrical Services, Inc. will be responsible to ensure signs and symbols are visible at all times when work is being performed, and removing or covering them promptly when the hazards no longer exist.

### **Typical Signs to include:**

#### **Danger Signs**

- Danger signs will be used only where an immediate hazard exists.
- Danger signs will have red as the predominating color for the upper panel; black outline on the borders; and a white lower panel for additional sign wording.

#### **Caution Signs**

- Caution signs will be used only to warn against potential hazards or to caution against unsafe practices.
- Caution signs will have yellow as the predominating color. Borders will be black. The upper panel will be black with the word "caution" in yellow letters. The lower panel will be used for additional sign wording in black letters.

#### **Exit Signs**

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

#### **Safety Instruction Signs**

- Safety instruction signs will be white with green upper panel with white letters to convey the principal message. Any additional wording on the sign will be black letters on the white background.

#### **Directional Signs**

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

#### **Traffic Signs**

- Construction areas will be posted with legible traffic signs at points of hazard.
- All traffic control signs or devices used for protection of construction workmen will conform to American National Standards Institute D6.1-1971, Manual on Uniform Traffic Control Devices for Streets and Highways.

### Signaling

- When operations are such that signs, signals, and barricades do not provide the necessary protection on or adjacent to a highway or street, flagmen or other appropriate traffic controls will be provided.
- Hand signaling by flagmen will be by use of red flags at least 18 inches square or sign paddles, and in periods of darkness, red lights.
- Flagmen will be provided with and will wear a red or orange warning garment while flagging. Warning garments worn at night will be of reflective material.

### Barricades

- Barricades for protection of employees will conform to the portions of the American National Standards Institute D6.1-1971, Manual on Uniform Traffic Control Devices for Streets and Highways, relating to barricades.

## **Section 41- Stop Work Policy**

### **Purpose**

BBC Electrical Services, Inc. will maintain a safe and secure work environment against any risk or exposure to personal harm, property damage or adverse effects to the environment.

### **Scope**

As such, it is the duty and the right of every employee engaged by BBC Electrical Services, Inc. to exercise a Stop Work Intervention whenever any employee, contractor, general member of the public or work site may be at risk.

### **Definitions**

N/A

### **Responsibilities**

The Management of BBC Electrical Services, Inc. fully supports the decisions of its employees in the diligent execution of this policy. Stop Work Interventions will be documented by the supervisor. Stop Work reports shall be reviewed by supervision in order to measure participation, determine quality of interventions and follow-up, trend common issues, identify opportunities for improvement, and facilitate sharing of learned experiences.

### **Procedures**

A Stop Work Intervention shall be issued if any situation arises due to an unsafe action, behavior, omission or non-action of any party involved in the operation, and if such situation were permitted to continue, may potentially lead to the occurrence of an incident or injury.

Any person regardless of position, seniority or discipline has the right and duty to initiate Stop Work Intervention if in his/her opinion or judgment, such activity is determined to be a potential hazard.

There shall be no retribution, intimidation, or fault bestowed upon anyone calling upon the Stop Work Policy, even if the intervention was investigated to be unwarranted. The Stop Work Policy is considered a "good faith" policy and will be enforced as such. Only in extreme malicious circumstances would there be any recourse to the person using the Stop Work Policy.

There should be no delay in any circumstance of the timing in utilizing the Stop Work Policy. Employees will immediately cease work until the potential hazard has been identified and controlled.

Any work that has ceased due to a Stop Work Intervention, shall not resume until all safety aspects have been reviewed by the site supervisor and have been addressed and corrected as may be required.

All affected employees will be notified of any/all changes and corrective actions taken prior to continuing the work.

Any corrective action shall be documented and corrective actions put into place as needed.

It is the desired outcome of any Stop Work Intervention that the identified safety concern(s) have been addressed to the satisfaction of all involved persons prior to the resumption of work. Most issues can be adequately resolved in a timely manner at the job site, occasionally additional investigation and corrective actions may be required to identify and address root causes.

**Training Requirements**

Employees will be trained on this policy upon initial assignment and annually thereafter. This training will be documented.

## **Section 42- Subcontractor Conformance**

### **Purpose**

To ensure all subcontractors are made aware of and made responsible for compliance with all local, state, and federal laws, BBC Electrical Services, Inc. policies and procedures, and owner requirements.

### **Scope**

This policy applies to contractors, subcontractors, and all other contracted personnel involved with construction and/or maintenance activities on BBC Electrical Services, Inc.'s job sites.

### **Definitions**

Pre-Contract Meeting - Not necessarily a meeting, but the time when BBC Electrical Services, Inc. is confirming that the contractor's bid price has included the intended scope of work.

Pre-Contract Meeting Agenda - List of safety items that were communicated during the pre-bid process. Allows BBC Electrical Services, Inc. to confirm that the previously communicated items were understood by the contractor and that pre-contract meeting requirements were fulfilled. Not intended to be all-inclusive and does not represent all safety practices that the contractor is expected to comply with.

### **Responsibilities**

BBC Electrical Services, Inc.'s Field Manager must ensure the contents of this policy are presented to subcontractors at the pre-contract meeting.

All BBC Electrical Services, Inc. Project Managers are responsible for notifying and requesting contractor personnel to correct unsafe situation.

Contractors are responsible for addressing safety concerns brought to their attention by BBC Electrical Services, Inc.

Contractors are ultimately responsible to implement, monitor, and enforce their written safety program among their employees and subcontractors.

Contractors are to provide a Job Specific Safety Plan.

Subcontractors are required to designate an Onsite Safety Officer.

### **Procedures**

Subcontractors, at their own expense, will conform to and comply with all requirements set forth by BBC Electrical Services, Inc., and applicable laws established by any governmental authority. The subcontractor will take all necessary precautions to protect against any conditions caused by subcontractor's work or other involvement in any project, which involves any risk of bodily harm to persons or risk of damage to property.

Subcontractors will continuously inspect their work, materials and equipment to discover any such conditions and will be solely responsible for discovering and correcting any conditions.

BBC Electrical Services, Inc. may order the subcontractor to stop any work deemed unsafe until acceptable corrective measures have been implemented. Subcontractors will be responsible for all costs and delays incurred by BBC Electrical Services, Inc. as a result of any such stoppage of the work.

BBC Electrical Services, Inc. employees will confirm verbally or in writing, during the confirmation of scope of work, that the contractor understood the pre-contract safety expectations. The pre-contract safety subjects may include the following:

- Review of BBC Electrical Services, Inc. Safety Requirements
  - Accident Reporting
  - Contractor Designated Safety Person
  - Disciplinary Policy
  - Fall Protection
  - Fire Protection
  - Ground Fault Circuit Interrupters
  - Hard Hats
  - Housekeeping (Daily Clean-up)
  - Job Site Safety Inspections (Documented Weekly)
  - Ladders
  - Light Duty Work Program
  - Project Specific Hazards
  - Permit System when required
  - Safety Orientation
  - Safety Glasses with Side Shields
  - Scaffolding, and requirements, ladders, guardrails, etc.
  - Safety Shoes
  - Substance Abuse Screening Policy
- Review of IOSHA Standards
  - Hazard Communication
  - IOSHA Poster Requirements
  - Lead
  - Lighting
  - Safety Talks
- Subcontractor Site Safety Communication Meeting
  - BBC Electrical Services, Inc.'s Project Managers are responsible for initiating the meeting and reviewing the project safety requirements. Subcontractors will be responsible for explaining to Project Managers the methods and procedures that the subcontractor will be implementing to comply with safety standards.

A meeting should be held with all subcontractors and their onsite supervision. BBC Electrical Services, Inc. representatives at this meeting may include the Project Manager, Safety Officer, Field Manager and Sr. Engineer.

At this meeting BBC Electrical Services, Inc. should review the project safety requirements including the following:

- Accident Reporting
- Subcontractor Designated Safety Person
- Disciplinary Policy
- Fall Protection, 6' requirement, full body harness, shock absorbing lanyard
- Fire Protection
- Ground Fault Circuit Interrupters

- Hard Hats
- Housekeeping
- Job Site Safety Inspections
- Ladders
- Light Duty Work Program
- Project Specific Safety Plan
- Permit System
- Safety Orientation
- Safety Glasses
- Scaffolding
- Shutdowns
- ANSI approved Safety Shoes
- Substance Abuse Screening Policy
- Welding Shields

Subcontractors are required to be involved with JHA's and shall be included in the jobsite inspections.

Subcontractors are required to submit all SDSs for each hazardous material brought onsite. A central location will be established to maintain SDSs.

Subcontractor's designated Safety Representative, at a minimum, must have received OSHA 10 hour training.

Weekly Toolbox Talks will be given by subcontractors.

