As director of MIOSHA, one of my primary responsibilities is to respond to inquiries from legislators and media members related to our prevention and enforcement efforts across Michigan. Publicly sharing our processes and outcomes is a vital component of our agency’s mission and goals. We pride ourselves on our ability to share information swiftly and efficiently in order to best protect the millions of workers in Michigan. But we are always trying to be better for our constituents and the general public.

I’m excited to report that our agency is in the process of reviewing its policies and procedures in order to enhance transparency and information sharing throughout all of our MIOSHA divisions. The ultimate goal of our review is to ensure that our constituents and the general public is equipped with the necessary information to help ensure public health, safety, and welfare.

We will examine our agency with a critical lens in order to become more transparent while considering the laws, rules, and regulations that oversee our programs and efforts. I look forward to this review in order to propel MIOSHA’s reputation as an agency that is a national leader in protecting workers and providing services to the public.

MIOSHA has launched an extensive awareness campaign to help reduce or eliminate excavation and trenching accidents.

“Federal OSHA has determined that an increased education and enforcement presence is warranted at trenching and excavation work sites,” said Nella Davis-Ray, Director, MIOSHA CET Division. “Therefore, MIOSHA has created this year-long program to coincide with federal OSHA’s similar initiative across the country.”

MIOSHA Director Bart Pickelman has established a goal to create a more safety-minded workforce that performs safer excavations at construction work sites.

“The statewide emphasis program (SEP) will reach employers and employees who work in and around trenches and excavations. The campaign will educate and promote safe work practices and create a safer work environment,” Pickelman said. “It will provide workers with information about current excavation and trenching requirements, the dangers of working in these operations, and safety procedures to avoid accidents.”

Excavation protection is essential, since the sides of a trench can collapse with great force and without warning, burying workers beneath tons of soil before they have a chance to react or escape. Since 2013, seven Michigan workers have died from trench collapse accidents or cave-ins. These deaths were preventable, if proper safety measures had been taken.

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Excavation and Trenching Safety (continued ...)

Jim Getting, Senior Construction Safety Consultant, CET Division

“Although excavation and trenching work can be very dangerous, it is not inherently unsafe if adequate precautions are taken and overseen by qualified personnel,” Pickelman said.

Some of the most critical practices for safe excavations include the following:

- A qualified person must determine the proper slope or shoring system based upon the soil type and other factors.
- The qualified person must also perform ongoing inspections to make sure the excavation remains safe as conditions change.

MIOSHA rules require either installed shoring or sloping the excavation sides back to a safe angle such that the excavation will not cave-in on a worker. As the excavation proceeds, it is also important to keep heavy equipment and the material removed from the excavation away from the edge of the excavation. If they are too close, additional pressure can be created on the sides which may cause a cave-in.

To give businesses a quick start on safe excavation rules and best practices, MIOSHA has compiled a variety of training and compliance assistance materials and resources on its website.

Additionally, MIOSHA CET division consultants are available to provide free assistance including training for workers and site visits to help ensure safe excavation practices and compliance with MIOSHA Construction Safety Standard, Part 9: Excavation, Trenching and Shoring.

Companies can visit our website or contact the CET division at 517-284-7720 for seminar dates and locations, partnering opportunities, and other available resources.
Significant Case Study

Eric Allen, Manager, Construction Safety and Health Division (CSHD)

On November 7, 2014, a crew of laborers were working in an excavation approximately 5.5 to 6-feet-deep, by 4.5 feet wide, preparing to install a drain tile pipe. While the employees were working, the side of the excavation collapsed, forcing a shovel to strike an employee’s right side and pinning the employee into the opposite side of the excavation. The collapse also buried the employee up to the waist. The employee’s coworkers contacted emergency services and removed him from the excavation. After being transported to the hospital, the employee later died due to the injuries sustained in the preventable accident. During MIOSHA’s investigation it was discovered that a trench box was located onsite, but was not being used.

Rules cited pertaining to the fatality inspection:

- **Serious: 408.40932(4):** An ongoing inspection of an excavation or trench shall be made by a qualified person. After every rainfall or other hazard-producing occurrence, an inspection shall be made by a qualified employee for evidence of possible slides or cave-ins. Where these conditions are found, all work shall cease until additional precautions, such as additional shoring or reducing the slope, have been accomplished.

