CONTRACTOR Safety Manual

March 2015

CITIZENS ENERGY GROUP

COMPLIANCE STATEMENT

I have received a copy of the CEG Contractor Safety Handbook. I also have been through an orientation session, which summarizes its contents and other site- specific health and safety information. I understand that my direct reports, subcontractors engaged by me, and I must work safely and complying with all applicable OSHA Regulations and additional rules and regulations that CEG and/or the facility owner have established for the site.

In acknowledging receipt of this handbook presented to me, I agree to read all safety instructions and to the best of my understanding, ability, do all possible to prevent injury to others and myself.

Name: _____

Company: _____

Signature: _____

Date: _____

I gave the above named person a copy of the CEG Contractor Safety Handbook. This individual also was personally instructed on the hazards of his/her work and work area at CEG facility/project listed below.

Name: _____

Company: _____

Signature: _____

CEG Project Name/Location: _____

_____

Date: _____

Additional Comments: _____

_____

_____

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Construction/Contractor Safety - Preface

Before entering into a contractual arrangement with any service provider, the service provider must be evaluated to predict its ability to satisfactorily fulfill the conditions of the contract and its scope of work. These conditions not only include financial and organizational criteria but also the attitude, awareness, and safety capability of the contractor and its employees.

CONGRATULATIONS, your company has been pre- qualified to work as a contractor for Citizens Energy Group (CEG). However, no pre-qualification criteria will guarantee safety performance. As in the areas of quality and timeliness, the best way to ensure safety performance is to take a pro-active, involved role in the contract administration and require that the contractor fulfill its obligation under the contract and under law.

Safety at Citizens Energy Group

At CEG we believe:

- The health and safety of our employees, contractors, and members of the general public are integral to how we conduct business.
- That all accidents can be prevented.
- We will be industry leaders in health and safety performance by continuously evaluating our safety program for effectiveness and as a result, continually improving our health and safety practices.

All personnel (including those employed by CEG contractors

are expected to cooperate to the fullest extent towards recognition and support of worker and workplace safety as a company value and at the highest of priorities.

OUR OBJECTIVE AND YOUR CONTRIBUTION

This handbook has been prepared for the purpose of communicating safe work practices and company expectations to contractors performing work on CEG jobsites.

This handbook gives essential, basic information to help keep you and your co-workers safe while at the same time – maintaining a safe, secure, and healthful workplace for employees and visitors of CEG. It is not intended as a detailed accounting of all safety procedures and rules. OSHA Standards for General Industry and the Construction Industry, and certain local, state, and provincial codes detail those procedures and rules. You are responsible for following all the above rules and regulations – whereas, the most stringent procedures shall apply. This handbook should remain readily accessible during your working relationship with CEG as a quick-reference document.

All contractors are responsible for:

- Complying with all rules, regulations, codes of practice, and relevant industry and best management standards.
- Complying with all health and safety requirements contained in this handbook, contract documents, or as otherwise instructed by CEG personnel.
- Ensuring their employees and sub-

contractor(s) employees receive adequate instruction, supervision, and training.

- Providing their own tools, equipment, or other resources unless specifically agreed before the contract is awarded.

CEG requires service providers to:

- Complete a risk assessment (Job Safety Analysis – JSA) of the work to be done and to develop and implement appropriate controls to eliminate or minimize these risks.
- If requested, submit a written health & safety plan (work method statement) describing how the work will be undertaken safely.
- Ensure a competent person supervises the work.
- Provide training and instruction appropriate for the work being done.
- Enforce the use of PPE as required.
- Ensure there is suitable and safe access to and from the work area at all times.
- Prevent unauthorized people from entering the work area.
- Identify and clearly mark overhead and underground services (e.g. gas, water, electricity, and telecommunication cables) when work is to be done in these areas.
- Use appropriate tools and equipment that are maintained in a safe working condition.
- Put in place emergency and rescue procedures in the event of an emergency.

- Prior to and concurrent with a task being performed, a Mental Safety Assessment (MSA) is conducted using the following proven technique:

MENTAL SAFETY ASSESSMENT (MSA)

STOP and Think/What are the RISK or HAZARDS?

- What could go wrong?
- What is the worst thing that can happen?

ANALYZE the potential problems!

- Can the job be performed safely?
- Do I have the proper PPE?
- Do I have the proper tools?
- Do I have the proper training?

PERFORM the Job Safely!

- Do not proceed unless you have performed an MSA!
- Take needed precautions to perform the job safely!
- Ask for assistance, or guidance!
- Follow all proper procedures!

Failure to follow an MSA could result in and injury or DEATH

Towards energy conservation and the protection of natural resources - CEG requires its service providers

to continually implement best management practices in regards to source reduction, recycling, pollution prevention, erosion control, and the like.

The contractor is responsible for ensuring that their sub-contractors also comply with these requirements while working at CEG jobsites. CEG views sub-contractors as employees of the primary contract.

SITE SECURITY

All CEG jobsites must maintain a system to monitor the access of employees and non-employees entering the facility. CEG does not allow unauthorized personnel in work areas at any time. Access to CEG jobsites by non-company personnel must be monitored. Site-specific decisions related to workplace security are to be promptly addressed with the CEG Project Manager and CEG Security Manager.

Service providers and their employees have restricted access to CEG projects/facilities. They should remain in designated areas and abide by site requirements.

All acts of theft, vandalism, sabotage, and/or terrorism shall promptly be reported to law enforcement and CEG personnel. Threats of terrorism shall immediately be reported to CEG and law enforcement and be treated as “real” until proven otherwise. All anomalies relating to worksite security shall be promptly reported to CEG personnel.

Service providers must report to the reception/sign-in area each day upon arrival. First time, contractors must participate in a site-speci ic environmental, health, safety and security (EHS&S) orientation meeting.

In the case of larger, on-going construction activities or contracts, service providers can submit an alternate

security plan for review/approval by CEG which includes an authorization and accountability program applicable to their employees working at CEG jobsites.

Failure to comply with security requirements may result in an order to temporarily cease operations or in more serious cases, permanent removal from the jobsite.

SAFETY TRAINING

The contractor shall instruct each employee in the recognition and avoidance of unsafe acts/conditions and regulations applicable to the work environment and scope of work being performed. The service provider shall allow only those employees qualified by training or experience to perform assignments – including the operation and maintenance of equipment and machinery. It is also the responsibility of the service provider to employ qualified sub-contractors and to continually monitor employees and subcontractors to ensure that all safety rules and regulations are followed.

The CEG site for which you have been approved to work shall provide site-specific EHS&S orientation for all selected contractors prior to the commencement of the agreed upon scope of work.

EMERGENCY PROCEDURES

Be prepared for emergencies by familiarizing yourself with your surroundings and knowing where emergency equipment and exits are located. Discuss with the CEG Project Manager the location(s) of rally (assembly) points in the event of a serious incident resulting in evacuation. Whenever an employee reports or becomes aware of an emergency condition, the em-

ployee shall immediately report to the rally point. The Construction and Project Manager shall account for all personnel on-site and provide instructions on further actions to be taken, including declaration of “all clear”.

Know the locations of the telephone nearest your work area. If an emergency occurs, dial the emergency telephone number posted at the job site. Give the location and nature of the emergency. Then, notify your Supervisor if you can safely do so.

