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| **BYU CH EN Job Hazards Analysis** | | | | | | |
| **Task Description** | **Hazard Type** | **Hazard Description** | **Consequence** | **Safeguards** | **Rank** | **Recommendations** |
| Plugging in/out the Pump | Electrical (Shock) | Electrocution with pump power outlet | Burns | Make sure the cable are not worn | med | Check the cords before use |
| Process construction | Slip/trip | Can slip while building the process | Sprains, injuries, bruising | Be aware of your surroundings | low | Inspect area of work |
| Fitting pipes together | Mechanical | Pinch points, dropping heavy objects on fingers etc. | Skin lesion, broken fingers | Be focused on the task and avoid distractions | med | Avoid distractions while working |
| Wiring | Electrical | Leaking on electrical components | Electric shock | Place bins under areas of possible leaks | Serious | Make sure everytinng is as tight as possible |
| Checking under pipes and pumps | Mechanical | Hair getting trapped | Scalping | Hair always tied in a bun | Serious | - |

Engineering Controls > Administrative Controls > Personal Protective Equipment

Engineering Controls: Removal or isolation of the hazard with hardware or software that prevents or reduces the consequence of the hazard.

Administrative Controls: Operating procedures, work permits, alarms, training, and other related efforts that help reduce the likelihood and severity of potential injuries.

Personal Protective Equipment: Respirators, eye protection, gloves, etc. that reduce the severity of a potential injury.

Some Common Hazards (Most Hazards and Descriptions from the OSHA document [here](https://www.osha.gov/sites/default/files/publications/osha3071.pdf)):

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| Hazard | Description |
| Toxin | A chemical that exposes a person by absorption through the skin, inhalation, or through the blood stream that causes illness, disease, or death. The amount of chemical exposure is critical in determining hazardous effects. Check Safety Data Sheets (SDS), and/or OSHA 1910.1000 for chemical hazard information |
| Flammable | A chemical that, when exposed to a heat ignition source, results in combustion. Typically, the lower a chemical’s flash point and boiling point, the more flammable the chemical. Check SDS for flammability information. |
| Corrosive | A chemical that, when it comes into contact with skin, metal, or other materials, damages the materials. Acids and bases are examples of corrosives. |
| Explosive | A chemical that can quickly reacts to form hot gases, fragments, and potentially blast overpressures. |
| Explosion | Sudden and violent release of a large amount of gas/energy due to a significant pressure difference such as rupture in a boiler or compressed gas cylinder. |
| Electrical (Shock) | Contact with exposed conductors or a device that is incorrectly or inadvertently grounded, such as when a metal ladder comes into contact with power lines. 60Hz alternating current (common house current) is very dangerous because it can stop the heart. |
| Electrical (Fire) | Use of electrical power that results in electrical overheating or arcing to the point of combustion or ignition of flammables, or electrical component damage. |
| Electrical (Loss of Power) | Safety-critical equipment failure as a result of loss of power. |
| Electrostatic Discharge (ESD) | The contact and separation of materials including flowing liquids can generate static charging. The discharge of that energy can result in ignition of flammables or damage to electronics or the body’s nervous system. |
| Ergonomics | Damage of tissue due to overexertion (strains and sprains) or repetitive motion. |
| Excavation | Soil collapse in a trench or excavation as a result of improper or inadequate shoring. Soil type is critical in determining the hazard likelihood. |
| Slips/Trips/Falls | Conditions that result in falls (impacts) from height or traditional walking surfaces (such as slippery floors, poor housekeeping, uneven walking surfaces, exposed ledges, etc.) |
| Fire/Heat | Temperatures that can cause burns to the skin or damage to other organs. Fires require a heat source, fuel, and oxygen. |
| Friction | Friction condition that results in ignition of flammable material. |
| Impact | Impact condition that results in ignition of flammable material. |
| Mechanical Failure | Can occur when devices exceed designed capacity or are inadequately maintained. |
| Mechanical | Skin, muscle, or body part exposed to crushing, caught-between, cutting, tearing, shearing items or equipment. |
| Noise | Noise levels (>85 dBA 8 hr TWA) that result in hearing damage or inability to communicate safety-critical information. |
| Radiation (Ionizing) | Alpha, Beta, Gamma, neutral particles, and X-rays that cause injury (tissue damage) by ionization of cellular components. |
| Radiation (Non-ionizing) | Ultraviolet, visible light, infrared, and microwaves that cause injury to tissue by thermal or photochemical means. |
| Struck By | Accelerated mass that strikes the body causing injury or death. (Examples are falling objects and projectiles.) |
| Struck Against | Injury to a body part as a result of coming into contact of a surface in which action was initiated by the person. (An example is when a screwdriver slips.) |
| Temperature Extreme | Temperatures that result in heat stress, exhaustion, or metabolic slow down such as hypothermia. |
| Thermal | Thermal conditions resulting in ignition of flammable material. |
| Vibration | Vibration that can cause damage to nerve endings, or material fatigue that results in a safety-critical failure. (Examples are abraded slings and ropes, weakened hoses and belts.) |
| Visibility | Lack of lighting or obstructed vision that results in an error or other hazard. |
| Weather | Hazards from inclement of weather. |

Risk Rankings

