Indiana University of Pennsylvania

PA OSHA Consultation
650 South Thirteenth St
Robertshaw Building, Room 7B
Indiana, PA 15705

P 800-382-1241
F 724-357-2385
IUP.edu/pa-oshaconsultation

As individual Pennsylvania counties stabilize from the COVID-19 pandemic and stay-at-home restrictions are eased, businesses will begin to bring workers into the physical workplace. It is our shared goal to do so safely.

Please recognize restarting facilities and equipment dormant and shuttered for this entire pandemic period may create new and unique hazards. These hazards can be associated with idled buildings and utilities, machinery, mobile equipment and vehicles, material handling equipment, chemical storage, electrical distribution systems, confined spaces, and other industrial processes.

The goal of this PA OSHA Consultation safe return to work checklist is to have the employer consider **WHAT IF**. For example:

- *What if* fall protection equipment wasn't correctly stored, and exposed to the elements? Has our competent person inspected all equipment before placing back into service to prevent a fatal fall?
- *What if* a hydraulic line fails during start-up? Have we performed any preventive maintenance on our machines before re-energizing to prevent a serious injury or fire from atomized hydraulic fluid?
- *What if* maintenance was stopped in the middle of a breakdown or preventive work order when we stopped? Have we checked this machine to ensure no guard is missing, or light curtain fuse is blown before starting up to prevent an injury?
- *What if* materials were not stored properly and in their place during this shuttering? Have we verified before we re-energize this production line that affected workers are clear and not at risk of being struck by material temporarily stored?
- *What if* potable water lines are not purged? Are our breakroom kitchen sinks and the potable water piping systems flushed with safe water to prevent an illness?
- *What if* water distribution systems, valved out and drained to prevent freezing, are not fully reopened? Have we tested and inspected emergency eyewash stations to ensure minimum flow and potable water?
- *What if* our hazardous atmosphere testing equipment is out of calibration? Have we inspected and calibrated gas detection equipment to prevent a serious injury during a permit-required confined space entry?
- *What if* our hazardous chemical containment systems failed? Have stored vessels with flammable liquids leaked, allowing vapors are accumulated in low or high areas of this production room which can start a flash fire?

PA OSHA Consultation has prepared this *Operational Return to Work Checklist* to help employers ***identify*** possible hazards associated with restarting idled equipment and processes very simply by asking **WHAT IF?** There are several other risk assessment tools described at the end of the checklist employers can use to reduce risk in job planning. This checklist will aid the employer consider the unintended consequences of restarting facilities and equipment to help ensure their transition to an operational state is safe, efficient, and effective.

Indiana University of Pennsylvania

PA OSHA Consultation
650 South Thirteenth St
Robertshaw Building, Room 7B
Indiana, PA 15705

P 800-382-1241
F 724-357-2385
IUP.edu/pa-oshaconsultation

RETURN TO WORK OPERATIONAL CHECKLIST

BUILDING HVAC, PLUMBING, AND MECHANICAL SYSTEMS	YES	NO
Has building been flushed with fresh air based on the design of the makeup/outside air system?		
Have all valves, switches, control panels, thermostats been inspected and observed operating correctly?		
Have all air filters, including ones installed in paint booths been inspected and replaced, if necessary? (NOTE: When replacing air filters (including HEPA filters): Use proper safety procedures and PPE. Avoid hitting, dropping, or shaking the filter; Do not use compressed air to clean a filter. Properly dispose of used filters and PPE/gloves in a sealed plastic bag. Clean hands when the task is finished)		
Have all potable water system lines been flushed and sanitized?		
Are chemical levels within defined ranges for cooling towers, closed water systems, or other water features?		