If anyone is injured and immobile in an emergency, do not attempt to move him or her unless imminent threat of further injury is present. Keep the injured lying down and quiet. Assist in clearing aisle ways so emergency vehicles can reach the accident.

Safety showers and eyewashes must be provided where hazardous chemicals are used. Know the location of these showers and how to use them. If a chemical contacts your skin or eyes, flush the area with water for at least 20 minutes and seek follow-up medical assistance. The Safety Data Sheet (SDS) can provide additional first aid and medical information on the suspect chemical. The location of CEG SDS, as well as the SDS for those products/chemicals brought on-site by the contractor shall be clearly communicated during the initial EHS&S orientation phase.

Fire fighting is limited to small “incipient stage” fires. Only those trained in fire extinguisher use can fight a fire. A small fire is defined as one that can be extinguished with a single, 10-pound dry chemical fire extinguisher. In the event of a small fire, trained personnel shall evacuate the area, extinguish the fire with a portable extinguisher or by smothering with soil, and

contact emergency response personnel (fire department, fire brigade, ambulance, etc.) Contractors shall become familiar with the audible alarms and tones where applicable. No open burning of trash is permitted at CEG jobsites. Temporary heaters are allowed only with permission from the CEG Project Manager.

INJURY/ILLNESS REPORTING

Work related injuries and illnesses must be reported immediately to the jobsite Supervisor or safety contact - no matter how minor, to assure immediate and professional treatment. In turn, the contractor must immediately report work-related injuries to the CEG Project Manager.

Where a serious accident occurs, the scene must be left “as is” until a thorough incident review is complete and an “all clear” issued.

The contractor shall begin an incident review on the accident date, providing a preliminary (writ-ten) assessment to CEG within 48 hours and final (written) report - complete with root cause analysis, contributing causes, and corrective and preventive actions. If the incident review can be completed and documented within the first 48 hours, a single incident report will suffice.

Serious near-miss events involving the potential for injury, adverse environmental impact, or excessive property damage shall be reviewed and documented as discussed above.

CEG may choose to audit a contractors incident review and may separately investigate any incident involving hospitalization, adverse environmental impact,

excessive property damage, serious near-miss, or an on-site visit by a regulatory official.

Contractors for CEG are solely responsible for making all required regulatory notifications in accordance with environmental and safety regulations in the event of a reportable mishap involving their operations.

HOUSEKEEPING

Do not store materials or otherwise block walkways, stairways, driveways, emergency exit routes (including doors and gates), or emergency safety equipment – such as, fire extinguishers, eyewash stations, emergency showers and first aid stations. Keep your work area organized and uncluttered.

Pick up trash, debris, and other waste materials as you work and definitely before the end of your shift.

Oily and greasy rags are to be stored in metal containers. Combustible materials are to be controlled and stored in approveddumpsters / containers. No open burning of trash is permitted at CEG jobsites.

Do not leave or store rebar, pipe or conduit and so forth on working surfaces. Store them on racks, cribbing, pallets, etc.

Do not leave or store conduit fittings, pipefittings, hardware, or other small material, tools, and equipment items on walking surfaces. Store them on tables, racks, pallets, or in designated storage areas.

Pick up electrical cords, hoses, welding leads and other materials as you finish using them and definitely before the end of your shift. If they are required for a longer duration, rig them off the walking surface

such that they will not present a tripping or overhead hazard.

WASTE DISPOSAL

State and federal regulations affecting waste management and disposal depend largely upon the type of waste being generated and disposed. Most waste streams are regulated under the federal Solid Waste Disposal Act, and corresponding state law.

This includes garbage, refuse, sludge, or any other material that is abandoned, recycled, or “inherently waste-like.” Solid wastes, by definition, can include solids, liquids, semi-solids, sludge’s, and other materials not generally perceived as “solid.”

In essence, once a material has been used for something, it becomes potentially subject to regulation. That means that waste materials from CEG and the operations of a service provider, apart from office paper or paper products, may be subject to regulations and should only be disposed of or recycled according to applicable rules and regulations.

Most of the solid waste regulations apply to disposal facilities (e.g. landfills or incinerators). Generators of solid wastes, however, also have responsibilities they must fulfill. The primary responsibility for generators is that they must determine whether each solid waste is hazardous, non-hazardous, or otherwise regulated as a “special use”. This process is called “characterization”.

Solid wastes can be a hazardous waste in either of two ways:

- They can be identified on lists of wastes from non-specific or specific sources or

processes (e.g., spent solvents or process residues from the production of commercial chemicals) or spent commercial chemical products. These are termed 'Listed Wastes' and are always hazardous - whether they are stored and disposed of by themselves, or are mixed with other wastes;

OR

- They can be classified as regulated hazardous wastes if they exhibit certain hazardous characteristics. These are termed 'Characteristic Wastes'. Hazardous characteristics are:
  - Ignitability;
  - Corrosivity;
  - Reactivity; and,
  - Toxicity.

The contractor (with assistance from CEG – if requested) is responsible for coordinating proper waste characterization at each project. This is completed through the development of waste profiles, which can be based on analysis or process knowledge. A waste profile is a complete written description of the waste stream. The service provider shall maintain waste profiles with applicable waste analysis information with copies provided to CEG upon request.

A sound waste management program implemented by a CEG contractor shall include components such as tank/container management, time in storage limitations, manifests of waste shipments, periodic reporting, recordkeeping, emergency preparedness, training programs, and equipment inspections.

There are specific locations for the disposal of various wastes (clean excavated material, common construction trash, solvents, flammable liquids, etc.). When in doubt, ask your Supervisor for instructions on waste disposal. Dispose of solvents and flammable/combustible liquids only at approved waste solvent sites. Never pour these materials onto the soil or down drains or sewers. Do not throw paint cans or paint/thinner soaked rags in dumpsters.

GENERAL SAFETY RULES

PERSONAL CONDUCT

Individuals who knowingly, willfully, and/or repeatedly violate environmental, health, safety, or security laws, standards, policies or procedures will be permanently removed from the jobsite.

Firearms, alcohol and illicit drugs are not permitted on the job site. Possessing these items or being under the influence of alcohol or other drugs while in the work place will be cause for disciplinary action or permanent removal from the jobsite.

Horseplay, fighting and gambling are not permitted and are also cause for disciplinary action or permanent removal from the jobsite.

Report all accidents, injuries and near misses immediately to your Supervisor.

Contractors, sub-contractors, and their employees are prohibited from using tobacco products while on Citizens property or projects.

The use of headphones with radios, CD players, DVD players, etc., is prohibited at all times.

Check for site-specific CEG/facility owner requirements such as grooming requirements (e.g. hair length, beards, mustaches, etc.), clothing requirements (e.g. long sleeve shirts, long pants, flame-retardant fabrics, etc.) and possible stipulations on rings, chains, bracelets, dangling earrings, or other loose jewelry. Do not wear lose or dangling clothes. Wear uniforms if provided.

PERSONAL HYGIENE

To reduce the risk of contracting infectious diseases or illnesses, the following procedures shall be followed when working at CEG projects/facilities (more importantly – wastewater treatment systems):

Any cuts, scratches, or abrasions should be covered with a waterproof plaster to prevent infection

Appropriate PPE should always be worn

Avoid rubbing your face with contaminated hands

Wash hands before eating, drinking, or smoking

Only eat food, drink, in designated areas.