### **Training Requirements**

This policy will be reviewed with employees at new hire orientation. BBC Electrical Services, Inc. employees will also be instructed in the appropriate method for addressing contractor safety concerns (i.e. not directing corrections, addressing concerns with contractor management, etc.) and explain the philosophy driving this methodology during new hire orientation.

The program will also be reviewed with onsite contractors during the pre-contract meeting.



## **Section 43- Subcontractor Prequalification**

### **Purpose**

The subcontractor prequalification review procedure is to provide a consistent method for documenting and quantifying the subcontractor's safety process. The goal of this procedure is to reduce the number of Lost Time Accident's and OSHA Recordables on BBC Electrical Services, Inc. jobsites, and to improve safety conditions and awareness.

### **Scope**

BBC Electrical Services, Inc. will accept prequalification data from subcontractors and will use this information in selecting qualified bidders. The safety prequalification process includes a review of a company's Experience Modification Rate (EMR), OSHA 300 information, past safety performance, and basic safety program elements.

Subcontractors shall be prequalified based on the basis of safety and other factors. Subcontractors will be required to supply the following information and meet BBC Electrical Services, Inc. minimum requirements before being placed on the bid list.

### **Definitions**

EMR: Workers' Compensation Experience Modifier Rate - The EMR is the ratio of actual losses in workers' compensation cases to the expected losses for a contractor doing the same amount of similar work. An average EMR value is 1.0 with values greater than 1.0 indicating worse than average safety performance.

Incident Rate - OSHA recordable rate equals the number of recordable incidents x 200,000 / Manhours Worked and indicates the frequency of recordable accidents the contractor has.

LTA: OSHA Lost Time Accident Rate - Lost Time Accident Rate equals the number of lost workday cases x 200,00 / Manhours Worked and indicates the frequency of lost time accidents the contractor has.

OSHA 300 (Log and Summary) - The log and summary of occupational injuries and illnesses. The OSHA 300 Log provides descriptive information to maintain a running total of occupational injuries and illnesses at the company for a calendar year.

### **Responsibilities**

Subcontractors wishing to bid on BBC Electrical Services, Inc. work will comply with the requirements of this section.

### **Procedures**

BBC Electrical Services, Inc. has customarily considered contractor work performance and financial strength when selecting bidders for projects. BBC Electrical Services, Inc. has instituted a safety prequalification process to assess a contractor's safety performance prior to bidding. This prequalification process considers the following:

- Contractor's EMR for the past three (3) years
- Contractor's OSHA Recordable rate
- Contractor's LTA rate
- Contractor's basic safety program elements
- Safety performance of the contractor on prior BBC Electrical Services, Inc. projects

BBC Electrical Services, Inc. reviews the quality of the subcontractor's safety program by using the MICCS Short Prequalification Form.

Subcontractors are evaluated on a case-by-case basis. BBC Electrical Services, Inc. may impose additional safety requirements on contractors with high accident rates, high EMR, and/or missing basis safety program elements. Examples of these additional requirements may include requiring a contractor to conduct daily safety meetings before beginning work, requiring a contractor to provide the jobsite Superintendent copies of weekly tool box talks, or requiring on site safety representation by the contractor.

Post job evaluations are conducted to evaluate the safety performance of each subcontractor.

### **Training Requirements**

Not applicable to this section.

## **Section 44- Substance Abuse and Fit for Duty Policy**

### **Purpose**

The purpose of this document is to outline the policy of BBC Electrical Services, Inc. Electrical Services, Inc to comply with Federal Motor Carrier Safety Administration (FMCSA) and the Department of Health and Human Services (HHS) Guidelines to maintain a drug and alcohol free workplace for employees employed by BBC Electrical Services, Inc. The company is firmly committed to operating in the safest and most efficient manner possible. As a responsible employer, BBC Electrical Services, Inc. is also committed to promoting the safety and welfare of its employees and the public.

The widespread problem of drug and alcohol abuse in our society is a potential threat to those objectives, endangering not only the public, but also the future of the company and the personal lives of its employees. Many problems are associated with drug abuse: it can cost employees in terms of health, broken marriages, abused children, and lost employment. Such problems can also cost the company in terms of absenteeism, accidents, lost productivity, and increased medical expenses.

It is the responsibility of each employee to ensure that he/she is drug free in compliance with the requirements outlined in this policy.

The Designated Employee Representative (DER) to contact for questions or concerns in regards to this Alcohol and Controlled Substance Policy is Jill Miller.

Our Substance Abuse Policy may be required to comply with the contractual obligations of our customers, government agreements, or a particular federal, state, or local agency. BBC Electrical Services, Inc. will adhere to the MICCS substance abuse program when required by owner.

### **Applicable Federal Regulations**

This policy was developed and will be implemented in the accordance with the following federal rules and regulations which are applicable to BBC Electrical Services, Inc.

Department of Transportation, Federal Motor Carrier Safety Administration, 49CFR Parts 40, 382, and 390- Drug and Alcohol Testing and General Requirements and Information.

This policy applies to driver applicants and drivers of commercial motor vehicles with a gross vehicle weight rating (GVWR) over 26,001 pounds, transport 16 or more passengers (including driver) or transport placard hazardous materials. The requirements set forth also apply to each field employee.

### **Categories of Testing**

Detection will be accomplished through the following categories of drug and alcohol testing as outlined in 49 CFR Part 40 and 382.

1. Pre-employment Drug Testing
2. Random Drug and Alcohol Testing
3. Reasonable Suspicion Drug and Alcohol Testing
4. Post-Accident Drug and Alcohol Testing
5. Return to Duty Drug or Alcohol Testing
6. Follow up Drug and Alcohol Testing

The drugs to be tested for are Marijuana, Cocaine, PCP, Opiates, and Amphetamines. Alcohol-Breath Alcohol Content (B.A.C.) levels of .02 to .039 will preclude an individual from driving a truck for a period of 24 hours. Levels .04 and greater is considered positive. All drivers with B.A.C. levels higher than .02 will be provided transportation to their residence. BBC Electrical Services, Inc. will train appropriate supervisory personnel to recognize the signs and symptoms of substance abuse.

### **Policy Standards**

Drivers are prohibited from using, being impaired by, under the influence, or being in possession of, manufacturing, dispensing, or distributing any controlled substance when subject to duty (on call), prior to reporting for duty, while on duty, or on company or customer property. No driver shall perform safety sensitive functions within four (4) hours after using alcohol. The company shall not permit a driver to perform safety sensitive functions, while having actual knowledge a driver has used alcohol within four (4) hours. The illicit use of controlled substances is prohibited at any time. Any driver who tests positive as indicated by the Medical Review Officer (MRO) will face immediate termination.

Upon testing positive, the Driver has the right to have the “split” specimen analyzed at a different HHS, National Laboratory Certification Program (NLCP) certified laboratory. If “void” (shy bladder), he/she will be urged to consume up to 40 ounces of fluid, distributed reasonably through a period of up to three (3) hours, or until the individual has provided a sufficient urine specimen, whichever occurs first. If the driver refuses to make the attempt to provide a urine specimen or leaves the collection site before the collection process is complete, this is a refusal to test. If the driver is unable to provide a sufficient specimen with three (3) hours, of the first unsuccessful attempt to provide the specimen, the DER will direct the driver, after consulting with the MRO, to obtain within five (5) working days an evaluation from a licensed physician, acceptable to the MRO, who has expertise in the medical issues raised by the employee's failure to provide a sufficient specimen. If no, the test will be classified as a refusal, i.e. dealt with as a positive.

Any driver who tests positive for alcohol, B.A.C. of .04 or higher, will face immediate termination. Upon termination, in accordance with FMCSA 382-605 and part 40 subpart zero, BBC Electrical Services, Inc. will provide the previous employee with information so that they can enter into an approved rehabilitation program with a substance abuse professional (S.A.P.). (See Attached S.A.P Referral form)

Any driver with a B.A.C. of between .02 and .039 will result in the driver being removed from their safety sensitive function for a minimum of 24 hours and is subject to disciplinary action up to and including termination.

In the event that a driver cannot perform a breath test (shy lung), procedure as noted in 49 CFR Part 40.265 will be adhered to. The driver must be evaluated by a medical doctor to determine if there is a medical condition that prohibits the driver from performing the breath test. If the doctor determines that there is not an existing medical condition, the test will be classified as a “refusal,” i.e. dealt with as a positive.

### **Use of Prescribed and Over the Counter Medication:**

BBC Electrical Services, Inc. will permit prescribed and over-the-counter medication and/or the use of medication on the company premises specifically prescribed for the employee by his/her physician, that is clearly labeled with the employee's name, the name of the medication and the physician's Federal Drug Enforcement Administration license number,

provided the substance is used at the dosage prescribed or authorized and it does not impair their ability to perform in their job or endanger their safety or the safety of others.

