City of San Angelo
72W College Ave 2nd Floor
San Angelo TX 76902

#187108

CONSTRUCTION

Safety Services Company

Worksite: _____ Instructor: _____ Date/Time: _____

Topic C338: Portable Generator Safety (A)

Introduction: Portable generators are a necessary piece of equipment to supply temporary or remote electric power. Generators can be hazardous if not operated and maintained with caution. The primary hazards associated with portable generators are carbon monoxide poisoning from exhaust fumes, electric shock or electrocution, and fire. While working with the larger trailer mounted generators, moving parts pose additional hazards which require proper lockout/blockout-tagout procedures during maintenance.

Power cable connections to mobile machines:

- A metallic enclosure must be provided on the generator for covering the power cable terminals.
- The enclosure must provide a solid connection for the ground wire(s) terminal to ground the machine frame.
- The cable termination used must prevent any strain or pull on the cable from stressing the electrical connections.
- The enclosure must be locked and only accessible by authorized personnel. The enclosure must have a sign warning of the presence of energized parts.

Guarding live parts:

- All energized switching and control parts must be enclosed in grounded metal cabinets or enclosures.
- Circuit breakers and protective equipment must have the operating mechanism projecting through the metal cabinet or enclosure so the units can be reset without the locked doors being opened.
- Enclosures and metal cabinets must be locked so that only authorized qualified persons have access, and marked with a sign warning of the presence of energized parts.

General safety guidelines for operating generators:

- Only properly trained personnel may operate or maintain generators.
- Employees exposed to energized parts of the generator must be equipped with the proper personal protective equipment.
- Generators must be properly grounded either to their frame or to a grounding rod driven into the earth.
- If not part of the generator, a ground fault circuit interrupter (GFCI) should be used between the generator and the load.
- Never operate a generator in an enclosed area, or in close to an enclosed occupied excavation, as exhaust fumes may seep into these areas. Make sure adequate ventilation is provided for safe operation.
- A fire extinguisher should be available at all times.
- If direct wiring connections to equipment are required, only qualified persons may perform these tasks.
- Do not adjust engine speed governing devices beyond the manufacturer's recommendation.
- Do not overload the rated power capacity of the generator.
- Open all circuits to the loads before starting the generator. Once the generator is operating at speed close the circuits.
- All equipment powered by the generator must be turned off before closing the supply circuit from the generator.
- Do not fuel generators while running or while the engine is hot. Schedule refueling between or after shifts when power is not required. Do not allow fuel to overflow.
- Keep the generator dry. Do not use the generator in rain or wet conditions. Don't touch the generator with wet hands.
- Plug equipment directly into the generator. If extension cords are used, use heavy duty cable rated equal to the sum off all connected loads. Check all cables for proper grounding connection, and for cuts, abrasions, or other damage before use.
- Never try to power an existing house or structure by plugging the generator directly into a wall outlet. This practice, known as "backfeeding", is extremely dangerous. It bypasses the built-in circuit protection devices, and can cause electrocution of utility workers and neighboring structure occupants.
- Personnel performing maintenance on generators must be properly trained, and use the correct lockout/blockout-tagout procedures. Do not perform maintenance on machinery while it is running.
- All electrical generators and switch gear must be kept a minimum of 25 feet from any explosives storage magazine.

Conclusion: Portable generators come in a variety of sizes with and generating capacities, from small units which can power a few household appliances or power tools, to extremely large generators which supply enough power to meet the needs of production plants or heavy machinery. These large generators require additional training to deal safely with the unique requirements of high voltage hazards. Follow the guidelines for safe generator operations.

Employee Attendance: (*Names or signatures of personnel who are attending this meeting*)

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These guidelines do not supersede local, state, or federal regulations and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.