PA OSHA Consultation
650 South Thirteenth St
Robertshaw Building, Room 7B
Indiana, PA 15705

P 800-382-1241
F 724-357-2385
IUP.edu/pa-oshaconsultation

EQUIPMENT/MACHINERY START-UP	YES	NO
Are all machine guards in place and properly adjusted?		
Have all moving parts been inspected and lubricated? (NOTE: Follow Energy Control Procedures (Lockout/Tagout) before servicing.		
Have fluid levels and filters been inspected and replaced if necessary?		
Have fan blades, pulleys, and belts been inspected for cracking or proper tension?		
Have all functional operating mechanisms been inspected for proper operation?		
Have all air or hydraulic systems been inspected for leakage in lines, tanks, valves, drain pumps, and other parts.		
Have all electrical controls, wiring connections and fuses been inspected for damage or loss of insulation?		
Has machinery been inspected for any unusual noises, odors, or vibrations?		
Has local exhaust ventilation systems been inspected and tested for proper air flow and discharge?		
Has sampling and/or monitoring equipment been tested or calibrated?		
Have Manufacture's recommendation been followed for machine start-up?		
Are employees familiar and trained on safe machine operations?		

PA OSHA Consultation
650 South Thirteenth St
Robertshaw Building, Room 7B
Indiana, PA 15705

P 800-382-1241
F 724-357-2385
IUP.edu/pa-oshaconsultation

PERSONAL PROTECTIVE EQUIPMENT	YES	NO
Has PPE supply been inventoried? Is supply adequate for planned production?		
Is supply chain of appropriate PPE available?		
Have expiration dates been exceeded?		
Has PPE been maintained or stored in a sanitary condition?		
Has PPE been inspected for damage and is a reliable condition?		
Has PPE requirements changed due to production, process, or chemical changes?		
Do filter cartridge respirators need changed?		
Have Grade D breathing air cylinders and apparatus been inspected?		
Are respirator fit tests due for completion?		
Have employees who are voluntarily wearing respirators been given the information in Appendix D of 1910.134?		
Are audiometric tests due for employees who are enrolled in a hearing conservation program?		
Have all employees been trained on use of PPE?		

PA OSHA Consultation
650 South Thirteenth St
Robertshaw Building, Room 7B
Indiana, PA 15705

P 800-382-1241
F 724-357-2385
IUP.edu/pa-oshaconsultation

EMERGENCY PLANNING/EXITS/FIRST AID	YES	NO
Is the list of key personnel and phone numbers accurate?		
Are employees designated to order an evacuation or shutdown operations still current?		
Are EXIT signs illuminated and visible?		
Are EXIT doors unlocked and unblocked?		
Has alarm system(s) been tested?		
Has meeting points or assembly areas changed due to social distancing?		
Are first aid supplies adequately stocked?		
Have expired first aid items been removed and supply replaced?		
Are employees who are required to respond and are anticipated to have occupational exposure been offered the Hepatitis B vaccination?		
Have employees been trained on any changes made to the plan?		

PA OSHA Consultation
650 South Thirteenth St
Robertshaw Building, Room 7B
Indiana, PA 15705

P 800-382-1241
F 724-357-2385
IUP.edu/pa-oshaconsultation

EMERGENCY EQUIPMENT	YES	NO
Are Emergency eye-wash stations (and showers, if applicable) are available for quick drenching/flushing of the eyes and body in areas where corrosive liquids or materials are handled?		
Have self-contained emergency eyewash facilities and showers been inspected?		
Have plumbed emergency eyewash/shower facilities been flushed within the past 30 days?		
Is access to emergency eyewash/shower facilities unobstructed?		
Are maintenance inspections up to date on portable fire extinguishers?		
Have portable fire extinguishers been visually inspected within the previous 30 days?		
Are portable fire extinguishers located in designated locations?		
Is access to portable fire extinguishers unobstructed?		
Are employees required to use portable fire extinguishers? If so, are they trained?		

PA OSHA Consultation
650 South Thirteenth St
Robertshaw Building, Room 7B
Indiana, PA 15705

P 800-382-1241
F 724-357-2385
IUP.edu/pa-oshaconsultation

HAZARD COMMUNICATION	YES	NO
Is the employer written hazard communication program current and up to date?		
Does the written hazard communication program need updated to address specific hazards of the COVID-19 pandemic?		
Are designated staff responsible for labeling, training and safety data sheets (SDS) still correct?		
Is the chemical list still current and up to date? Have any new chemicals been added since the COVID-19 pandemic?		
Are Safety Data Sheets (SDS) present for any new hazardous chemicals brought into the workplace?		
Have any new chemicals been added recently or since starting up the business after closure due to the COVID-19 pandemic?		
Are there any new chemical hazards to returning employees as a result of the COVID-19 pandemic?		
Have new hires received hazard communication training?		
Does new hire training program need updated to include COVID-19 information?		

