

The *BSO Plus Safety Topic* is a review designed from the BSO Plus agenda. This safety topic is your way to stay current on the safety information over the 3 years, so please ensure you submit the completed test to your employer for record retention.

## SAFE WORK PERMITS / ENERGY ISOLATION

### SAFE WORK PERMITS



Under the Occupational Health and Safety Act, a permit is a legal document which, by your signature, indicates that you have read, understood and agreed to abide by the listed conditions. The purpose of a safe work permit is to:

- Ensure safe working conditions are provided
- Provide formal authorization for work to proceed
- Communicate potential hazards and the protective measures required

Since there are many different types of permits, it is important to tell the operator exactly what the scope of the work is so the right permit can be issued.

#### What is listed on a permit?

A permit covers the specific work to be done and should always be followed carefully – you should perform only the work that is listed on the permit. Once complete, the permit is valid for one operational shift but may be extended depending on the task.

The hazards listed on your permit will be specific to your task and the area where you are working. To find out more information about the hazards listed check the MSDS sheets, and ask your supervisor or Operations.

If the permit contains any information that you are unsure of or that is incorrect, you should talk to your supervisor and/or Operations. Do not sign the permit until the issue has been clarified and/or corrected. As a legal document, it is important that you know what it is that you're signing your name to.

Any changes that occur after signing the permit need to have the approval of Operations. An example may include a change in the work scope, such as changing from cold work to hot work.

**Cold Work:** Any type of work that will not generate enough heat to ignite a flammable or combustible material. Examples of cold work include *valve adjustment* or *brush painting*.

**Hot Work:** Any type of work that generates enough heat, a spark, or static charge that can ignite a flammable or combustible material. Examples of hot work include *welding, flame cutting, grinding, or use of non-explosion-proof electrical equipment*.

**Gas Testing for Hot Work:** For all hot work jobs, a gas test will be completed by a trained person, who will then sign the permit before it is issued to you. When reviewing your permit, ensure that all required elements for your task and location have been tested, for example:

- H<sub>2</sub>S
- LEL (Lower Explosive Level)
- Oxygen
- Carbon monoxide

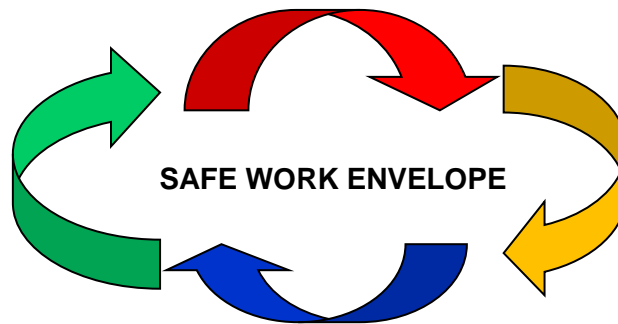
## ENERGY ISOLATION

An important part of your safe work permit is the identification and isolation of hazardous energy. The purpose of energy isolation is to control hazardous energy to prevent unexpected equipment start-up and hazardous energy releases. The main method used and recommended to protect workers from risk of harm in these cases is the use of a lockout/tagout program.

### PROCESS TO CONTROL HAZARDOUS ENERGY

**Operations** is responsible to safely **ISOLATE**, drain, depressurize, and purge equipment/system to control all hazardous energy, establish limits to create a safe work envelope

**Permit Receiver** is responsible to **VERIFY** with **Operations** that hazardous energy is controlled prior to executing work



**Operations** will ensure hazardous energy has been controlled by performing basic “lock/tag/clear, **TRY**” of equipment or system to ensure “zero” energy

Formal interaction between **Operations** and **Maintenance** (Permit Receiver) to review Safe Work Permit and ensure both parties have a clear **UNDERSTANDING** and agreement of work involved

### Lockout

Lockout is the method used to physically neutralize all energy to a piece of equipment or machine prior to starting maintenance work on it. The locking device (or lockout device) can be any device that has the ability to secure the energy-isolating device in a safe position. At least one qualified trade technician from each trade must apply a trade lock and information tag on the electrical isolation points.

Before the work can begin, a worker needs to verify that hazardous energy has been controlled. All workers have the right to apply a personal lock and confirm the effectiveness of the isolation points. Depending on the type of energy source that is being locked out, there are different ways to verify the effectiveness. All verification checks must be done in the presence of Operations. Some examples include:

- Trying to initiate the start button for electrical lockouts
- Send a remote signal to the equipment
- Test voltage
- Check blinds, valves, drains as close to the work area as possible for stored energy

If a lock is not in place, or is done incorrectly, it can lead to electrocution, crush injuries, amputations, or death resulting from equipment start up, fires and explosions, or chemical exposures. Before re-energizing the equipment or machine, you must ensure that work has been completed and the permit is surrendered.

## Tagout

A danger tag must be used with all lockouts. The Construction Regulation 213/91 s.190.(6) states that the tag shall:

- Be made of non-conducting material and shall be installed so as not to become energized
- Be placed and secured in a noticeable location
- Indicate why disconnected; name of person who disconnected; name of person's employer; and date of disconnect



Locally, the IEC Safety Partnership also requires the tag to include a contact information of the person who installed the tag. This ensures that the owner of the lock can be contacted to confirm that he or she is safely out of the work area if necessary. If a danger tag is in place, it is never to be removed, bypassed, ignored or otherwise defeated without the authority of the authorized person responsible for it.

The following table describes types of energy and some of their potential sources.

TYPE	DESCRIPTION	ENERGY SOURCE EXAMPLES
<b>Electrical</b>	Energy made available by the flow of electric charge through a conductor.	Power transmission lines; machine power cords; motors; solenoids; capacitors (stored electrical energy).
<b>Chemical</b>	Energy stored in the bonds of chemical compounds and released by a chemical reaction.	Batteries, gasoline, natural gas, and coal.
<b>Hydraulic</b>	Energy produced by the compressive force or movement of a liquid in a confined area (often pipes, cylinders, and valves).	Hydraulic systems such as presses, rams, cylinders, and hammers.
<b>Kinetic</b>	Energy produced by an object in motion.	Blades; flywheels; materials in supply lines of bins or silos.
<b>Pneumatic</b>	Energy created by the motion and pressure of a gas, such as air.	Pneumatic systems such as pressure reservoirs, accumulators, air surge tanks, rams, and cylinders
<b>Potential</b>	Also known as "stored energy". This energy has the potential to move machine parts or be acted upon by gravity even after the main energy source has been isolated.	Springs; actuators; counterweights; raised loads; top or movable part of a press or lifting device
<b>Thermal</b>	Energy created by or in the form of heat.	Supply lines; storage tanks and vessels

Source: Tooling University. *Lockout/Tagout Procedures 130*. Retrieved 12/10/12, from <http://www.toolingu.com/definition-850130-19441-electrical-energy.html>