Keep work clothes and 'street' clothes separate

Immunizations for Hepatitis A and Tetanus are recommended.

Do not drink or wash-up from water supplies/hydrants labeled as "process water", "gray water", "non-potable water", or equal.

SAFE WORK PRACTICES

Know the safety rules and safe work practices that pertain to your job.

Look over each assignment to determine the possible

hazards (Mental Safety Assessment – MSA). If you are uncertain about the safety of any operations, ask your Supervisor.

Immediately report any unsafe conditions to your Supervisor.

Never begin work in an area without proper permission and permits (burning permits, digging permits, confined space entry permits, lockout/tagout, etc.). Never begin work in an operating area without first making sure the appropriate operating personnel know what you will be doing.

Report all “near misses” that could have caused an injury or property damage.

Warn your co-workers before proceeding with anything that could affect their safety.

Be aware of all emergency procedures for your work site.

Familiarize yourself with emergency exits before you begin working.

Utilize and maintain in good repair all personal protective equipment specified for your job.

Bring unsafe work practices to the attention of those who are involved in such behavior. Turning your head to it … is the same as approving of it.

GENERAL HAZARDS

There are many hazards in the various arenas in which CEG conducts business - which may or may not be obvious. Again, all of these hazards can be addressed through pre-job risk assessments (JSAs) and pre-task mental assessments (MSAs).

- Common *Hazards* at all sites:

- Inclement weather (frost-bite, ice, blizzards, heat emergencies, sunburn, fog, thunder-storms, tornados, hurricanes, etc.)
- Snakes, spiders, wasps, hornets, etc.
- Manual and material handling
- Dust (including asbestos)
- Noise
- Rotating and reciprocating equipment
- Hazardous energy
- Slips, Trips, and falls due to slippery/wet conditions.
- Vehicle traffic

- Industry Specific Hazards

- Hazardous substances (e.g. Chlorine, solvents, caustic, acids, etc.)
- Unauthorized dumping of hazardous, toxic, and sometimes unknown materials into the collection system.
- Confined spaces
- Drowning (e.g. tanks, basins, lagoons, reservoirs, etc.)
- Toxic gases (e.g. hydrogen sulfide, ben-zene, etc.)
- Flammable gases (e.g. methane)
- Oxygen deficient atmospheres
- Electrocution

- Automatic-starting equipment
- Infectious diseases
- Discarded sharps (e.g. syringes, razor blades)

CONSTRUCTION HAZARDS

OSHA reports that nearly 6.5 million people work at construction sites across the country on any given day. The fatal injury rate for the construction industry is higher than the national average in this category for all industries. Potential hazards for workers in construction include falls (from heights), trench collapse, scaffold collapse, electric shock and arc flash, failure to use appropriate PPE, and repetitive motion injuries. In short, the construction site in which you may be working is a potentially dangerous environment if everyone does not follow safety rules and procedures.

The following pages address many solutions for potential hazards found at CEG jobsites, including those involved in construction activities.

SAFETY SIGNS

Safety signs draw your attention to objects or situations affecting your health and safety. CEG employees, visitors, and service providers shall comply with the message on all safety signs.

At locations where potential hazards exist, service providers shall be responsible for posting, installing and maintaining signs that pertain to their operations/ scope of work.

Mandatory Signs – (typically blue and white) indicate that an instruction must be carried out.

Prohibitory Signs – (typically red, black, and white)

indicate that an action or activity is not permitted.

Danger Signs – (typically red, black, and white) warn of a hazard or hazardous situation that is likely to be life threatening.

Warning Signs – (typically black and yellow) warn of a hazard or hazardous condition that is not likely to be life threatening.

Emergency Information Signs – (typically green and white)

– Indicate the location of, or direction to, emergency related facilities such as exits, safety equipment or first aid facilities.

HazChem Signs – (variety of colors) are used to identify dangerous goods whenever they are packaged, transported, or stored.

SIGNALS AND BARRICADES

Barricades are required around excavations, holes or openings in floors or roofs, edges of roofs and elevated platforms, around certain types of overhead work and wherever necessary to warn or prevent people or equipment against falling in, through or off.

All contractor equipment left unattended at night, adjacent to a roadway in normal use, or adjacent to a construction area where work is in progress, shall have appropriate lights, reflectors or barricades equipped with appropriate lights or reflectors to identify the location of the equipment. Barricades shall be kept back six feet from the edge of excavations, holes, platforms and roofs.

At locations where potential hazards exist, service providers shall be responsible for posting, installing

and maintaining signs, signals, and barricades to detour the passage of persons and vehicles as related to their operations/scope of work.

Contractor employees shall obey all signals and barricades, which are posted to warn of potential or existing hazards.

In low hazard areas, yellow “caution” barrier tape connected to vertical posts may be sufficient. In high hazard areas, red “do not cross” tape may be used. In high traffic areas, fencing must be used to physically protect people. In either case, the barricade must be clearly visible.

If it is not appropriate to barricade a hole, cover it. Hole covers must be able to carry imposed loads and they must be adequately secured to prevent sliding. All covers shall be marked with the word “HOLE” or “COVER” to provide warning of the hazard.

When operations are such that signs, barricades of fluorescent traffic cones do not provide the necessary protection, a flagman must be assigned to the area. Flagmen must be outfitted with fluorescent-type vests.

Appropriate barricades shall be used in situations where entry is prohibited or requires special permission.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

The Contractor is responsible for requiring the wearing of appropriate PPE in all operations where there is an exposure to hazardous conditions (as identified in the JSA and MSA process. PPE is to be provided by the service provider for their employees. The use, maintenance and cleaning of the equipment

is also the responsibility of the service provider.

HARDHATS – ANSI Z89.1 non-metallic hard-hats. Serious head injuries can result from blows to the head. Be sure that workers wear hard hats where there is a potential for objects falling from above, bumps to the heads from fixed objects, or accidental head contact with electrical hazards. construction sites shall be deemed hardhat areas regardless of JSA/MSA.

EYE/FACE PROTECTION – As required by the hazards of the task you are performing, ANSI Z87.1 approved safety glasses with rigid side shields, goggles, face shields or other task specific eye/face protection is required. Prescription lens wearers must wear "fit over" safety glasses until prescription safety glasses are obtained. Shaded lenses are not permitted inside buildings. Some construction and laboratory sites may prohibit the use of contact lenses. All construction sites shall be deemed as eye protection areas regardless of the JSA/PPE assessments.

SAFETY SHOES – Minimum 6" high, steel-toed, leather work boots are required for work in non-office areas and for all construction activity regardless of location. Specific exposures (e.g. working with chemicals such as lime, ferric chloride, polymer, etc.) will require special shoe/boot considerations. Construction workers should wear boots with slip-resistant and puncture-resistant soles.

HEARING PROTECTION – Certain areas of the plant require hearing protection during operation and repair. Signs are posted at these areas, which read "Hearing Protection Required". Hearing protection is also required when using certain equipment, which produces noise levels greater than 85dBA. All service providers

shall comply with the site-specific Hearing Conservation Program. While on site, it is best to have hearing protection with you at all times in the event that your assignment involves a hearing- protection area.