PA OSHA Consultation
650 South Thirteenth St
Robertshaw Building, Room 7B
Indiana, PA 15705

P 800-382-1241
F 724-357-2385
IUP.edu/pa-oshaconsultation

Simple Risk Assessment Tools: Below are simple risk assessment processes (ANSI Z690.2, 2011) employers and workers can immediately put to use. These tools easy to learn and adopt, and are intuitive applying to any work environment.

CHECKLISTS

Employers and workers can use the attached checklists, or existing workplace checklists including machine instructions, preventive maintenance procedures, or job hazard analyses (JHAs). Completing a checklist is the easiest method to assess operational risk as they cover routine production and facilities systems and ensure are proper steps and controls are put into place before work is performed.

Commonly checklists are a list of previously identified hazards and resulting control methods to reduce risk; they are often created after a previous loss incident to ensure organizational learning for that event. Developing new checklists requires process expertise in your workplace and are often very limited in scope – for example before starting a powered hand tool, a checklist may identify hazards associated with fueling, guarding, operation, and proper shutdown of the equipment to reduce operational risk.

A ***limitation*** of the checklist risk assessment is using them may not encourage new thinking and may lead to complacency where the only hazards considered are those identified on the checklist. A checklist alone may not effectively protect workers from all operational hazards.

BRAINSTORMING / WORKER INTERVIEWS

This simple risk assessment process actively gathers information regarding possible hazards. The term brainstorming refers to triggering the mind to consider risk associated with a certain job task or evaluating the effectiveness of existing or proposed control strategies. Often times new and novel solutions to existing hazards are created through worker's brainstorming.

Brainstorming sessions are best when several employees participate, and it is helpful to have persons knowledgeable of the work task to be performed. Brainstorming is a free-flowing thought process, and questions starting with "what if" are helpful to evaluate strengths and weaknesses of a proposed work task. Ideas on how best to control a hazard and reduce risk to acceptable levels need to be captured and adopted before work starts.

Worker interviews is a more formal process where questions to be asked of individual workers or work crews are prepared by the employer or supervisor before the meeting. The outcome of this worker interview process is to get all workers to consider viewing a proposed work task from a different perspective which identifies hazards.

Ask open-ended questions, not leading questions. For example, "Do you think a scissor lift platform to change these lights is safe?" A worker may consider this question and respond "Yes, but we have to reach in some places, so wearing our fall protection and anchoring inside the basket with a short lanyard will prevent us from reaching to far outside the platform."

PA OSHA Consultation
650 South Thirteenth St
Robertshaw Building, Room 7B
Indiana, PA 15705

P 800-382-1241
F 724-357-2385
IUP.edu/pa-oshaconsultation

WHAT IF

Risk is a function of probability of a hazard occurring and the severity of resulting consequences; see the below risk matrix example for specifics. Identifying risk using prompt words is an effective risk reduction tool. The "what if" process is actively considering possible changes to expected or planned operations should deviations occur. Any work task can be evaluated, including tasks on the physical workplace or building utilities, machinery, equipment, material handling, or tooling.

A "what if" analysis can be done by either small or large groups of workers, or even individual workers thinking about possible consequences of each work step before attempting. The goal of a rigorous "what if" process is to challenge proposed work plans before any energy is released. Asking strong challenging questions requires workers with knowledge of hazards associated with a planned task, having firsthand work experience completing the task, knowledge of prior injuries, illnesses, or near misses, and knowledge of proposed or existing controls or guards.

"What if" begins with a worker asking "what if" followed by a prompt word or phrase associated with the planned work. Here is an example: "What if" the telescoping work platform fails in air? Could we communicate with the ground to get the lift lowered manually?"