It is the responsibility of the employee to notify their immediate supervisor that they are using a prescription drug or over-the-counter medication which could impair their ability to work. The employee is also responsible for providing documentation of the drug prior to commencing work.

The prescribed or over-the-counter medication containing any amount of alcohol is not to be used by any driver while performing a safety sensitive function or just prior to performing a safety sensitive function.

The Medical Review Officer will make a good faith judgment, with knowledge of the employee's assigned duties and on the basis of the available medical history, that use of the substance by the employee at the prescribed or authorized dosage level is consistent with the safe performance of the employee's duties. Any medication brought on company property must be carried in its original container.

#### **Requirement of Cooperation with Testing Procedure:**

Each driver required to be tested pursuant to this policy must cooperate with the collections procedures. If a person refuses to cooperate with the collection process, the collection site person shall inform the DER and shall document the non-cooperation on the Urine Custody and Control Form. Any person who refuses to cooperate in providing a sample, is found to have, in any way, tampered with, diluted, or substituted a sample, shall face immediate termination.

#### **Disciplinary Action:**

- (a) Employee refusing to be tested equals a positive test and is grounds for termination of employment. The employee will not be given a second chance to test at a later date.
- (b) A verified positive drug test is grounds for immediate termination.
- (c) BBC Electrical Services, Inc. is a zero tolerance work place. Any positive test results for either drug or alcohol abuse or misuse will result in immediate termination.

Upon termination, in accordance with FMCSA 382-605 and part 40 subpart zero, BBC Electrical Services, Inc. will provide the previous employee with information so that they can enter into an approved rehabilitation program with a substance abuse professional (S.A.P.).

#### **Employee Awareness Program/Supervisor Training Program**

A major tool in the battle against drug use is education and awareness. Accordingly, the company will educate its drivers about the dangers of drugs, their effects and consequences. The education program will help motivate employees to understand the problems associated with using drugs, the misuses of alcohol, and the ways such use could compromise their personal functioning as well as their functioning on the job. To accomplish this objective, a number of approaches will be taken to include the following:

- An employee education and training program for all employees who perform a driving function. The education component shall include informational material and this policy.

- The training component for drivers shall include information on the effects and consequences of drug and alcohol abuse on personal health, safety and the work environment, and the malfunctions and behavioral clues that may indicate drug and/or alcohol abuse.
- Supervisory employees who will be determining when an employee is subject to drug and alcohol testing based on reasonable cause under this policy shall receive at least one (1) hour of additional training on the physical, behavioral, and performance indicators of probable drug use and one (1) hour on the symptoms of the abuse of alcohol.

### **Testing Methodology**

All drug testing conducted pursuant to this policy will be performed via urinalysis. Alcohol tests may be conducted by the use of an initial screen test, and if the presence of alcohol is detected the confirmation test will be conducted on the Evidentiary Breath Testing unit (E.B.T.). In the absence of a non-evidentiary test, the screen test will be conducted on an E.B.T. The E.B.T. will be operated by a Breath Alcohol Technician (B.A.T.). All of the above procedures will be consistent with 49 CFR Part 40.

### **Pre-employment**

All final applicants for employment as commercial motor vehicle drivers who are required to have a commercial driver's license are required to submit to a drug test. The applicant will be informed that the urine specimen being collected will be tested for drugs to include Marijuana, Cocaine, Opiates, Phencyclidine (PCP), and Amphetamines. Final applicants will be required to sign a form consenting to the drug test and authorizing the release of any test results to BBC Electrical Services, Inc.

Any applicant who decides not to cooperate in the pre-employment drug test may withdraw their application. No record will be maintained of the declination. Final applicants who test positive for drugs will be rejected for employment. Any employee who does not perform the function of Driver may not transfer to this function until the employee passes the drug test administered under this section.

### **Random Testing**

All drivers will be subject to random drug and alcohol testing at the annualized rate determined by the DOT FMCSA regulations. Selection of employees to be tested will be administered by a third party management company (Freeman Occumed, Joplin, Missouri) utilizing a validated computerized random selection program. This program ensures that every covered employee has an equal opportunity of being selected at any given time.

Notification of an employee's selection will be kept confidential, and the employee will be notified of their selection at the beginning of the employee's tour of duty in which the drug and alcohol test is to be conducted. Immediately upon notification of being randomly selected the employee is to proceed to the assigned collection site facility.

## **Reasonable Cause Testing**

### **A. Drug Test**

Employees of BBC Electrical Services, Inc. are required to submit to a urine analysis for the purpose of detecting the presence of controlled substances when a supervisory employee has reasonable cause as defined below.

Under this type of testing the employee will be removed from service without pay pending the outcome of the test (s) if negative.

In all cases where an employee is subject to reasonable cause testing, an evidentiary report of reasonable cause must be completed and signed by a supervisor before the test is administered ("Supervisory Checklist").

"Reasonable Cause" exists when a supervisory employee believes based on facts, circumstances, physical evidence, physical sign and symptoms, pattern of performance and/or behavior that could cause a trained supervisor to reasonably conclude that an employee has violated the prohibitions of this policy.

Reasonable suspicion does not require certainty. Mere hunches or gut feelings, however, are not valid in making a reasonable cause determination. If supervisors with training in the identification of the signs and symptoms of drug use reasonably conclude that there are objective facts indicative of use of drugs, this is sufficient justification for testing.

### **B. Alcohol Test**

Reasonable suspicion for alcohol abuse exists when a trained supervisory employee suspects that alcohol involvement has interfered with an employee's present ability to safely perform a safety sensitive job function. This shall be based on specific, contemporaneous, articulate observations concerning the appearance, behavior, speech, or body odors of the employee.

## **Post-Accident Testing**

Under this type of testing employees will be removed from service without pay pending the outcome of the test (s). The drug test (s) must take place within 32 hours of an accident as defined below:

The alcohol test should be conducted within two (2) hours, but no later than eight (8) hours after the accident. If the test is not conducted within these parameters, the reason why must be documented. The employee will be returned to service with back pay if the outcome of the test (s) is negative.

Post-accident drug testing is required of any driver involved in an accident as defined below:

"Accident" means an occurrence associated with the operation of a commercial vehicle if:

- There is a fatality. (Test is mandatory)
- A vehicle is towed from the scene of the accident and a citation is issued to the driver.
- Medical treatment is administered away from the scene of the accident and a citation is issued to the driver.

(A test is not required if a citation is not issued to the driver (unless there has been a fatality involved in which case a post-accident test is required.)

### **Return to Duty Testing**

After completing any required rehabilitation program, a driver who has tested positive for a previous employer, must have a negative return to duty drug screen result before returning to a safety sensitive position.

BBC Electrical Services, Inc. requires employees to have completed their recommended testing before we will hire them as a new employee. This testing would include return to duty and all follow up testing requirements assigned to them by their substance abuse professional or certified counselor.

### **Fit For Duty**

BBC Electrical Services employees are physically capable of performing all required job functions and tasks. Employees are responsible for notifying their immediate supervisor if they are exhausted to the point of being unable to perform their duties in a safe manner.

### **Urine Collection and Alcohol Testing Procedures**

All aspects of urine analysis, drug and alcohol testing collection and chain of custody procedure shall be conducted in strict accordance with BBC Electrical Services, Inc. Electrical Service Inc.'s substance abuse testing procedures and HHS and FMCSA standards as outlined in 49cfr Part 40 and Part 382.

### **Truck Drivers Admitting to Drug and/or Alcohol Abuse Prior to Notification of Test**

In accordance with 49 CFR Part 382,121, and subject to other applicable policies and procedures, a driver who admits to Controlled Substance Abuse and/or Alcohol Abuse prior to notification that a random or "reasonable cause" test will be given may avoid termination on the basis of Drug Abuse or Alcohol misuse and allowed the opportunity to reform.

The following guidelines must be adhered to:

1. The admission must be made to the DER in writing.
2. The rehabilitation cost will be the employee's responsibility
3. The employee must be evaluated by a qualified drug and alcohol substance abuse expert, i.e. employee assistance professional, substance abuse professional, or a qualified drug and alcohol counselor.
4. Upon successful completion of an educational or treatment program, as determined by one of the above mentioned counselors and a negative return to duty test, the employee may return to performing a safety sensitive function.
5. The employee must provide the DER a written evaluation report from the person who conducted the evaluation. This report must contain employee monitoring, i.e. type of monitoring and frequency, and the number of non-DOT follow-up tests to be conducted, and the timeframe for which these tests are to be conducted. Any return to duty and follow up testing cost is the employee's responsibility.



### **Substance Abuse Professional (S.A.P.)Referral Information**

In accordance with F.M.C.S.A. Regulations 382-605, and Part 40, Sub Part 0, you are provided with the following information.

It is your responsibility to contact the Substance Abuse Professional listed below and follow up with indicated care or treatment at your expense. If the local S.A.P. is in a location that will not work for you please refer to the S.A.P. Referral Service number listed below.