HAND PROTECTION – General-purpose work gloves shall be worn by workers for protection against splinters, sharp edges, jagged surfaces, wire rope, glass, and metal splinters. Special purpose gloves are required when employees are performing certain tasks. For example, heavy-duty rubber gloves for concrete work, welding gloves for welding, insulated gloves and sleeves when exposed to electrical hazards, and chemical resistant gloves for handling chemicals (reference chemical-specific SDS for PPE requirements). Gloves should fit snugly.

RESPIRATORS – Respiratory protective devices shall be approved by NIOSH. The service provider shall be responsible for establishment and maintenance of a respiratory protective program. If you are required to wear a respirator as part of your job, the site-specific program shall:

- Identify and make provisions for the proper respirator for the hazards related to the task you are performing.
- Provide for an annual “medical clearance” to verify that you are physically capable of wearing a respirator.
- Provide for fit testing to assure that the respirator will provide you the proper protection.
- Train you in the proper selection, use, care, and maintenance of your respirator.

TOOLS AND EQUIPMENT

General

Inspect tools and equipment before using. If you find tools or equipment in a deteriorated, damaged or otherwise unsafe condition, take appropriate steps to make sure others will not use them. Dispose of, destroy, tag them out (use a “Defective - Do Not Operate” Tag), or tell your Supervisor about them -- but do not leave them in the work place where they pose the risk of hurting others.

- Do not operate tools, machinery or equipment unless you have been adequately trained.
- Do not operate tools, machinery and equipment that are not properly guarded.
- Use tools, machinery, and equipment only for their designed purpose. Do not force tools beyond their capacity or use “cheaters” to increase their capacity.
- Do not use tools as pry bars.
- Do not tamper with safety equipment or safety devices.
- Do not leave tools on scaffolds, ladders, or overhead workspaces.
- Sharp tools must be sheathed when carried in a pocket.
- Make sure any electrical tool or equipment you use is grounded, with the exception of double-insulated or equivalent power tools. When refueling equipment driven by internal combustion engines, shut off the engine and

do not smoke. Do not refuel inside buildings. Refuel mobile equipment and vehicles only at designated locations with proper dispensing equipment. Report environmental spill immediately to your supervisor for proper environmental cleanup. Contact CEG Department of Environmental Stewardship.

Electric Tools

Electrical power tools must be double insulated or shall be of an approved system that contains three wires with the ground. All portable electrical tools must be connected to GFCI.

Electrical power tools shall not be used in hazardous locations such as confined spaces per the National Electrical Code unless the tool is approved for service in that environment and/or all hazards have been eliminated.

Pneumatic powered tools are to be secured to the hose by positive means to prevent the tool from becoming accidentally disconnected. Radiator type hose clamps are not permitted on hoses.

Pneumatic hose sections must be wired together at each coupling connection.

Extension Cords

Extension cords must be of three-wire type and shall be designed for construction (12 gauge or less).

Extension cords and cables must be protected from any physical damage.

Extension cords must be kept out of walkways, stairways, aisles, and other areas where they present trip hazards.

Electrical connections, cables, etc. must be kept away from water or damp surfaces.

Inspection and testing of cords shall be performed as required by OSHA standards.

Powder Actuated Tools

You must get permission from your Supervisor before using these tools.

Use only Low Velocity powder actuated tools. Operators must be trained in the use of the tool and have certification as evidence of this training. Never point a tool at anyone or release a charge in a manner inappropriate to its use. Keep charges in protective containers away from flames, excessive heat and physical damage.

LADDERS

General

Use the correct ladder for the task.

Never load ladders beyond the maximum intended load or beyond the manufacturer's rated capacity.

Use only non-metallic ladders where there is any possibility of contacting overhead power lines or becoming grounded to a metal object such as a tank or electric control panel.

Inspect ladders prior to each use. Always clean-up grease, dirt, or other contaminants that could cause slips or falls. Do not use ladders with broken or missing rungs, split side rails or other defects. Defective ladders must be tagged as such and removed from the jobsite immediately.

Make sure the ladder's footing is sound and not

protruding into access ways or aisle ways in such a way the base might be inadvertently disturbed. Have a floor watch person, or erect barricades if there is any concern the ladder footing may be disturbed.

Use both hands and face the ladder when climbing up or down. Do not carry items that will restrict your grip.

When working off a ladder, face the ladder and keep both feet on the rungs. Only one person should be on a ladder at a time.

Do not use ladders in a horizontal position as a platform, walkway, or scaffold.

Straight and Extension Ladders

These ladders must have non-skid feet and a rope for tie-off at the top. Always tie-off these ladders at the top. Have someone hold the top or the bottom of the ladder until it can be tied off.

The top of the ladder must extend 3' above the upper elevation when used for upper elevation access.

Set the ladder pitch so the lateral base distance from the support is approximately one-fourth of the working height of the ladder.

Stepladders

Use only in a fully opened, locked position. Do not use as a straight ladder.

Do not stand on the top step or the platform of a stepladder.

FALL PROTECTION – ELEVATED SURFACES

Consider using aerial lifts or elevated platforms to provide safer elevated working surfaces.

Erect guardrail systems with toe boards and warning lines or install control line systems to protect workers near the edges of floors and roofs. Surfaces elevated more than 48 inches above the floor or ground shall have standard guardrails.

Guardrail systems shall consist of top rail between 38 inches and 45 inches high, with a 200 lb. weight restraint and mid-rail restraint capabilities of 150 lbs. weight restraint. The mid-rail shall be installed at a height approximately midway between the top edged of the guardrail system and the platform. Posts are to be at a maximum of 8 feet center to center.

Elevated surfaces (beneath which people or machinery could be exposed to falling objects) shall have standard, 4-inch toe boards.

A permanent means of entry and exit with handrails is provided to elevated storage or work surfaces.

On elevated surfaces, material is to be piled, stacked, or racked in a way that prevents it from tipping, falling, collapsing, rolling or spreading.

Cover floor holes and/or use safety net systems or personal fall arrest systems (body harness). Floor openings (12 inches or more) are to be guarded by a secured cover or a guardrail or equivalent on all sides (except at entrances to stairways).

When required, body harnesses with shock absorbing lanyards shall be used while working on sloped roofs and at elevations where falls are possible. Tie-off is required when fall potential is 6 ft. or more and you are not protected by a fall restraint system such as a guardrail or other means of fall protection.

When working on rooftops, barricade the area below

to protect others from falling materials. Conditions may warrant using flagmen at the lower level to warn people of the hazard.

Do not throw or drop material from an elevated area without permission from your Supervisor. If permission is given, a ground person must be stationed at the lower level to warn passers-by.

Do not leave combustible materials (debris, mops, asphalt, etc.) unattended on a roof overnight. Secure any materials that could become airborne. Tie together plywood sheets, aluminum pieces, vinyl panels, and similar materials that could become airborne.

SCAFFOLDING

Scaffold must be sound, rigid, and sufficient to carry its own weight plus four times the maximum intended load without settling or displacement. It must be erected on solid footing.

The service provider shall have each employee who performs work while on a scaffold 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 procedure to control those hazards.

The service provider shall have each employee who is involved in erecting, disassembling, moving, operation, repairing, maintaining or inspecting a scaffold trained by a competent person to recognize any hazards associated with the work in question. The training shall include, but not be limited to the following topics:

The nature of scaffold hazards.

The correct procedures for erecting, disassembling, moving, operation, repairing, maintaining or inspecting

the type of scaffold in question.