Intervention/action is required if the answers to these questions reveal operational risk is too high. The attached risk matrix will help employer quantify and qualify the risk (i.e., what is the probability of a fall using a retractable lanyard left outside for two months and not inspected by a competent person, and if it does occur, what are the consequences?). The results will help the employer determine whether operational risk is tolerable or not, requiring intervention using more effective hazard controls. These interventions should be included in revisions of existing work procedures or JHAs for future use.

PA OSHA Consultation
650 South Thirteenth St
Robertshaw Building, Room 7B
Indiana, PA 15705

P 800-382-1241
F 724-357-2385
IUP.edu/pa-oshaconsultation

RISK ASSESSMENT MATRIX

Risk Assessment Matrix				
	←---------- Severity of Injury or Illness Consequences ----------→			
Likelihood of Occurrence or Exposure for selected Unit of Time or Activity	**NEGLIGIBLE**	**MARGINAL**	**CRITICAL**	**CATASTROPHIC**
Frequent	MEDIUM	SERIOUS	HIGH	HIGH
Probable	MEDIUM	SERIOUS	HIGH	HIGH
Occasional	LOW	MEDIUM	SERIOUS	HIGH
Remote	LOW	MEDIUM	MEDIUM	SERIOUS

SEVERITY		
Verbal	Numeric	Description
CATASTROPHIC	4	Death or total disability
CRITICAL	3	Death in excess of 3 months
MARGINAL	2	Minor injury, lost workday accident
NEGLIGIBLE	1	First Aid or Minor Medical Treatment

FREQUENCY		
Verbal	Numeric	Description
FREQUENT	4	Likely to Occur Repeatedly
PROBABLE	3	Likely to Occur several times
OCCASIONAL	2	Likely to Occur sometimes
REMOTE	1	Not Likely to Occur

RISK LEVEL	
LOW	Risk Acceptable, Remedial Action Discretionary
MEDIUM	Take Remedial Action at appropriate time
SERIOUS	High priority remedial action
HIGH	Operation not permissible

PA OSHA Consultation
650 South Thirteenth St
Robertshaw Building, Room 7B
Indiana, PA 15705

P 800-382-1241
F 724-357-2385
IUP.edu/pa-oshaconsultation

RISK ASSESSMENT EXAMPLE SCENARIOS

Example 1

Due to supply chain issues after returning to work post "stay-at-home" orders, a surface refinishing business is forced to replace their standard chemical stripper used to remove coatings from bathtubs and other surfaces. The owner of the company searches online and finds a premium grade stripping product that claims to work within 15 minutes. He purchases a case of the product and distributes it to his employees for use. After the first day of use, workers complain of mental confusion, lightheadedness and skin irritation.

The employer downloads the products Safety Data Sheet and realizes the product contains a high concentration of methylene chloride. The employees of this company must use chemical stripping agents on a frequent basis, nearly daily, and exposures to methylene chloride can be serious. The employer uses the matrix and sees from the table below that the continued use of this product results in unacceptable high operational risk.

The use of the return to work checklist in this situation would have prompted the employer to ensure to obtain and read the safety data sheet seeing methylene chloride as an ingredient and finding an alternative. Once a safer alternative was found, the employer would determine if existing local ventilation and personal protective equipment would have been evaluated for this particular chemical stripping process change.

Risk Assessment Matrix				
	←---------- Severity of Injury or Illness Consequences ----------→			
Likelihood of Occurrence or Exposure for selected Unit of Time or Activity	**NEGLIGIBLE**	**MARGINAL**	**CRITICAL**	**CATASTROPHIC**
Frequent	MEDIUM	SERIOUS	HIGH	HIGH
Probable	MEDIUM	SERIOUS	HIGH	HIGH
Occasional	LOW	MEDIUM	SERIOUS	HIGH
Remote	LOW	MEDIUM	MEDIUM	SERIOUS