**Name of Treatment Center: Ozark Center**

**S.A.P.- Jean Simmons**

**Address: 3006 McClelland Blvd., Joplin, MO 64803**

**Telephone: (417)-781-2410**

**S.A.P. Referral Number: 1-888-720-7177**

## **Section 45- Toolbox Talks**

### **Purpose**

To be used as a means of promoting safety on-the-job. To communicate safety requirements, and to discuss past safety practices and plan upcoming safety activities.

### **Procedures**

Jobsite Project Managers will conduct the weekly safety meetings.

Safety talks are most productive when held in the morning. This allows for employees to regain their focus on work activities. The meeting should last approximately 15 minutes focusing on one general topic and spending the rest of the time on project specific information. Some time should also be left to address concerns of the contractor employees. If the answers to stated concerns are not obvious, the meeting leader should take the time to research the concern and then get back with the employee.

The meeting should be used as a means to motivate employees. Any safety deficiencies discussed during the meeting should be done in a positive manner (i.e. "Housekeeping is currently not meeting standard, let's make a strong effort to improve this week" versus "You're a bunch of slobs, housekeeping is pathetic, you're too sloppy").

A written record of the meeting containing a minimum of the instructor's name, date, subjects discussed, and attendee signatures will be kept by the Project Manager.

## **Section 46- Trenching and Excavation**

### **Purpose**

The purpose of this policy is to establish standard guidelines to comply with OSHA 1926.650 and perform work safely in and around excavations.

### **Scope**

This policy applies to all excavations on BBC Electrical Services, Inc. projects.

### **Definitions**

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

Excavation - Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

Hazardous Atmosphere - An atmosphere which by reason of being explosive, - flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

Protective System - A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield or shoring systems, and other systems that provide the necessary protection.

Trench (Trench Excavation) - A narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m). If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet (4.6m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

### **Responsibilities**

The assigned competent person is responsible for all aspects of safe trenching and excavation. These responsibilities include (but are not limited to) the following:

- Determination of soil type.
- Observe soil for cracks or fissures.
- Assure that implementation of shielding, shoring, benching, sloping, or other means to protect workers and public from cave in accidents is in place.
- Ensuring proper barricades are erected to prevent pedestrians or motorists from accidentally entering a trench or excavation and to aid in the protection of the trench or excavation being an attractive nuisance.
- Ensuring that employees do not enter trenches that are not shored or braced.

- Removing workers from trenches or excavations whenever conditions are such that workers' safety is jeopardized.

## Procedures

Before excavating, a trenching and excavating plan will be completed, covering the following:

- Before opening any excavation, efforts shall be made to identify and eliminate any potential hazards such as:
  - Underground Utilities
  - Groundwater
  - Adjacent Exposures
  - Falls
  - Unstable Soil
  - Hazardous Atmospheres
  - Vibration (vehicle traffic)
- Excavations greater than five feet in depth must be safeguarded from cave-in by the use of a protective system such as:
  - Sloping
  - Shielding
  - Benching
  - Shoring
- When choosing a system the tables and charts found in the OSHA standard 1926.650 should be referenced. If manufactured systems are used the contractor may rely on the data supplied by the manufacturer. Shoring and shielding systems must be used, installed, repaired and removed in accordance with the manufacturer's written instruction or the direction of a professional engineer. Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.
- Call or verify that a call has been made to all Local Utility Companies 48 hours before digging to locate any and all underground installations. This contact must be documented. Call 811 "Call Before You Dig." This contact must be documented.
- Crossings and walkways near excavation will be equipped with fall protection means.

## During Excavation:

- Adequate protection must be provided to protect employees from falling rock, soil, or other materials and equipment. Keep all loose material at least 2 feet from the edges of the excavation.
- Employees should not be permitted to work in excavations where water has accumulated or is accumulating unless adequate precautions have been taken. Diversion ditches, dikes, or other means must be used to prevent surface water from entering an excavation and to provide drainage to the adjacent area. Pump water from the trench before allowing workers to enter the area. The water removal equipment and operations shall be monitored by a competent person to ensure proper operation.

- Before an employee enters an excavation greater than 4 feet in depth, a competent person must test the atmosphere when oxygen deficiency or a hazardous atmosphere exists or could reasonably exist. Emergency rescue equipment must be readily available and must be attended when hazardous atmospheric conditions exist or may develop. Continuous air monitoring will performed when ventilation is used to reduce the level of contaminants.
- Employees should not be permitted under loads that are handled by lifting or digging equipment. Employees should not be allowed to work in the excavation above other employees unless the lower level employees are adequately protected. IOSHA requires hard hats when in a trench.
- Sufficient means for exiting excavations 4 feet deep or more must be provided and must be within 25 feet of lateral travel for employees. This can usually be accomplished by providing ladders or an earthen ramp.
- Employees exposed to public vehicular traffic must wear warning vests or other suitable garments made of reflective or high-visibility material.
- When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.
- Open excavations unattended will be barricaded to prevent access to an attractive nuisance.

#### Daily Inspections:

- Daily inspections are performed of excavations, the adjacent areas, and protective systems prior to the start of work and as conditions change by a competent person. All excavations greater than five (5) feet in depth must be constructed under the supervision of a competent person.
- This is done to identify possible cave-in sites, failure of protective shoring or bracing systems, or other hazardous conditions before the start of work and as needed throughout the work shift.
- Inspections shall also be done after every rainstorm or other hazard increasing event.

#### Training Requirements

- The designated "competent person" shall train workers in the avoidance of excavation and trenching hazards through the use of tool box talks and/or daily work instructions.

## **Section 47- Welding Safety**

### **Purpose**

Welding and Hot Work, such as brazing or grinding present a significant opportunity for fire and injury. All precautions of this program must be applied prior to commencing any welding or hot work by all BBC Electrical Services, Inc. employees.

### **Scope**

This section applies to all BBC Electrical Services, Inc. employees and operations.

### **Definitions**

Welding/Hot Works Procedures: any activity which results in sparks, fire, molten slag, or hot material which has the potential to cause fires or explosions. Examples of Hot Works: Cutting, Brazing, Soldering, Thawing Pipes, Torch Applied Roofing, Grinding and Welding.

Special Hazard Occupancies: any area containing Flammable Liquids, Dust Accumulation, Gases, Plastics, Rubber and Paper Products.

### **Responsibilities**

Foremen should ensure that appropriate safety equipment is available to employees for welding procedures. Ensuring a fire extinguisher is readily available.

Foremen are responsible for inspecting the area before welding and/or cutting operations are performed. He/she shall designate precautions to be followed in granting authorization to proceed in the form of a written permit.

### **Procedures**

No burning or welding shall be performed for propane storage, natural gas substations, or high volatile material storage.

Permits are required in all "No Smoking" areas and other hazardous areas. The Foremen for these areas will be responsible for issuing the permit.

First aid kits shall be available at all times.

Any welding, cutting or burning of lead base metals and/or paints shall have proper ventilation or respiratory protection.

Oxygen cylinders shall be stored in an upright, secured position, 20 feet from any flammable gases or petroleum products. In storage, oxygen and gaseous fuel cylinders must be separated by at least 25 feet, or by an approved firewall constructed of the following materials: One-quarter inch or thicker steel plate that extends 24 inches above the top of the cylinders (meeting requirements of a 1/2 hour fire retardant rating).

When cylinder is not in use, place protective cap over the valve. Move cylinder by an approved cart. Transport cylinders in upright position only.

Employees in charge of the oxygen or fuel-gas supply equipment, including generators, oxygen or fuel-gas distribution piping systems, shall be instructed and judged competent by their employer for this important work before being left in charge.

Before welding, sweep floors clean and dry, wet down necessary areas, and cover wooden floors with sheet metal or equivalent.

Never use cylinders without suitable reducing valves and regulators to insure suitable pressure requirements.

Never interchange oxygen regulators, hoses or other appliances with similar equipment for other gases.

Do not use tape to repair leaks in gas hoses. Replace a faulty hose immediately.

When cleaning welding equipment or hoses do not use compressed air. Use only gas that is intended for use with equipment.

Wear earplugs when welding in closed areas. This will help prevent hot slag from entering the ear.

Do not weld or burn on empty containers such as tanks, drums, barrels, pails, cans, or other containers.

A welding station shall be guarded with non-combustible screens.

During welding, there must be adequate ventilation to exhaust the fumes away from the person welding.

If the object to be welded or cut cannot readily be moved, all moveable fire hazards should be removed.

Where practical all combustibles shall be relocated at least 35 feet from the work site.

Where relocation is impractical, combustibles shall be protected with flame proof covers, shielded with metal, guards, curtains, or wet down material to help prevent ignition of material.

If relocation and/or guarding are impractical, welding and cutting shall not be performed.