The design criteria, maximum intended load, carrying capacity and intended use of scaffold.

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 proper handling of materials on the scaffold.

Scaffolding greater than 10 feet in height must be equipped with handrails, mid-rails, toe boards and be tightly planked.

A safety harness shall be worn and properly tied off on any scaffold platform greater than 6 feet in height and not equipped with standard handrails, mid-rails, or decks.

Scaffold planks shall extend a minimum of 6 inches and a maximum of 12 inches over the end support. All scaffold boards are to be cleated on each end and be of scaffold grade lumber.

All scaffolds shall have an access ladder or equivalent. Climbing the side of scaffolding is not permitted.

Scaffolds must be tied off horizontally every 30 feet.

Scaffolds must be at least 10 feet from electric power lines at all times.Rigging on suspension scaffolds must be inspected by a competent person before each shift and after any occurrence that could affect structural integrity to ensure that all connections are tight and the no damage to the rigging has occurred since its last use.

GAS CYLINDERS AND BURNING RIGS

Store flammable gas cylinders separately from oxygen cylinders. Keep a distance of 20' or have a steel fire barrier between them. Separate empty cylinders from full cylinders.

Store full cylinders in well-ventilated locations. Do not store them near flammable or combustible materials or in locations where they may be struck by moving or falling objects. Propane must not be stored inside the building.

Keep cylinders in a vertical position (propane is the exception). When in use, keep them out of the way and secured in proper carriers or secured to fixed objects to prevent them from being knocked over.

When not in use, keep protective caps on cylinders. Do not use protective caps as a hook point for lifting cylinders.

Open cylinder valves slowly. If cylinders do not have hand wheel valves, use spindle keys to operate the valves. Do not use wrenches or other tools to operate the valves unless they have been provided and approved by the supplier.

Always reduce the pressure from a cylinder through a suitable regulator attached to the cylinder valve. Close the valve and bleed gas from the regulator before removing the regulator.

To stop a leak between a cylinder and a regulator, first close the cylinder valve, then loosen the connection, clean and retighten it.

Do not allow sparks, molten metal, electric current, excessive heat or flames to come in contact with a

cylinder, hose or regulator.

Do not attempt to interchange regulators and hose equipment among the various gases (thread systems should not be compatible).

Do not use grease or oil on cylinders that contain oxygen or on the valves, regulators, hoses, etc. of an oxygen rig (spontaneous ignition can result).

Make sure your cutting rig is equipped with anti-flash-back arresters. Use proper carriers for handling and transporting cylinders. Carriers must have a cable, chain or other positive mechanical means for securing the cylinder. Before transporting cylinders, close valves and replace protective caps.

Never use oxygen in pneumatic tools, to pressurize a container, blow out lines or as a substitute

for compressed air or other gases.

COMPRESSED AIR

Air hoses larger than 1/2" diameter must be equipped with excess airflow safety valves at the source of supply.

Air hose couplings must be pinned or otherwise positively locked to prevent against inadvertent uncoupling.

Do not point compressed air at others or use it to clean clothing.

Do not use air at pressure over 30 psi for any cleaning operation. Wear goggles over safety glasses when conducting cleaning.

As a general rule, do not use compressed air for any pressure test of vessels, piping, tanks, etc. Specific

exceptions may be made but you need authorization from your Supervisor.

VEHICLES

General

Vehicles should be inspected before use (at least daily).

Do not drive on the plant site unless you have a valid driver's license for the specific type of vehicle being operated. Commercial Motor Vehicles (CMVs) have a gross vehicle weight of 10,001 lbs or greater and operate under additional governmental regulations.

Observe plant speed limits and other posted instructions. Unless otherwise posted, the speed limit is 15 mph. Lower speeds are required in congested areas.

Always give pedestrians the right of way.

Seat belts must be used at all times when riding in a vehicle equipped with seat belts. All riders must be seated.

Riding on the side, in the bed, or on the tailgate of a pickup truck is prohibited.

Use extra care when backing. If your vision is obstructed, ask someone to guide you. Large trucks and equipment must have backing alarms.

If your vision is obstructed at intersections or other places, stop and sound horn and proceed slowly.

As a general rule, shut off the engine and set the parking brake before leaving a vehicle. Use wheel chocks as required.

Do not block marked pedestrian, vehicle or fire access aisles without prior permission.

Do not handle loads beyond the rated capacity of the vehicle. Handle only stable, safely arranged loads.

Be sure of all clearances before traversing, lifting or swinging loads. Spotters must be provided for cranes and over-sized vehicles in congested areas.

Vehicle Clearances from High Voltage Lines/ Equipment

When lifting loads near energized high voltage lines/ equipment, do not bring any part of the lifting equipment, lifting cable or lifted load closer than 10 feet to lines/equipment.

When in transit, vehicles, mobile equipment and cranes (with no load and boom lowered) shall be a minimum of 4 feet for voltages less than 50 kV and 10 feet for voltages over 50 kV from high voltage lines or equipment.

If you must come closer than clearances specified above, you must obtain a “Clearance” (see **Working around Electricity, Page 32**).

MOBILE CRANE

Only properly trained and qualified operators are allowed to work with hoisting and rigging equipment.

Perform a pre-operation crane safety check before using. Check all crane controls to ensure proper operation. Inspect wire rope, chains and hook for any damage. All crane inspections must be conducted on equipment per the OSHA standard.

A thorough, annual inspection of the hoisting machinery shall be made by a competent person, or by a government or private agency recognized by the U.S. Department of Labor. The service provider shall main-

tain a record of the dates and results of inspections for each hoisting machine and piece of equipment. The most recent certification record shall be available for review.

Fully extend outriggers on firm ground.

Raise the load a few inches to verify balance and the effectiveness of the brake system.

Never make a lift that “teeter-totters” the crane (causes the load on the rear tires of the crane to become zero).Always check the lift area for power line clearance. Maintain a safe working clearance of at least 10 feet from energized electrical lines.

Tag lines shall be used unless their use creates an unsafe condition.

Barricade the swing area of the crane.

Verify allowable lifting capacities for the required boom angle before making any lift.

Load capacity chart must be available on the crane.

Do not handle loads above people.

All lifts shall be made in accordance with the manufacturer’s lifting recommendations.

The use of a crane to hoist employees on a personnel platform is prohibited, except when conventional means of reaching the work location presents a greater hazard or is not possible because of structural design or worksite conditions.

FORKLIFTS

Forklift truck operators shall be competent to operate these vehicles safely as demonstrated by their successful completion of training and evaluation.

No employee under the age of 18 years old is allowed to operate a forklift.

Forklifts are to be inspected daily for proper condition of brakes, horns, back-up alarms, steering, forks, and tires. Unsafe and defective trucks are to be tagged as such and removed from service.

Seat belts must be worn.

Powered industrial trucks must meet the design and construction requirements established in ANSI Part II B56.1-1969.

Written approval from the manufacturer must be obtained for any modification or additions, which affect capacity and safe operation of the vehicle. Capacity, operation and maintenance instruction plates, tags or decals must be changed to indicate any modifications or additions to the vehicle.

Battery charging is conducted in areas specifically designated for that purpose. Precautions are to be taken to prevent open flames, sparks or electric arcs in battery charging areas.

All loads are kept stable, safely arranged, and fit within the rated capacity of the truck.