Example 2

Employer "X" was closed due to the COVID-19 pandemic. However, after approximately 30 days they were provided a waiver and permitted to reopen operations. However, when the employer contacted employees to return to work, some of the former employees could not be reached and the employer had to hire new employees. Operations performed by new employees included commercial spray painting of large equipment for the entire shift. New employees did not

PA OSHA Consultation
650 South Thirteenth St
Robertshaw Building, Room 7B
Indiana, PA 15705

P 800-382-1241
F 724-357-2385
IUP.edu/pa-oshaconsultation

receive initial hazard communication training and were not aware of the potential hazards of the chemicals they worked with. At least one employee stated that they had difficulty breathing at the end of their work shift but thought it might be related to recently stopping smoking. Through the use of the risk assessment matrix the employer realizes the severity or injury or illness could be "high" and more information is needed.

The employer reviews the return to work checklist and is prompted to provide Hazard Communication, Respiratory Protection and PPE training to affected employees. They are also prompted to obtain medical approval for employees wearing respirators. Through the education and medical evaluation employees and the employer would receive the information needed to address the issues of concern.

Risk Assessment Matrix				
	←---------- Severity of Injury or Illness Consequences ----------→			
Likelihood of Occurrence or Exposure for selected Unit of Time or Activity	**NEGLIGIBLE**	**MARGINAL**	**CRITICAL**	**CATASTROPHIC**
Frequent	MEDIUM	SERIOUS	HIGH	HIGH
Probable	MEDIUM	SERIOUS	HIGH	HIGH
Occasional	LOW	MEDIUM	SERIOUS	HIGH
Remote	LOW	MEDIUM	MEDIUM	SERIOUS

SCENARIO ANALYSIS

Not unlike a "what if" process, scenario analyses predict risk associated with some future state scenario – and an assessment or testing of various proposed control strategies to avoid loss including injuries, illnesses, product, property or facility damage, and environmental releases. It is important to consider reopening a business may require steps workers never performed before, or at least not performed by the employer's current compliment of workers.

If opening the business requires re-establishing building utilities, what is the "best case" or at least the "expected case" with opening potable water, or re-energizing power distribution systems, versus what is the "worst case" outcome (ANSI Z690, 2011) should steps not be followed or hazards not fully identified and controlled. If there is risk associated with a worst-case outcome (for example, an arc flash while opening distribution equipment panels to close circuits), or there is uncertainty associated with the proposed work task, then immediate and strong intervention must be initiated by the employer.

PA OSHA Consultation
650 South Thirteenth St
Robertshaw Building, Room 7B
Indiana, PA 15705

P 800-382-1241
F 724-357-2385
IUP.edu/pa-oshaconsultation

A series of all possible outcomes – from desired to undesired – are evaluated for hazards, and each outcome is challenged by the job planner to determine if the controls effectively reduce the identified risk. While projecting any outcome has inherent uncertainty, taking time to consider all outcomes reduces the chance of workers suffering an injury (ANSI Z690, 2011).

LAYERS OF PROTECTION (SIMPLIFIED)

This is the evaluation of a potential worker injury or illness, property damage, facility damage, product damage, or environmental release resulting from the failure of an existing control (guard, or PPE for example), or identify a lack of a control to reduce operational risk.

For example, the point of operation of a punch press may be guarded to prevent a worker from reaching and becoming caught between, however an electric interlock which shuts down the machine if the guard is removed better protects the operator. In addition, the provided guard may not effectively protect that worker from material ejected from the point of operation which strikes and injures them. In addition to the guard and an interlock, see-through plexiglass may be installed with the guard. Another layer of protection is the worker wearing safety glasses or a face shield. All these layers of protection combined better protect workers during the operation of the punch press from identified struck-by hazards.

Layers of protection begin with the most effective intervention an employer can take which is "elimination" of a hazard, then moving downward in effectiveness is "substitution,' then "engineering controls," "administrative controls," and lastly and least effective hazard prevention strategy is "personal protective equipment."

Utilizing more than one of the above strategies to reduce operational risk is the best approach employers can take to protect workers. Layers of protection can mitigate risk associated with failures or deficiencies associated with facilities, equipment, work processes, and tooling.