Ducts, conveyor systems, and augers that might carry sparks to distant combustibles shall be protected or shut down.

Fire watchers will be required in the following situations:

- In areas where other than a minor fire might develop.
- In areas where combustible material is closer than 35 feet away from the point of operation.
- In areas where combustible material is more that 35 feet away but are easily ignited by sparks.
- Wall or floor openings within a 35 foot radius which exposes combustible material in adjacent areas including concealed spaces in walls or floors.
- When combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.

Fire watchers shall have fire extinguishers readily available.

A fire watch shall be maintained for at least a half hour after the welding or cutting operations to detect and extinguish possible smoldering fires.

Cutting or welding shall not be permitted in the following situations:

- In areas not authorized by management.
- In sprinkled buildings while such protection is impaired.
- In the presence of potentially explosive atmospheres, e.g. a flammable
- In areas near the storage of large quantities of exposed, readily ignitable materials.
- In areas where there is dust accumulation of greater than 1/16 inch within 35 feet of the area where welding/hot works will be conducted.

Welding and Cutting in Confined Spaces:

- Ventilation is required in confined spaces during welding and cutting operations.
- When welding or cutting is being performed in any confined spaces the gas cylinders and welding machines shall be secured and left on the outside.
- Where a welder must enter a confined space through a manhole or other small openings, means shall be provided for quickly removing him/her in case of emergency.
- When arc welding is to be suspended for any substantial period of time, all electrodes shall be removed from the holders and the holders carefully located so that accidental contact cannot occur, and the machine is disconnected from the power source.
- Whenever the torch is not to be used for a substantial period of time, the torch valves shall be closed, the fuel-gas and oxygen supply to the torch positively shut off at some point outside the confined area.
- After welding operations are completed, the welder shall mark the hot metal or provide some other means of warning to other workers.

Welding and Hot Work fire prevention measures.

All designated welding areas are established that meet them following requirements:

- Floors swept and cleaned.
- Flammable and combustible liquids and material will be kept 35 feet from work area.
- At least one 10 lb. dry chemical fire extinguisher should be within access of the 35 feet of work area.
- Protective dividers such as welding curtains or non-combustible walls will be provided to contain sparks and slag to the combustible free area.

### **Training Requirements**

Cutters, welders and their supervisors will be suitable trained in the safe operations of their equipment and the safe use of the process. Including sections (1910.254) and with 1910.252(a)(b) and (c).

Employees assigned as fire watchers will be trained in the use of fire extinguishing equipment and familiar with the facilities for sounding an alarm in the event of a fire.



Employees designated to operate welding equipment will be instructed to properly operate the equipment and to know the safety procedures, particularly in areas such as machine hookup, grounding, leaks, switches, manufacturers' instructions, electrode holders, and electric shock.

Operators will be trained to report any equipment defects to their supervisor. Any repairs shall be made only by qualified personnel.

Employee designated to operate arc welding equipment shall be properly trained and qualified to operate such equipment. Employees assigned must be familiar with §1910.254 and §1910.252(a),(b) and (c). If gas shielded arc welding is done, employees shall be familiar with the American Welding Society Standard A6-1-1966.

<b>PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS WELDING, BURNING AND LANCING PROTECTIVE EQUIPMENT REQUIREMENTS</b>			
	<b>Welding</b>	<b>Burning</b>	<b>Lancing</b>
Safety Glasses	Yes	Yes	Yes
Goggles/Tinged Lens	No	Yes	Yes
Welding hood/Treated Lens	Yes	No	No
Face Shield	No	No	Yes
Hard Hat	Yes	Yes	Yes
Fire Resistant Jacket	Yes	Yes	Yes
Welding Gloves	Yes	Yes	Yes
Full Length Frontal, Primary Protection (Aluminized Leather or Wool)	No	No	Yes
Spats Over Work Shoes or Wear 8" or Higher Boots Covered by Pant Legs	Yes	Yes	Yes
Ear Plugs in Close Places	Yes	Yes	No

## **Section 48- Work Zone Safety**

### **Purpose**

The purpose of this program is to provide basic guidelines to protect employees, motorists, and pedestrians at work zones located in or next to a roadway. Since not all worksites, traffic, and pedestrian situations can be covered in this program, employees must use their own judgment in arranging work area protection and traffic control devices with the above purpose in mind.

### **Scope**

This section applies to all BBC Electrical Services subcontractors, employees, and job classifications that may have to perform work activities in or next to a roadway.

### **References**

29 CFR 1926 Subpart G Signs, Signals, and Barricades  
Manual on Uniform Traffic Control Devices- December 2000, Federal Highway Administration

### **Responsibilities**

Project Manager - shall ensure uniform implementation and compliance with this program by all employees.

Service Officer - shall ensure that personnel under their direction receive training and that they maintain compliance with this program.

Safety Manager - shall train supervision on this program to ensure understanding.

Employees - shall maintain compliance with this program and ensure that they receive the appropriate training.

### **Procedures**

Each temporary traffic control zone is different. Many variables, such as location of work, road type, geometry, vertical and horizontal alignment, intersections, interchanges, road user volumes, road vehicle mix (buses, trucks, and cars), and road user speeds affect the needs of each zone. The goal of temporary traffic control in work zones is **SAFETY** with minimum disruption to road users. The key factor in promoting temporary traffic control zone safety is proper judgment.

Supervisors shall periodically review traffic control techniques with employees to ensure the safety of exposed employees, pedestrians, and motorists. Supervisors and the Safety Manager shall audit compliance through regular field visits.

Maintain street work areas for only as long as is necessary; move in quickly and safely, do the job and move out; minimize obstruction and accident exposure.

Suitable work area devices shall be provided to make pedestrians and motorists aware of work area boundaries.

When possible, the width of the work area should not exceed the width of the sidewalk or one traffic lane.

The length of the work area should be separated from oncoming traffic by placing a vehicle or other suitable barrier between the working point and oncoming traffic. Additional space for essential equipment may be obtained by increasing the work area in the direction of the flow of traffic, i.e. past the work area.

Determine in advance the need for any special traffic warning equipment. Select traffic control devices to protect the work area.

Oncoming drivers must be able to see the work area if they are to avoid it. Arrange the traffic warning equipment to provide advance warning to oncoming drivers.

If a vehicle must stand in lanes of moving traffic for work purposes, and is not within a protected area, the hazard lights and beacon or strobe lights must be in operation.

Excavations shall be protected with barriers or other effective means as dictated by the OSHA excavation standard..

Before leaving the work area, inspect the site to be sure that no tools, equipment, and debris are left behind.

The following are the key elements of temporary traffic control management to improve worker safety:

- Training—all workers should be trained on how to work next to motor vehicle traffic in a way that minimizes their vulnerability. Workers having specific temporary traffic control responsibilities should be trained in temporary traffic control techniques, device usage, and placement.
- Worker Clothing—workers within 10 feet of a roadway shall wear bright, highly visible clothing. If work is located in a traffic lane or a parking space next to a traffic lane, employees shall wear a hi-visibility traffic vest.
- Temporary Traffic Barriers—temporary traffic barriers should be placed along the workspace depending on factors such as lateral clearance of workers from adjacent traffic, speed of traffic, duration and type of operations, time of day, and volume of traffic.
- Speed Reduction—reducing the speed of motor vehicle traffic, mainly through regulatory speed zoning, funneling, use of law enforcement officials, lane reduction or flaggers, should be considered.

Consideration should be given to separate pedestrian movements from both work site activity and motor vehicle traffic. Considerations in planning for pedestrians in temporary traffic control zones are as follows:

- Pedestrians should not be led into conflicts with work site vehicles, equipment, and operations.
- Pedestrians should not be led into conflicts with vehicles moving through or around the work site.
- Pedestrians should be provided with a safe, convenient path that replicates as nearly as practical the most desirable characteristics of the existing sidewalk(s).
- When a sidewalk is closed due to work activities, pedestrians should be appropriately directed with advanced signage that encourages them to cross to the opposite side of the roadway. These signs should be placed at intersections so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or making a midblock crossing.
- Temporary traffic control devices such as cones, tubular markers, barricades and drums, or other suitable fencing shall be used to discourage pedestrians from unauthorized movement into the workspace. Tape, rope, fencing, or plastic chain strung between devices can help discourage pedestrian movements off the designated pathway.

They may also be used to inhibit conflicts with motor vehicle traffic by minimizing the possibility of midblock crossings.

The following is required for work operations that occur at night or when there is low visibility (fog, dusk, etc.):

- Channeling devices shall contain reflectorized material or be equipped with lighting devices for maximum visibility.
- All warning signs shall be of reflectorized material. Additionally, primary warning signs shall have a flashing warning light.
- Portable light stands shall be used to adequately illuminate the work area.
- Low intensity lights shall be placed on barricades used to outline excavations (spaced not more than 20 feet apart).
- Variations or additional equipment may be used to alert motorists of the work area during nighttime operations.