Do not get beneath loads suspended on the forks of a forklift. Do not get beneath loads suspended on the forks of a forklift. Do not leave forklifts unattended unless the forks are down, controls are neutralized, power shut off and brakes are set.

Do not leave a forklift parked on an incline without the wheels chocked and the hand brake engaged.

If the load obstructs your vision, travel with the load trailing. On inclines, tilt forks back and travel with the

load trailing when going down and load forward when going up.

Trucks are to be operated at a safe speed.

ELECTRIC OVERHEAD TRAVELING CRANES

Perform a pre-operation crane safety check before using a crane. If in your pre-operation inspection, you find something wrong, or if you otherwise judge a crane to be unsafe for use--tell your Supervisor and tag-out the crane.

Remove or secure any loose materials on the crane before operating.

Use the warning signal freely at passageways, doors and work areas.

Take operating signals from only one person. However, obey all stop signals--no matter who gives them.

Do not handle loads above people. Do not drag loads.

Do not push another crane unless arrangements are made to control the crane's motion.

Upper limit switches and trolley and crane runway stops are safety stops--not operating controls. Do not use them unnecessarily.

Ensure all clearances before operating.

Do not let anyone ride on loads or on hooks.

Before leaving the crane, lower loads to the floor. If crane is unloaded, raise hook up to the upper control limit. On outdoor cranes, set wind anchor. Turn control power off.

If you are going to perform work on, from, near or

in the path of a crane, or if you will be using mobile equipment (cranes, man lifts, etc.) in a crane bay, take one of the following precautions:

1. First preference is to lockout the crane(s) or crane collector system.
2. If it is not possible to lockout the crane(s), install temporary stops on the crane runway to isolate the work area from the traveling path of the crane(s).
3. If neither of the above options is possible, provide a safety person to ride in the crane cab or stay with the operator (pendant/radio operated cranes) and make sure there is a direct line of communication with the safety person and the working crew (radios, lights, horn, etc.). A single safety person may be responsible for more than one ground crew provided he KNOWS he is responsible for them. If there is physically no room in a crane cab for a safety person, a direct line of communication (radio) is required between the operator and the safety person on the ground.

When working near crane collectors, lockout the collector system if possible. As a general rule, insulate the collector bars if it is not possible to lockout the system. Some of the newer (orange colored) collectors are self-insulated and proximity-safe for most exposures. Always get approval before starting work.

When using a crane as a work platform, lockout the crane if possible. If it is necessary to move the crane during work, keep the pendant or transmitter (radio-controlled cranes) on the bridge with the working

crew. Make sure other cranes in the bay cannot hit the working crane (temporary stops).

MANUAL LIFTING

Manual lifting is a common work activity and is a potential source of serious injury. The common concern about lifting is an injury to the back, but improper lifting techniques can also injure the neck, shoulder, knee and hands. Site conditions (poor footing, inadequate lighting, and weather) can compound the hazards associated with lifting. To minimize potential hazards from manual lifting, the following safe practices should be employed:

- Prepare for the lift. Know where the material is going, how it will get there and how much it weighs.
- Get help with heavy or awkward loads.
- Assess the weight of the load. If load cannot be manually lifted, use mechanical means.
- Stand close to the load, facing in the direction of movement, if possible.
- Use a wide stance to gain balance.
- Bend at the knees, not at the waist to reach a low load.
- Get a good grip on the load, keeping arms straight.
- Tighten abdominal muscles and tuck chin into the chest.
- Lift the load by straightening legs. Lift smoothly without jerking.
- Turn with entire body. Do not twist.

- Reduce the amount of times material is moved or handled.
- Store materials in an accessible manner

EXPLOSIVES

No explosives are allowed on the plant site without specific authorization from the Project Manager and facility owner. Explosives must be reported to CEG upon arrival and when removed from the jobsite. Do not bring any more on the site than is necessary and do not store explosives on the property overnight.

RADIATION EQUIPMENT

Do not bring radiation-generating equipment on the plant site without authorization from the Project Manager and facility owner.

Use radiation-generating equipment only in accordance with regulations.

Stay away from this equipment unless conditions necessitate it.

TYPES OF WORK

RIGGING

Stay out from under lifted loads. Determine the center of gravity of loads before lifting.

All hooks must have a safety latch.

Do not use chain falls or hoists for loads beyond their designed capacity. This equipment is designed so you can operate the mechanism at its rated capacity. If you must strain to operate it, you are overstressing the equipment.

Do not leave an unsecured and unattended load hanging on a hoist or a chain fall.

Use “softeners” (timber, etc.) at edges and corners of equipment being rigged to obtain a “bite” and to avoid crimping cables, etc.

Watch your hands when hooking up a load.

Use taglines on all loads to prevent unintentional swinging of the load.

WELDING AND BURNING

Avoid breathing fumes. Do not weld/burn without adequate ventilation.

Make sure your welding/ burning operation does not create “Confined Space” conditions (see **Confined Space Entry and Working Procedures**).

Welding and burning operations must be done so in accordance with “Hot Work” procedures (see **Hot Work Procedures**)

Wear long-sleeved 100% cotton or wool outer clothing that is reasonably free of oil or grease. Keep sleeves buttoned at the wrist and collars snug. For heavy and overhead work, wear welding caps, jackets or aprons of flame resistant material.

Wear goggles, helmets or shields that give maximum eye protection for each welding or cutting process. Make sure you have the proper shade of filter for the operation you are performing. In addition, be sure to have a clear cover glass to protect the filter.

Never weld/burn on closed containers or on vessels, tanks or other containers that are coated or have not been cleaned of residue.

ELECTRIC WELDING

Make sure you have an adequate ground.

Maintain welding leads in good condition. No splices, repairs, or connectors are allowed within 10' of the electrode holder.

Use welding screens to protect the eyes of others working around you.

When performing gas-shielded arc welding, keep all parts of the body covered to protect from ultraviolet and infrared radiation.

Electric shock from welding equipment can and does kill. Do not allow your body to close the circuit between the ground and the electrode. Keep your body insulated from the work and the electrode holder.

PAINTING

Appropriate respiratory protection is required for painters during spraying operations.

Lead-based paints are prohibited.

If burning, welding, or grinding is to be done on a painted surface, the surface must be tested for lead. If lead is found, it must be abated before activity begins.

Fall protection must be worn when painting operations are 4 feet above the ground and where standard handrails do not protect the individuals.

All paints, solvents and other flammable liquids associated with painting are to be stored and handled in accordance with the flammable liquids section of this manual.

Spray-painting equipment shall be cleaned in an open, well-ventilated area at least 50 feet from any ignition source.

ASBESTOS

The danger from asbestos lies in the inhalation of asbestos fibers, which are released into the air when friable asbestos containing material (ACM) is disturbed by physical contact such as cutting, grinding or sanding. If the ACM or presumed asbestos containing material (PACM) is in good condition such that the material is not friable, there is no danger in working in the immediate area. Any employee who notices that ACM or PACM has been damaged or disturbed must immediately notify their Supervisor, who in turn, shall notify CEG for course of action.

The CEG Project Manager shall take reasonable steps (with documentation) to determine the presence, location, quantity and condition of ACM and PACM. This information shall be shared with applicable service providers in the form of a site-specific Asbestos Management Plan.