- **Serious: 408.40944(2):** When benching the side of an excavation, the vertical rise shall not be more than 5 feet and the step back shall extend at least to the angle of repose as required.

- **Serious: 408.40944(3):** When benching a side of a trench, the height of the lower bench shall not be more than the lesser of 5 feet or width of the trench measured at the bottom.

Variances

Variances from MIOSHA standards must be made available to the public in accordance with Administrative Standards for All Industries, Part 12, Variances (R408.22201 to 408.22251). MIOSHA variances are published on the MIOSHA website: [www.michigan.gov/mioshavariances](http://www.michigan.gov/mioshavariances).
Johnson Technology Inc. (JTI) in Muskegon has been an MVPP Star site since 2003 and its Norton Shores location attained Star status one year later. JTI, a subsidiary of General Electric (GE) Aviation, has approximately 850 associates between both facilities. They are a world-leading manufacturer of both first and second stage nozzles and shrouds used in many commercial and military jet aircraft engines.

The MVPP Star is MIOSHA’s highest award and is given in recognition of a truly exemplary health and safety management system. The identification of best practices is integral to the MVPP continuous improvement process. JTI has been recognized for the implementation of several initiatives that could be considered best practices, one of which is their response to liquids that occasionally spill onto the shop floor. These spills, although often small in nature, can lead to hazardous walking and working surfaces.

Spills are often a common problem in manufacturing environments and pose a threat for slips, trips, and falls, which can lead to serious injuries. In the past four years, JTI has more than doubled the number of machines and processes that utilize water, significantly increasing the opportunity for spills and the potential for injury.

To combat injuries related to water spills, JTI maintains an electronic incident report tracking system. A review of the information shows that slip and trip incidents resulting from spills has increased steadily since the introduction of the additional machinery and processes that utilize water. In 2015, there were 31 reported water spills; that number continued to rise reaching a peak of 96 reported water spills in 2017.

JTI discovered that many water spills were occurring while operators were performing preventive maintenance operations. For example, when using a water hose to fill a reservoir on a machine. When performing these operations, operators would often multi-task and would not be able to get back to the hose before water would overflow onto the floor. In some instances, operators would totally forget that the water was running until they noticed it on the floor.

Armed with this information, JTI began looking for solutions to this potentially hazardous situation. One of the first things they did was to remove all water nozzles that allowed for water flow. Next, they began looking for systems or devices that would prevent water spillage due to an operator error or inattentiveness. It was found that there are devices requiring physical and/or manual pressure for activation. The devices were purchased, installed, and trialed and it was determined that they would be an effective means for preventing water spills.

Now, only constant pressure waterline nozzles or valves are used on the machines and/or processes that must be manually filled with water. The use of these devices ensures that the operator is present while water is flowing. The result is that the number of reported water spills has decreased dramatically and there were no reported water spills for the remainder of the year that they were introduced (2017).

Although, the constant pressure devices have had a significant impact on the number of reported water spills, JTI is currently upgrading to a more efficient system that will not require operator intervention. The new system will utilize a float that is installed in the water reservoirs on the machines. When the water level reaches the float, it will automatically shut off the flow of water. Additionally, alarms are being installed on the reservoirs and will sound when the water reaches the desired height.

These three innovations, combined with requisite associate training, has led to a safer and more productive work environment. In addition, those in leadership positions at JTI have received training on Human & Organizational Performance (HOP). The principles taught in this training have proven to be very effective in the identification of solutions that prevent one of the major types of injuries in the workplace — slips, trips, and falls. Falls — as illustrated by MIOSHA’s “Stop Falls. Save Lives” campaign — are also one of MIOSHA’s major focuses for FY 2019.
Employee Exposure to Lead in an Indoor Firing Range

Lynn Totsky, Senior Industrial Hygienist, General Industry Safety and Health Division (GISHD)

From 2011 to 2018, the GISHD conducted eight inspections based on referrals and a complaint on elevated blood lead levels of employees at an indoor firing range. The facility provides for shooting in an eight-lane, 25-yard range. These inspections resulted in MIOSHA staff identifying several violations of Part 310, Lead in General Industry and other standards.

When ammunition containing lead is fired, lead from the bullets and other chemicals in the primers are volatilized into fumes and fine particles and can be inhaled by the shooter. Airborne lead can settle on the ceiling, walls, floor, ground and other surfaces. Lead residue is also on the rounds of ammo, brass, and spent casings that are handled and collected. Lead can contaminate clothes, skin, hair, glasses, ear protectors, holsters, and pouches. It can also be picked up on shoes.