### **Training**

All potentially exposed employees shall be trained on how to work in or next to motor vehicle traffic in a way that minimizes their vulnerability. Workers having specific temporary traffic control responsibilities should be trained in temporary traffic control techniques, device usage, and placement.

A yearly review (safety meeting) will be conducted covering the requirements of this program and any additional techniques to be used that will ensure the safety of all personnel working in or around roadways.

Training records shall be maintained for all training sessions conducted.

The Safety Manager shall maintain all training records.

Training records shall be maintained for each exposed employee.

## **Section 49- Forms**

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# ACCIDENT INVESTIGATION PROCEDURES

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## 1. Provide emergency response

### **FIRST PRIORITY IS SAFETY AND HEALTH OF PEOPLE.**

- ☐ Notify appropriate people – medical, fire, rescue.
  - ☐ Depending on seriousness of incident, Project Manager or Safety Officer will accompany injured employee to doctor.
  - ☐ Provide care for the injured.
  - ☐ “Safe” the area. Prevent other accidents.
  - ☐ Notify all members of investigation team.
- 

## 2. Secure the area

- ☐ Observe the big picture.
  - ☐ Secure, barricade, and isolate the scene.
    - ☐ Shut off electrical power and other utilities.
    - ☐ Bleed or isolate pressurized systems.
    - ☐ Block mechanical equipment—prevent movement.
    - ☐ Check air quality.
    - ☐ Issue personal protective equipment.
    - ☐ Provide emergency power, lighting, air, etc.
    - ☐ Secure the scene and protect the evidence. (Rope off or post a guard).
    - ☐ Determine extent of damage to equipment, material, or building facilities.
    - ☐ Issue lockout/tagout permits.
    - ☐ Control crowd and onlookers.
  - ☐ **COLLECT TRANSIENT AND PERISHABLE EVIDENCE IMMEDIATELY.**
    - ☐ Take pictures from several angles or make sketches. Note positions of tools, equipment, material, layout, etc. Note things that melt or evaporate, tire tracks, footprints, loose material on the floor.
    - ☐ Collect operating logs and records.
    - ☐ Record serial numbers of equipment and identify maintenance records.
    - ☐ Put dimensions on all sketches.
    - ☐ Sign and date all photos.
- 

## 3. Identify Potential Witnesses

- ☐ Identify People
    - ☐ Involved in accident
    - ☐ Eyewitnesses to accident
    - ☐ People who heard the accident
    - ☐ People who arrived at the scene after the accident
    - ☐ People who were at the scene prior to the accident
    - ☐ Anyone who may have useful information about the accident
-

## 4. Use an Investigation Kit

☐ Safety Officer has a master kit. Each jobsite should have all items except the tape recorder.

- ☐ Camera (Video, Polaroid, 35 mm) Film
  - ☐ Tape Recorder
  - ☐ Measuring Devices
  - ☐ Sample Collection Containers
  - ☐ Interview/investigation Forms
  - ☐ Flashlight
  - ☐ Barricade Markers
  - ☐ Tape
  - ☐ Lockout/Tagout
  - ☐ Padlocks
- 

## 5. Procure Hard Evidence and Record Data

- ☐ Get samples of all possible material at the site.
  - ☐ Find all equipment pieces.
  - ☐ Get photos from all possible sights and angles.
  - ☐ Use appropriate forms.
    - ☐ First Aid Reports
    - ☐ Injury Reports
    - ☐ Accident Investigation Reports
    - ☐ Supplementary record of occupational injuries and illnesses
    - ☐ Project Manager's Report
    - ☐ Injury and illness record of employee
    - ☐ OSHA Log 300 and First Report of Injury
    - ☐ Note general conditions that may have contributed to the accident.
      - ☐ Housekeeping
      - ☐ Periodic Rule or Procedure Violation
      - ☐ Work Environment or Layout
      - ☐ Training, Experience, or Supervision
      - ☐ Floor or Surface Conditions
      - ☐ Alcohol or Drug Abuse
      - ☐ Lighting or visibility
      - ☐ Employee Morale or Attitude
      - ☐ Noise or distractions
      - ☐ Health or Safety Record
      - ☐ Air Quality, Temperature or Weather
      - ☐ Equipment Condition or Malfunction history
- 

## 6. Conduct Interviews with Witnesses

*Assure witnesses that you are not looking for someone to blame; you are looking for the root cause of the accident.*

### DO:

- ☐ Interview as soon as possible.
- ☐ Interview at the accident scene
- ☐ Take notes or use a tape recorder
- ☐ Ask open-ended questions

- ☐ Avoid bias
- ☐ Put the witness at ease
- ☐ Repeat the story back to the witness
- ☐ End interview on a positive note

**DON'T:**

- ☐ Pressure the witness
- ☐ Blame the witness for the accident
- ☐ Interrupt an answer
- ☐ Ask questions that can be answered with a yes or no
- ☐ Ask "why" questions and opinion questions first

**ALWAYS:**

- ☐ Stress that you only want the facts
- ☐ Stress that you want to prevent the next accident
- ☐ Take the extra time to get understanding

## 7. Review Data

- ☐ Look at all other possible data or records including:
  - ☐ Inspection Reports
  - ☐ Maintenance Reports
  - ☐ Accident Reports and Analysis Results
- ☐ Identify any patterns or trends
- ☐ Analyze all data to determine root causes

## 8. Prepare an Investigation Report

*Involve Project Manager and Safety Officer. State facts, not opinion.*

- ☐ Record any key facts in a written report. Use Accident Investigation Report Form
  - ☐ Write down the accident story
  - ☐ Note the undisputed facts and the disputed facts
  - ☐ Compare the undisputed facts, the disputed facts, and the physical evidence to establish the best answer.
  - ☐ Finalize the story and identify the root cause.
- ☐ Complete the Accident Investigation Report
  - ☐ Who had the accident?
  - ☐ When did it happen? (Time/date)
  - ☐ When was it reported?
  - ☐ What object/agent caused the injury?
  - ☐ Who had most control of the object?
  - ☐ What happened?
  - ☐ What things caused/contributed to the accident?
    - ☐ Direct cause(s)
    - ☐ Indirect cause(s)
    - ☐ Root cause(s)
  - ☐ What can be done to prevent recurrence?
    - ☐ Who will do it?
    - ☐ When will it be done?
  - ☐ Names, addresses, phone numbers, and driver's license numbers of witnesses



- ☐ Photos (signed and dated)
  - ☐ Evidence tagged, recorded and kept
  - ☐ Develop interim reports during extended investigations to keep everyone informed
- 

## 9. Implement Corrective Actions

Implement corrective actions to eliminate root causes in all parts of the system.

- ☐ Failure to complete this step can lead to criminal charges if accident re-curs because hazards and solutions have been identified and documented in an accident report.
- 

## 10. Follow-up, Classify and Analyze Data and Communicate Results

Compile and analyze all accident and incident data on a regular basis, at least monthly and yearly. Tabulate and cross tabulate to study patterns.

Answer the following questions:

- Are all parts of the company committed to hazard control?
  - Are there patterns to injuries?
  - What is the quality of supervision and management?
  - Are employees empowered to take individual action?
- 
-

**BBC ELECTRICAL SERVICES, INC.  
ACCIDENT/NEAR MISS INVESTIGATION REPORT**

Name (Injured) \_\_\_\_\_ Project: \_\_\_\_\_

Address/Location \_\_\_\_\_

<b>When</b>	<input type="checkbox"/> Accident <input type="checkbox"/> Near Miss    Date and Time _____ Report to Project Managers or First Aid Delayed? Yes _____ No _____ If Yes, Why _____ _____ _____
<b>Witnesses</b>	Witnesses (statements if possible) _____ _____ _____
<b>Injury/Loss</b>	Nature/Extent of Injuries or Property Damage _____ _____ _____
<b>Where</b>	Exact Location where Accident Occurred _____ _____ _____
<b>What/How</b>	Type of Accident _____ Was Employee Doing Something Other Than Required Duties at time of Accident? _____ If so, what and why _____ Description of Accident (Detail what Employee was doing, how he/she was doing it, and what physical objects, tools, machines, structures or equipment were involved) _____ _____ _____
<b>Why</b>	Describe What Are Believed to be the Accident Causes and Comment Fully Here _____ _____ _____
<b>Prevention</b>	What Should Be Done to Prevent Recurrence of this Type of Accident? _____ _____ _____

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Name: \_\_\_\_\_ Signature: \_\_\_\_\_

# EMPLOYEE/WITNESS ACCIDENT STATEMENT

Company Name	Project #	Date of Accident	Time am  pm	Date Accident Reported
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## PERSON INJURED

Name	Job Title	Nature of Injury
Part of Body Injured	Type of Accident	Equipment, Object, or Substance Causing Injury

## DESCRIPTION

Describe How The Accident Occurred (use a diagram if necessary)

Signature \_\_\_\_\_ Date\_\_\_\_\_

# NEW HIRE ORIENTATION CHECKLIST

Items to be reviewed with new employees by the Safety Officer. Check off each item when it is explained to the new employee.