Where the Project Manager at the property identifies installed ACM and/or PACM, labels or signs shall be affixed or posted so that employees are notified of what materials contain ACM and/or PACM. When it is not practical/feasible to label ACM, then the information in shall be documented in the property's files. An example of ACM that cannot be labeled includes the following:

- Buried ACP
- ACM floor tile
- ACM roofing
- ACM roof components

The labels or signs shall contain the following information:

- DANGER
- CONTAINS ASBESTOS
- FIBERS (or equal)
- AVOID CREATING DUST
- CANCER AND LUNG DISEASE HAZARD

CEG and its contractors shall use licensed asbestos abatement contractors for all ACM and PACM removal projects. A competent person shall oversee the project. A copy of the Abatement Plan should be submitted to the CEG Project Manager, CEG EHS&S Manager and the facility owner (if applicable).

No ACM shall be used in any construction project.

When ACM is removed, non-asbestos material shall be used in its place.

All disposals of ACM and PACM shall follow the requirements of the regulations listed below:

- NESHAPs (40 CFR Part 61, Subpart M)
- RCRA (40 CFR Part 257)

If CEG is not the legal property owner, then CEG shall not be listed as the generator on the manifest.

Service providers shall conduct at a minimum, awareness level, asbestos training to all employees who perform maintenance, housekeeping, or other duties in areas that contain ACM and/or PACM.

HOT WORK PERMIT

Some operations and maintenance tasks pose special risks, as they are capable of providing a source of ignition. Where riveting, welding, cutting, burning, and heating activities are occurring a hot work permit is

required - granting authorization to proceed. The permit shall be initiated by the service provider, shall be posted in the area where the work is being conducted, and is valid for one shift only and remains valid only if the safe conditions under which it was approved do not change. Hot work activity must not start until all precautionary measures have been taken to ensure that the area is fire safe.

Special precautions in this area include:

First, explore other methods (can you cut a pipe instead of burning it?).

Move combustible materials 25 feet away from the burning site. If they cannot be moved, cover them with fire blankets or other suitable protection. Cover wood floors with fire blankets. Do not weld/burn within 50 feet of flammable liquid storage areas, or closed tanks that do hold, or have held, flammable liquids, or operations involving flammable liquids (painting operations).

Always have a fire extinguisher available at the welding/burning site. An independent fire watch is required, and must remain for 30 minutes after welding/burning operations stop. The fire watch must be conducted by someone knowledgeable of fire protection equipment and procedures.

Minimum 1 inch charged fire hose is required on the scene. If possible, discharge a continuous “fog” on the welding/burning spark area. If this is not possible, have a minimum 20 lb. dry chemical fire extinguisher on the scene.

Expose pits (remove floor plates) within 25 feet of fire site. Cover grating areas with fire blankets and use

vertical fire blankets to control spark blow pattern.

STORAGE OF FLAMMABLE AND COMBUSTIBLE LIQUIDS

Flammable liquids must be stored in a building, cabinet, or area remote from general access or traffic. Approved storage locations must be 10 feet from buildings, 20 feet from building openings, with a 12 feet wide fire access corridor. The storage area must be properly identified. No smoking, matches, open flames, or other ignition sources are permitted within 50 feet of the storage area.

Service providers must provide their own approved, flammable liquid storage cabinets.

Drum dispensing installations must be provided with grounding and bonding safeguards.

A fire extinguisher must be readily accessible in an area where flammable and combustible liquids are stored or handled.

Do not store flammable/ combustible liquids in glass containers. Store “Class I” liquids (these are flammable liquids--Flash Point below 100°F.--gasoline, paint, thinners, etc.) in manufacturers’ shipping containers or in approved safety cans with a red and yellow stripe.

Preferred practice is to not store Class I liquids indoors or on roofs.

However, these materials may be stored indoors or on roofs under the following conditions: 1) Up to 55 gallons may be stored in an approved fire cabinet and no more than 3 cabinets may be adjacent to one another. 2) 5 gallons or one day’s supply (whichever is less) may be outside the fire cabinet. Your Supervisor must

approve storage locations in advance.

Store “Class II” liquids (these are Combustible liquids--Flash Point 100-200°F.--kerosene, diesel, etc.) in closed, labeled containers. Up to 50 gallons may be stored indoors with approval of your Supervisor.

Store “Class III” liquids (these are Combustible liquids—Flash Point over 200°F.—motor and lube oil, etc.) in closed containers or drums. Indoor storage permitted up to 10 drums along with 1 drum of Class II liquids without sprinkler protection.

If stored horizontally equip flammable/combustible liquid dispensing drums with dead man valves. If stored vertically, use flammable liquid pumps. Keep tops free of excess oil and keep oily rags in containers with self-closing lids.

Store used rags containing paint, PVC glue or any other flammable materials in an approved, closed, labeled container.

EXCAVATIONS AND TRENCHES

Because of the hazard of hitting buried cables, pipelines, or other utilities, do not begin any excavation (soil, breaking concrete, etc.) below floor or grade level without first checking with the plant or utility personnel.

If you open a hole, you must barricade it. Excavations 5 feet or deeper must be shored, benched or sloped back to a stable slope under the direction of a competent person.

Employ a registered professional engineer to design a protective system for trenches 20 feet deep or greater.

Keep excavated material and other materials at least

2 feet back from the edge of the excavation.

Check excavated walls frequently, and before any work commences and after a rain or thaw condition.

Do not enter an excavation while mobile equipment is operating next to the edge.

Provide ladders for access to excavations 4 feet or deeper. A ladder must be within 25 feet laterally of anyone working in the excavation.

Be aware that trenches can fit the definition of a confined space. A potential hazard is that gases that are heavier than air can displace the oxygen creating a fire or asphyxiation hazard. These gases include, but are not limited to propane, argon and nitrogen. If there is any such potential hazard, treat the trench as a confined space and follow the appropriate procedures.

When excavating equipment is operating, do not get under the loaded bucket. Stay away from vehicles being loaded--because spillage can occur.

Daily inspections of excavations, the adjacent areas and protective systems must be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres or other hazardous conditions. An inspection must be conducted and documented prior to the start of work and as needed throughout the shift.

WORKING AROUND ELECTRICITY

General

Service providers are required to follow applicable OSHA, National Electrical Code (NFPA 70) and any

additional applicable State and Local requirements for the design, construction, and maintenance of CEG facilities.

Only qualified persons should be authorized to work on electrical equipment.

Qualified and Unqualified Persons

The term “Qualified Person” generally refers to Journeyman Electricians but also includes persons who are familiar with the construction and operation of electrical equipment and the hazards involved. All others are considered “Unqualified”.

Rules for Unqualified Persons

Do not work in proximity (within 10? or where materials, tools or equipment could cause

accidental contact) to live, bare, or open electrical systems without first talking to your Supervisor.

All workers should consider every loose or misplaced wire as a “live wire” – DO NOT TOUCH IT – report it to your Supervisor immediately.

When new electrical equipment or systems are being installed, lockout/tagout procedures will vary as equipment is progressively energized. Before energizing any feeder, equipment or system, contact your Supervisor. They can determine the correct lockout/tagout procedure and notify appropriate persons. Consult your Supervisor before any additional energizing takes place.

Do not work in High Voltage (over 480 V.) substation buildings, fenced substation areas, or on electrical distribution towers or similar structures unless you have first obtained “Clearance.” “Clearance” may only

be obtained from your Supervisor. Your Supervisor will specify procedures required to make the work area safe.

