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Fact Sheet: Mechanical Equipment

Mechanical equipment can pose a variety of hazards, depending on the item and operation, which can lead to serious injury or death.

- **Noise** - Unprotected exposure to loud equipment (>90dBA) may result in hearing loss.
- **Flammable Materials** - Some equipment may require fuel that is flammable. Ignition of this fuel can cause burns, loss of equipment, or uncontrolled wildfires.
- **Sharp Edges** - Exposure to blades, points, and unfinished surfaces could result in severe cuts or amputation.
- **Moving Parts** - Gears, rotating shafts, and wheels may catch clothing, hair, or fingers. Moving components may also pose crush, shearing, or pinch hazards.
- **Stored Energy** - Electrical energy, pressurized liquids, coiled springs, objects under tension, or suspended objects are hazardous if the energy is unexpectedly released.
- **Projectiles** - Use of the piece of equipment may lead to production of airborne debris.

Personal Protective Equipment

- Impact resistant safety glasses
- Hearing protection
- Gloves
- Rugged, appropriately fitted clothing
- Appropriate footwear

Preparation and Training

- The principal investigator must train researchers in the safe use and maintenance of the mechanical equipment. If the principal investigator is unfamiliar with the equipment, contact the manufacturer for external training recommendations.
- Assess the condition of all equipment and gear before the trip.
- Identify if you need any specially rated equipment, fuel, and gear for cold weather work.
- It is recommended you take courses in: Basic First Aid

General Safety

- Field equipment and gear must be suited for work conditions and activities, follow manufacturer's recommendations on use, maintenance, and appropriate PPE.
- Never operate mechanical equipment alone.
- Bring along the operational manual to refresh, if necessary.
- Inspect all equipment on a routine basis for damage in the field.
- Do not use equipment that is damaged or in poor condition.

- Do not remove any guards or override any safety features.
- Make sure fuel is securely stored, away from sources of heat.
- Absolutely no horseplay near mechanical equipment, regardless of size or function.

Emergency Response

- Minor injuries from mechanical equipment can be treated with supportive first aid.
- Make sure it is safe to approach the piece of equipment before disabling it or attempting to assist an injured person. Do not become a second victim.
- Contact emergency services for major injuries.

References and Additional Resources

- OSHA [Basics of Machine Safeguarding](#)
- Adapted from *Mechanical Equipment Fact Sheet*, by University of Maryland: Department of Environmental Safety, Sustainability & Risk (<https://essr.umd.edu/about/research-safety/field-research-safety/planning>) with permission.