Inhaled and ingested lead enters the bloodstream and is distributed throughout the body. Acute overexposure can affect the brain through encephalopathy developing into seizures, coma, and death. Chronic overexposure may result in severe damage to blood-forming, nervous, kidney and reproductive systems. Symptoms include loss of appetite, metallic taste in the mouth, anxiety, constipation and nausea. Appendices of the Lead in General Industry standard have detailed information on the health effects of exposure to lead and requirements of the standard.

Control of lead exposure to employees in firing ranges includes increased ventilation, work practices and use of tools, good housekeeping and personal hygiene, and use of personal protective equipment (PPE).

The permissible exposure limit (PEL) for lead is 50 ug/m3 (micrograms per cubic meter of air) measured as an 8-hour, time-weighted average (TWA) value. The action level for lead is 30 ug/m3 TWA; this level triggers various requirements of the lead standard.

The air sampling performed during MIOSHA inspections indicated that employees were exposed to lead while they entered the range to assist customers and while cleaning the range. Their 8-hour TWA exposures to lead ranged from 30.5 ug/m3 to 690 ug/m3. Area air samples also indicated that 1800 ug/m3 of airborne lead was present in the range.

Wipe samples were also collected to determine surface contamination of lead. The samples detected lead on water fountain handles, coffee pots, kitchen counters and inside respirator facepieces.

A referral received in 2011 indicated employee blood lead levels of 84 and 39 ug/100g of whole blood for two separate employees. The referral received in 2018 indicated employee blood lead level of 40 ug/100g of whole blood for one employee.

The inspections identified the following 10 serious, six repeat-serious and three other-than-serious grouped citations. Four failure-to-abate notices were also issued. The initial monetary penalties for all citations totaled $76,325. In addition to the citations, two Notices of Potential Hazard (NOPH) were also issued.

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Citations were issued for the following violations of the Part 310, Lead in General Industry, Part 430, Hazard Communication, and Part 433, Personal Protective Equipment standards:

- Not assuring that an employee will not be exposed to lead at a concentration of more than 50 micrograms per cubic meter (50 ug/m3) of air, averaged over an 8-hour period.
- Not performing an initial exposure determination. (An employer who has a workplace or work operation subject to these rules shall determine if an employee might be exposed to lead at or above the action level).
- Not implementing engineering, administrative and work practice controls to reduce and maintain employee exposure below the PEL when an employee was exposed to lead above the PEL for more than 30 days each year.
- Not establishing and implementing a written compliance program to reduce exposures to at or below the PEL for employees.
- Not demonstrating the effectiveness of the ventilation system in controlling exposure, with measurements such as capture velocity, duct velocity, or static pressure, made at least once every three months.
- Not implementing a respiratory protection program in accordance with Occupational Health Standard Part 451, Respiratory Protection.
- Not maintaining surfaces in a workplace as free as practicable from accumulations of lead.
- Not using vacuuming or other equally effective methods to reduce employee exposure in place of shoveling, sweeping and brushing to clean the workplace.
- Not assuring that food or beverages were not present or consumed, tobacco products were not present or used, and cosmetics were not applied in areas where employees were exposed to lead concentrations greater than the PEL.
- Not providing clean change rooms for employees who worked in areas where airborne exposures to lead were greater than the PEL.
- Not ensuring that employees showered at the end of each work shift when they worked in areas where their airborne exposures to lead are greater than the PEL.
- Not making available biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels to each employee who may be exposed to concentrations of lead greater than the action level for more than 30 days a year.
- Not making medical examinations and consultations available to each employee who was exposed to concentrations of lead greater than the action level for more than 30 days a year.
- Not training each employee who was subject to exposure to lead at or above the action level, or for whom the possibility of skin or eye irritation existed.
- Not assuring that each employee was informed of: (a) The contents of these rules and appendices. (b) The specific nature of the operations that could result in exposure to lead above the action level. (c) The purpose, proper selection, fitting, use, and limitations of respirators. (d) The purpose and a description of the medical surveillance program and the medical removal protection program, including information regarding adverse health effects associated with excessive exposures to lead, with attention to the adverse reproductive effects on both males and females. (e) The engineering controls and work practices associated with the employee’s job assignment. (f) The contents of any compliance plan in effect. (g) Instructions to employees that chelating agents shall not routinely be used to remove lead from their bodies and shall not be used at all except under the direction of a licensed physician.
- Not including lead in the hazard communication program established to comply with Part 430, Hazard Communication standard.
- Not posting a warning sign in each work area where the PEL was exceeded.
- Not developing, implementing, and maintaining a written hazard communication program.
- Not have each affected employee use the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment.