Always assume conductors are energized unless they have been proven to be dead.

Overhead electrical power lines shall be located and identified in work areas.

Worn electrical wiring, damaged or improper insulation, defective switches, and all other electrical defects are to be reported to your Supervisor immediately and promptly repaired.

Do not bypass any protective system or device designed to protect employees from contact with electrical energy.

Safety signs, safety symbols, or accident prevention tags must be used where necessary to warn employees about electrical hazards, which may endanger them.

Additionally, barricades must be used in conjunction with safety signs where it is necessary to prevent or limit employee access to work areas exposing employees to un-insulated energized conductors or circuit parts.

Unqualified persons may not work within reach of live, bare or open electrical equipment/systems, nor may they open electrical enclosures that would expose live electrical parts. If such proximity is necessary, lockout/tagout the equipment/system or insulate, guard or relocate the electrical parts to prevent accidental contact.

Rules for Qualified Persons

Avoid energized circuits whenever possible. No one is permitted to perform work on circuits 300 V. or more above ground potential without first obtaining written permission from a Supervisor.

Whenever possible, avoid working within reach of live electrical parts. Lockout/tagout, insulate ground or relocate them whenever possible. However, qualified persons may, when necessary, work within reach of live electrical parts up to 480 VAC (1000 VDC).

A “Clearance” must be obtained to perform work on any equipment/systems at potentials above 480 VAC.

Do’s and Don’ts of basic electrical safety:

“Do”

- Be on the lookout for electrical safety hazards in your work area.
- Keep equipment in good working order to help prevent electrical accidents.
- Maintain a 3 foot clearance around electrical panels.
- Use ground-fault circuit interrupters (GFCI) in high-risk areas such as wet locations.
- De-energize equipment before starting work unless authorized by your supervisor.
- Follow lockout/tag-out procedures when working on electrical equipment (Lockout/Tag-out Program).
- Wear appropriate personal protective equipment, such as eye protection or insulated gloves, as required.
- Place safety signs, safety symbols, and/or

barricades around work area to prevent or limit unauthorized access.

"Don't"

- Don't work on "hot" or energized equipment unless you are Qualified.
- Never connect too many pieces of equipment to the same circuit or outlet as the circuit or outlet could become overloaded.
- Don't use cords that are worn, frayed; abraded, corroded or otherwise damaged, they must be replaced.
- Don't wear rings, key chains or other metal objects when working around electricity.
- Never use metal ladders when working near energized wiring.
- Never plug in cords that are wet or touch electrical equipment with wet hands.

CONTROL OF HAZARDOUS ENERGY (LOCK- OUT/TAG-OUT)

An effective lock-out/tag-out program covers the servicing and maintenance of machines and equipment in which the unexpected energization or start up of the machines or equipment or release of stored energy could cause injury to employees or passer-bys.

Lockout/Tagout procedures protect you from:

- The release of stored energy.
- Accidental starting of machines and equipment.
- Live electric circuits

Stored energy includes:

- Electrical
- Hydraulic
- Pneumatic
- Chemical
- Thermal
- Gravity

Service providers are required to adhere to the site-specific lock- out/tag-out program of the CEG project/ facility at which they are conducting business. This will include adherence with written lock- out/tag-out procedures for individual pieces of machinery and equipment - covering the required steps to make sure that the unit being serviced is isolated and secured from all energy sources (including stored or residual).

Tagging is NOT an acceptable lock-out procedure.

Service providers will be required to adopt the CEG program, unless the service provider has their own program, which is equivalent to or more stringent than the CEG site-specific program.

The service provider shall train all employees on the control of hazardous energy including:

- **Authorized employees** – those who are allowed to perform energy control procedures. Training will include company approved energy control procedures, recognition of energy sources, methods for isolation, verification/testing to ensure energy control.
- **Affected employees** – those employees that operate the equipment on which work

is being performed. Training will include the purpose and use of the energy control procedures.

- **Other employees** – all other employees that may work in an area where energy control procedures may be used. Training will include instruction on the energy control procedures and the prohibition about attempting to restart or re-energize equipment that is locked out.

A thorough inspection of the repair work area must be conducted to assure all persons affected by the start up of the equipment are made aware that the equipment is to be started and that they are in a safe position. The startup must be done under the written lock- out/tag-out procedure for that equipment.

Although it is the responsibility of the service provider to comply with the various provisions of federal, state, and local regulations, the ultimate responsibility to recognize, secure, test, and verify all hazardous energy sources lies with each person who might be required to apply or abide by the provisions of this program.

CONFINED SPACE ENTRY AND WORKING PROCEDURES

A confined space is any space that:

1. Is large enough for you to enter and perform work.
2. Has limited ways to get in or out.
3. Is not designed for continuous occupancy.

A permit required confined space is any confined space that has one or more of the following:

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

No one is required or allowed to enter into an area considered to be a confined space until proper training, testing and evaluations have been completed and the area declared safe for entry. When at all possible attempt to make necessary repairs, fabrication, or other required confined space activities from outside of the confined space.

Awareness of confined space hazards is essential to achieve safe entry, completion of work and exit.

An approved Confined Space Entry Permit must be obtained before personnel can enter permit-required confined spaces.

Before a permit is issued the following precautions must be taken:

1. The confined space must be emptied and cleaned to the extent possible.
2. All equipment must be in a state of zero energy. The equipment must be locked and tagged-out of service.
3. Atmospheric testing must be performed for

the duration of the work.

4. The confined space must be ventilated naturally or mechanically.

An attendant must be stationed at the permit required confined space entrance during the period that personnel are in the confined space. This individual is to maintain communications with personnel in the confined space and summon help if an emergency occurs. The observer must not attempt a rescue until help arrives.

Rescue teams for each permit required confined space entries are the responsibility of the contractor.

The permit must be posted at the confined space entrance. Any special precautions or protective equipment requirements will be specified on the permit.

Electrically powered tools and lighting used in confined spaces must be connected to a GFCI and meet UL requirements. Where atmospheres are identified as explosive and cannot be mitigated by mechanical ventilation, intrinsically safe equipment and non-sparking tools are required.

HAZARD COMMUNICATION

Failure to recognize the hazards associated with chemicals can cause chemical burns, respiratory problems, fires and explosions.

If you will be working with or around chemicals, you will need to be knowledgeable on the general topics of Safety Data Sheets (SDS) and the specific hazards of the chemicals at your jobsite.

SDS's provide information on the hazards and properties of chemicals. The contractor shall:

- Maintain an effective employee training program for hazardous substances.
- Maintain a list of hazardous substances used in the workplace with an accompany-ing SDS.
- Make this information accessible to employ-ees at all times in a language or formats that are clearly understood by affected personnel
- Train employees on how to read and use the SDS and about the risks of each hazard-ous chemical in their work area.
- Train employees on emergency action and/ or emergency response procedures.
- Follow manufacturer's SDS instructions for handling hazardous chemicals.
- Have a written spill control plan and spill clean-up kits in areas where chemical are stored and where applicable.

Labels provide information on the identity and hazards of chemicals. Each container of a hazardous sub-stance (vats, bottles, storage tanks, etc.) must be labeled with product identity and a hazard warning(s) communicating the specific health and physical hazards.