Employee Name (**Print**): \_\_\_\_\_

Date: \_\_\_\_\_ Job Title: \_\_\_\_\_

## SAFETY POLICY / SAFETY RULES

### ☐ PROGRAM ADMINISTRATION

- ♦ Safety Program Policy
- ♦ Organizational Responsibilities
- ♦ Accident Investigation/Reporting
- ♦ Emergency Response Plan
- ♦ New Hire and Annual Orientation
- ♦ Self Inspection Program
- ♦ Substance Abuse
- ♦ Safety Program Goals
- ♦ General Safety Rules
- ♦ Disciplinary Policy
- ♦ Safety Training and Education
- ♦ Housekeeping
- ♦ Job Hazard Analysis
- ♦ Process Safety Management

### ☐ HAZARD IDENTIFICATION, EVALUATION AND CONTROL

- ♦ Compressed Air and Gas
- ♦ Material Handling and Storage
- ♦ Electrical Hazards
- ♦ Fall Protection
- ♦ Flammable Liquids
- ♦ Hazard Communication
- ♦ Lockout/Tagout Procedures
- ♦ Powered Industrial Trucks
- ♦ Respiratory Protection
- ♦ Confined Space Entry
- ♦ Fire Protection/ Prevention
- ♦ Hand and Power Tools
- ♦ Machinery and Machine Guarding
- ♦ Personal Protection Equipment
- ♦ Recordkeeping
- ♦ Signs, Signals and Barricades
- ♦ Welding, Torch Cutting and
- ♦ Stairways and Ladders
- ♦ Cranes and Hoist
- ♦ Lead Awareness
- ♦ Aerial Work Platforms
- ♦ Hydrogen Sulfide Awareness
- ♦ Railroad Safety

Lancing

### ☐ MEDICAL PROGRAMS

- ♦ Designated Health Care/ Return to Work
- ♦ Hearing Conservation/Protection
- ♦ Bloodborne Pathogens
- ♦ First Aid/CPR

Trainer

Date

Employee

Date

This form must be completed and signed before an employee is allowed to start work. Employee may retain one copy and the original will be inserted in the employee's file at the office

**FITNESS FOR DUTY**  
**REASONABLE CAUSE/OBSERVATION DOCUMENTATION**

All employees, you included, occasionally exhibit some performance problems and behavior changes. Sometimes these problems and changes cause concern that an employee may be unfit to perform the employer's regular duties as a result of substance abuse. Below is a checklist of observations for you to use in determining when there is reasonable cause for such concern and possible substance testing.

NAME \_\_\_\_\_ LOCATION \_\_\_\_\_

DATE \_\_\_\_\_ TIME \_\_\_\_\_

*The onset of one or more of the following observations may be cause for substance abuse testing.*

**SPEECH**

☐ Incoherent  
☐ Muddled  
☐ Slurred

**AWARENESS**

☐ Confused  
☐ Sleepy  
☐ Erratic Behavior

**BALANCE**

☐ Swaying  
☐ Staggering  
☐ Falling

**PHYSICAL INDICATORS**

☐ Pupil dilated/red eyes  
☐ Cold sweats/tremors  
☐ Alcohol/marijuana odor

When you observe behaviors that may interfere with the employee's performance, you should note and document your observations. The employee should be counseled about any performance problems, and any explanations volunteered or offered by the employee should be noted. Although work related performance or behavior problems may be cause for substance abuse testing, continued work related performance and behavior problems may result in reassignment, or discipline up to and including termination of employment.

**WORK OBSERVATIONS**

☐ Unexplained or excessive absenteeism or tardiness  
☐ Unexplained or excessive absence from work area.  
☐ Frequent trips to water cooler, or restroom  
☐ Difficulty in understanding/recalling instructions  
☐ High frequency of accident occurrence

**MOODS**

☐ Withdrawn/sad/morbid  
☐ Mood swings high and low  
☐ Extremely sensitive/irritable  
☐ Nervousness/agitation

**PHYSICAL INDICATORS**

☐ Rapid Breathing  
☐ Inappropriate wearing of sunglasses

**COMMENTS:**

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To the best of my knowledge and belief this report represents the actions, appearances and/or conduct observed by me and upon which I base my decision to suggest said employee to be tested or be further evaluated by a Project Manager.

EMPLOYEE \_\_\_\_\_

PROJECT MANAGER \_\_\_\_\_

WITNESS \_\_\_\_\_

NOTE: This report is to be used only as an observation aid, and will remain absolutely confidential

## TOOLBOX TALK GUIDELINES

- Hold meetings regularly, such as once a week, so that employees become accustomed to them as part of the work routine.
- Choose a place that is comfortable and free of distractions.
- Choose a time that does not disrupt work activities and at which everyone is alert and most likely to pay attention. The beginning of the day, before work starts, is a good time. The end of a shift is NOT an appropriate time!
- Keep the meeting short and simple; from 15 to 20 minutes is sufficient.
- Your choice of topic should be relevant to the work your crew performs. Stay with one topic for each class.
- Use your resources to develop the talk, but do not read to your audience. Nothing will turn off an audience more quickly than a speaker reading from a paper. Try as much as possible to deliver the talk in your own words, with the printed copy as a backstop or ready reference.
- Use props if possible. Visual aids like charts and pictures can help with retention, provided they are large enough to be seen clearly.
- Encourage participation by your group. Ask them questions, describe an accident and ask them for suggestions on how it might have been avoided.
- Keep attendance records. Have each attendee sign an attendance form. Then the speaker should complete the form and forward it to wherever your company's procedure calls for.
- To summarize:
- **Prepare.** Think, write, read, listen, organize, and practice your talks.
- **Identify.** Don't try to cover too much ground in one session. Focus on one main idea.
- **Personalize.** Bring the subject close to home, to make it more meaningful to your listeners.
- **Visualize.** Create a clear mental picture for your listeners. Use physical objects or visual aids whenever possible.
- **Define.** Make sure you tell your listeners precisely what they should or should not do in order to keep themselves and their co-workers safe and be specific!!

**BBC Electrical Services, Inc.**  
**Safety Meeting/Safety Training Report**

TO: BBC Electrical Services, Inc., P.O. Box 140, Crestline, KS 66728

Training Topic: \_\_\_\_\_ Location: \_\_\_\_\_

Work Group: \_\_\_\_\_ Training Date: \_\_\_\_\_

Start Time: \_\_\_\_\_ End Time: \_\_\_\_\_

Primary Instructor: \_\_\_\_\_

Key Points of Training Topic:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

Attendance:

1. \_\_\_\_\_

3. \_\_\_\_\_

5. \_\_\_\_\_

7. \_\_\_\_\_

9. \_\_\_\_\_

11. \_\_\_\_\_

13. \_\_\_\_\_

15. \_\_\_\_\_

17. \_\_\_\_\_

19. \_\_\_\_\_

21. \_\_\_\_\_

23. \_\_\_\_\_

25. \_\_\_\_\_

27. \_\_\_\_\_

29. \_\_\_\_\_

31. \_\_\_\_\_

33. \_\_\_\_\_

35. \_\_\_\_\_

2. \_\_\_\_\_

4. \_\_\_\_\_

6. \_\_\_\_\_

8. \_\_\_\_\_

10. \_\_\_\_\_

12. \_\_\_\_\_

14. \_\_\_\_\_

16. \_\_\_\_\_

18. \_\_\_\_\_

20. \_\_\_\_\_

22. \_\_\_\_\_

24. \_\_\_\_\_

26. \_\_\_\_\_

28. \_\_\_\_\_

30. \_\_\_\_\_

32. \_\_\_\_\_

34. \_\_\_\_\_

36. \_\_\_\_\_

Comments:

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Recommendations:

Training Verified by:

Certification:

\_\_\_\_\_  
Supervisor/Foreman  
(Must be signed.)

\_\_\_\_\_  
Date

\_\_\_\_\_  
BBC Electrical Services, Inc. Office Personnel  
(Must be signed.)