The NOPH is used to provide information to the employer on how to correct an identified hazard, when a MIOSHA rule does exist that can be applied to the identified hazard, but employee exposure cannot be determined or is not sufficient to document a violation. Two NOPHs were given to the employer. The first NOPH addressed ensuring certain work areas were included in a cleaning schedule. The second NOPH informed the employer of additional requirements for recordkeeping and employee notification.

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The department recently conducted a MIOSHA Training Institute (MTI) survey. More than 85 percent of the survey responders reported they were pleased with the training received. The poll was conducted to determine if the MTI seminars are meeting the needs of our customers.

More than 80 percent of the respondents indicated they are likely to take an MTI seminar over the next two years and are interested in taking MTI courses online. An astounding 100 percent of respondents expressed interest in pursuing a Level One or Level Two certificate should they continue to take MTI seminars in the future. The survey further revealed that 95 percent of participants learned about MTI from the MIOSHA website or our email notifications.

The survey identified some areas MIOSHA needs to address. Travel distance to MTI seminars was a dissatisfaction expressed by respondents. Participants also said it was the biggest reason why they are unlikely to take another MTI course.

The survey revealed that our customers want more MTI trainings. Fifty percent of the respondents stated they need more offerings in St. Clair, Oakland, Macomb, Hillsdale, Allegan, and Kent counties. Attendees in the Upper Peninsula thought there were too few courses offered in that region and they would like to have more training opportunities there.

Respondents were asked if their organizations have used the MTI scholarship program. Surprisingly, 70 percent said “no”.

What are we going to do with these results?
To address the travel issue and the need to reach more of our customers, we are currently working towards offering more online courses. Additionally, we are working on a plan to provide more location options to reach our customers within the areas that are lacking course offerings. Finally, MIOSHA is hoping to drive participation in the offerings through the MTI scholarship program.

Thanks to all who completed the 2019 MTI Survey. The responses and comments are helpful as we continue to make improvements to our MTI program.

To learn more about MTI and what it can do for you and your company, please contact the CET division at 517-284-7720 or visit the website at michigan.gov/mti.
MIOSHA and MTMIC Sign Alliance

Pardeep Toor, Public Information Officer

MIOSHA and the Manufacturing Technology Mutual Insurance Company (MTMIC) signed an alliance agreement formalizing a mutual commitment to workplace safety and health. This marks the fourth time that MTMIC has renewed this alliance with MIOSHA. Previous alliance signings occurred in 2009, 2012 and 2015.

Standards Update

Due to changes in GI Parts 2, 3, and 4, and adoption of federal Walking Working Surfaces rules, the following standards are being revised:

- CS Part 11 Fixed and Portable Ladders
- CS Part 30 Telecommunications
- GI Part 6 Fire Exits
- GI Part 7 Guards for Power Transmission
- GI Part 14 Conveyors
- GI Part 17 Refuse Packer Units
- GI Part 20 Underhung Cranes and Monorail Systems
- GI Part 26 Metalworking Machinery
- GI Part 42 Forging
- GI Part 44 Foundries
- GI Part 53 Tree Trimming and Removal
- GI Part 57 Oil and Gas Drilling and Servicing Operations
- GI Part 62 Plastic Molding
- GI Part 74 Fire Fighting
- GI Part 81 Baking Operations

The following standards are also being revised:

- CS Part 14 Tunnels, Shafts, Caissons, and Cofferdams
- GI Part 301 Air Contaminants in General Industry
- GI Part 340 Beryllium
- CS Part 601 Air Contaminants in Construction
- CS Part 640 Beryllium
- CS Part 10 Cranes and Derricks
- GI Part 590 Silica in General Industry
- CS Part 30 Telecommunications
- CS Part 632 Hazardous Waste Operations and Emergency Response
- Administrative Part 11 Recording & Reporting of Occupational Injuries & Illnesses

Watch the MIOSHA standards web page for final versions once they are approved.