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| --- | --- | --- | --- | --- |
| **Equipment Description: Completed by: Date:** | | | | |
| Evaluate the equipment for all existing and potential hazardous energy sources and indicate present by checking the left-hand column. For each, describe the energy type and magnitude, danger zone (the part(s) of the equipment where the energy is found), and the isolation point(s)/method of control. | | | | |
| **Check If**  **Present** | **Types of Energy** | **Type / Magnitude** | **Danger Zone** | **Isolation Point(s) and Control Method** |
|  | **Electrical** - low voltage (<50 V) - list amperage |  |  |  |
|  | **Electrical**- low voltage (50-600 V) - list amperage |  |  |  |
|  | **Electrical** - high voltage (>600 V) - list amperage |  |  |  |
|  | **Emergency power**- does the equipment maintain an emergency power/uninterruptible power supply or have capacitors? |  |  |  |
|  | **Chemical** - flammable, pressure, extreme heat, fire, corrosive, reactive, oxidizer, toxic, etc.  **Required: Consult an EH&S**  **subject matter expert.** |  |  |  |
|  | **Pressure** - hydraulic, pneumatic > 150 psi in rigid pipe or >50 psi in flexible, unsecured lines |  |  |  |
|  | **Vacuum** |  |  |  |
|  | **Mechanical** - capable of crushing, pinching, cutting, snagging, striking |  |  |  |
|  | **Thermal**- high temperature-surface temperature, ,hot liquids, steam Liquids or gases > 125°F (52°C)  Surfaces ≥ 140° F (60°C) |  |  |  |
|  | **Thermal, cryogenic** - super cold surface or cryogenic liquid < 27°F (-3°C) |  |  |  |
|  | **Radiation, ionizing** |  |  |  |
|  | **Radiation, non-ionizing** – ultraviolet, infra-red, RF/Microwave, laser, magnetic |  |  |  |
|  | **Stored energy** - flywheel, springs, differences in elevation, capacitors, batteries, counterweights, etc. |  |  |  |
|  | **Other**- describe |  |  |  |

*Hazardous Energy Thresholds*

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| --- | --- | --- |
| **Energy Form** | **Evaluate Hazard and Consider Lockout/Tagout** | **Lockout/Tagout Required (see note 1)** |
| Electrical (AC or DC) | < 50V and < 5mA, and ≤ 10J | ≥ 50V, or > 5 mA or > 10J |
| Thermal (hot) | Liquids or gases ≤ 125°F (52°C) Surfaces ≤ 140° F (60°C) | Liquids or gases > 125°F Surfaces ≥ 140° F |
| Thermal (cold) | Liquids and surfaces ≥ 27°F (-3ºC) | Liquids and surfaces < 27°F |
| Mechanical - kinetic | No threshold; each situation must be evaluated | |
| Mechanical - potential | No threshold; each situation must be evaluated | |
| Pneumatic | ≤ 150 psi in rigid pipe  ≤ 50 psi in flexible, unsecured lines | * 150 psi in rigid pipe (see note 2) * 50 psi in flexible, unsecured lines |
| Hydraulic | ≤ 150 psi in rigid pipe  ≤ 50 psi in flexible, unsecured lines | * 150 psi in rigid pipe (see note 2) * 50 psi in flexible, unsecured lines |
| Chemical | No threshold; each situation must be evaluated based on the chemical’s hazardous properties | |
| 1. Unless de-energizing the source by lockout/tagout introduces additional or increased hazards or is infeasible due to equipment design or operational limitations. 2. Double valve isolation is required when the operating temperature exceeds 200°F or the operating pressure exceeds 500 psi. | | |