## EMERGENCY RESPONSE PLAN CHECKLIST

	<u>YES</u>	<u>NO</u>
1. Have you obtained SDSs from subcontractors for all hazardous chemicals in your workplace?	_____	_____
2. Does your plan include emergency escape procedures and route assignments for all employees?	_____	_____
3. Have accessible areas, with escape routes, that can serve as a temporary refuge for all employees been identified?	_____	_____
4. Are floor plans or workplace maps that clearly show escape routes and refuge areas available to your employees?	_____	_____
5. Have a sufficient number of people been trained to assist in an orderly evacuation.	_____	_____
6. Does the plan detail procedures for accounting for all employees after the evacuation is completed, with a responsible person to report any missing personnel?	_____	_____
7. Are emergency telephone numbers posted on or near telephones and at other conspicuous locations?	_____	_____
8. Does your plan include the names or regular job titles of people who must be notified in case of an emergency and who may be contacted for further information or explanation of duties?	_____	_____
9. Does each employee know how to report an emergency?	_____	_____
10. Does your plan have an adequate and distinctive alarm system (3 blasts from air horn or truck) that all people can hear or see?	_____	_____
11. Has someone been assigned to meet with the media?	_____	_____
12. Have all employees been trained in evacuation plans, alarm systems, reporting procedures, and types of potential emergencies?	_____	_____
13. Are employees retrained at least annually, and whenever equipment, materials, processes, or procedures change?	_____	_____
14. If your jobsite does not have a hospital or other treatment facility close by, do you have an adequate number of employees on each shift who are trained in first aid procedures?	_____	_____
15. Do you have adequate first aid supplies on hand?	_____	_____
16. Do employees who may be exposed to corrosive materials have ready access in their work areas to flushing equipment or eye washes? Are they trained to use it?	_____ _____	_____ _____
17. Have arrangements been made with local health care facilities to handle medical emergencies?	_____	_____
18. Have arrangements been made with local ambulance services?	_____	_____



# PERSONAL PROTECTIVE EQUIPMENT CHECKLIST

A checklist of questions to survey for personal protection problems should be tailored to each employer's operations. Some of the items may include:

	<u>YES</u>	<u>NO</u>
1. Is personal protective equipment provided, used, and maintained wherever it is necessary?	_____	_____
2. Is employee-owned personal protective equipment, such as gloves and protective shoes, adequate and properly maintained?	_____	_____
3. Is eye protection available where debris or flying objects could be a hazard?	_____	_____
4. Are ear plugs or muffs provided and worn during noisy conditions?	_____	_____
5. Is slip-resistant footwear worn?	_____	_____
6. Are respirators provided when necessary?	_____	_____
7. Are there written standard operating procedures for the selection and use of respirators?	_____	_____
8. Is the user instructed and trained in the proper use of respirators?	_____	_____
9. Where practicable, are respirators assigned for use by employees individually?	_____	_____
10. Are respirators cleaned and disinfected after use?	_____	_____
11. Are respirators stored in a convenient, clean, and sanitary location?	_____	_____
12. Are routinely used respirators inspected during cleaning?	_____	_____
13. Is the proper respirator in use for the hazard present ?	_____	_____

## SAFETY INSPECTION REPORT

Person(s) making Inspection: \_\_\_\_\_ Title: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Job Name/Number/Location: \_\_\_\_\_

<b>1. JOB-SITE INFORMATION:</b>	<b>YES</b>	<b>NO</b>	<b>DATE CORRECTED/ COMMENTS</b>
a. OSHA and other job-site warnings posted.			
b. Adequate first aid equipment available.			
c. Accident investigation forms available.			
d. Emergency phone numbers conspicuously posted.			
<b>2. HOUSEKEEPING and SANITATION:</b>			
a. General neatness of the working areas.			
b. Passageways and walkways clear.			
c. Waste containers provided.			
d. Adequate supply of drinking water available.			
e. Disposable drinking cups available.			
f. Adequate lighting.			
g. Trash receptacle for drinking cups.			
h. Adequate number of toilet facilities provided kept clean.			
<b>3. FIRE PREVENTION:</b>			
a. Fire instruction/training provided to personnel.			
b. Fire extinguishers identified and checked.			
c. Hydrants clear, access to public roads.			
d. Housekeeping.			
e. "No Smoking" signs posted and enforced where needed.			
f. Storage, use and handling of flammable liquids in accordance with standards.			

<b>4. ELECTRICAL INSTALLATION:</b>	<b>YES</b>	<b>NO</b>	<b>DATE CORRECTED / COMMENTS</b>
a. Wiring is insulated and fused properly.			
b. All electrical equipment is grounded, all extension cords are of the three prong type.			
c. Double insulating tools are used.			
d. All terminal boxes equipped with required covers.			
e. Lockout/Tagout Program.			
<b>5. HAND TOOLS:</b>			
a. Proper tools for each job.			
b. Neat and secure storage area.			
c. Inspection and maintenance procedures.			
d. System for reporting/replacing damaged tools.			
<b>6. POWER TOOLS:</b>			
a. All power tools are properly grounded and double insulated.			
b. All power tools are guarded.			
c. Pneumatic power tools, fuel power tools, hydraulic power tools properly guarded.			
<b>7. POWDER ACTUATED TOOLS:</b>			
a. All operators are qualified.			
b. PPE available and in good working order.			
c. Tools and charges protected from unauthorized use, and are in good working order.			
<b>8. LADDERS:</b>			
a. Ladders are inspected and in good condition.			
b. Step ladders fully open when in use.			
c. Metal ladders not used around electrical hazards.			
d. Ladders are equipped with safety footings.			
<b>9. SCAFFOLDING:</b>			
a. Scaffold is plumb and square with cross bracing.			

	YES	NO	DATE CORRECTED/ COMMENTS
<b>9. SCAFFOLDING: (CONTINUED)</b>			
a. Guardrails and toeboards on all scaffolds and platforms > 10' high. Scaffolds that are less than 45" in their least dimension are required guardrails 4' or higher.			
b. Damaged components identified and repaired or replaced.			
c. Access ladder provided for scaffolds.			
d. Scaffold footing and anchorage.			
e. Scaffold height is < 4 times minimum base.			
<b>10. HOISTS, CRANES and DERRICKS:</b>			
a. Approved slings, chains, hooks and eyes.			
b. Outriggers are downward.			
c. Power line signs in plain view of operator.			
d. Signal men where needed.			
<b>11. MOTOR VEHICLES / HEAVY EQUIPMENT:</b>			
a. Regular inspection and maintenance.			
b. Lights, brakes, warning signals operative.			
c. Haul roads well maintained and laid out properly.			
d. Noise arresters in use.			
e. Guards over moving parts.			
f. Proper fire protection.			
g. Operators licensed and qualified.			
h. Personnel carried in a safe manner.			
<b>12. BARRICADES:</b>			
a. Floor openings planked over or barricaded.			
b. Roadways and sidewalks effectively protected.			
c. Adequate lighting provided.			
d. Traffic controlled.			
<b>13. HANDLING and STORAGE OF MATERIALS:</b>			
a. Materials are properly stored or stacked.			
b. Passageways are clear.			
c. Stacks on firm footings, not too high.			

<b>13. HANDLING and STORAGE OF MATERIALS: (CONTINUED)</b>	<b>YES</b>	<b>NO</b>	<b>DATE CORRECTED/ COMMENTS</b>
d. Protection against falling into hoppers or bins.			
e. Dust protection is observed.			
f. Extinguishers and other fire protection available.			
g. Traffic is controlled in the storage area.			
<b>14. PERSONAL PROTECTIVE EQUIPMENT:</b>			
a. Eye protection.			
b. Face shields.			
c. Respirator and masks.			
d. Head and or face protection.			
e. Gloves, aprons and sleeves.			
f. Ear/hearing protection.			
g. Safety harnesses and lifelines used.			
h. Proper shoes, trousers and shirts.			
<b>15. SITE SETUP - TRAILERS and STORAGE YARD</b>			
a. Proper steps, landings and handrails.			
b. Existing utilities flagged, protected and insulated.			
c. Bulletin Board posted with the following:			
- OSHA Standards/Poster			
- Emergency Phone Numbers			
- OSHA 300A Summary posted (Feb 1-Apr 30).			
- Contractor Safety Rules.			
- Assured Grounding Program.			
- Emergency Procedures for Fire/Accident.			
- Workers' Compensation, EEO, Minimum Wage, Prevailing Wage information.			
- Hazard Material Container Labeling Poster.			
d. Required signs - Hard Hats, No Smoking, Fire Extinguisher.			
e. Required Special Permits - Burning, Welding, Traffic, Confined Space Entry.			
f. Office Files:			
- Maintenance records for cranes.			
- P.E. designs for trenches, daily soil logs, trench box certifications.			

f. Office Files: <b>(CONTINUED)</b>	<b>YES</b>	<b>NO</b>	<b>COMMENTS / DATE COMPLETED</b>
- Lifting chain certifications.			
- Training Records.			
- Accident Report Forms.			
- Written Hazard Communication Program.			
- SDSs for all on site materials.			
- Hazard Chemical inventory list.			
- Medical - First Aid Program.			
- Weekly Jobsite Safety Checklist.			
- Adequate Ventilation.			
- Lead Exposure.			
- Asbestos Exposure.			
- Weekly Safety Meeting Reports.			