### Health and Safety

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### **Going the Distance**

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### The continuing challenge of fatalities

### By Michael Wood

Recent news coverage reported that the national Census of Fatal Occupational Injuries (CFOI) has shown an increase around the country – and the jump is even more pronounced in Oregon. This contrasts with the workers' compensation fatality data that we track (and report every spring), which shows that the death rate has flattened somewhat after increasing slightly after decades of decline. And the latest reports come on the heels of some very thoughtful coverage in the *Oregonian* about the realities of workplace death.

Many focus on the reality that various approaches do not readily agree on the way to count what is, statistically, a relatively small number. And I am interested in learning more detail about the CFOI numbers, since the various reasons why the number is always somewhat higher do not explain why it would show an increase when other indicators do not. But the more important reality can be too easily masked by these various statistical discussions.

I see all of the reports of fatalities reported to Oregon OSHA, and I also see all of our investigation reports. And, to me, the troubling reality is not



really to be found in the rates or in how they have changed over the years. What troubles me in these

**Oregon OSHA Administrator** 

reports, over and over, is that I see workers killed by hazards that can easily be recognized and that could have been easily corrected. What frustrates me is that, too often, the workers rely upon practices that have been passed around and passed down by more experienced workers. And what frustrates me is that employers and senior workers "wink" at and even tacitly encourage violations even while they point at their safety policies as providing the necessary protection.

In short, what upsets me when I read many of these fatality reports is that we kill people in Oregon workplaces much the same way we did decades ago. And the preventive measures are readily available.

The reason this matters, even though the rates have declined decade after decade, is that they are individual stories. For the worker who is killed, and for the friends and family left behind, it doesn't matter whether that worker is one of 20, one of 50, or one of 70. When it comes to that worker, the story is a tragedy, and that tragedy is compounded when the death was truly preventable and senseless.

The Oregonian coverage captured that reality well, focusing less on the numbers and more on the individual stories. And as we read those same individual stories, we face an inescapable conclusion: We can do better. We must do better.

What troubles me in these reports, over and over, is that I see workers killed by hazards that can easily be recognized and that could have been easily corrected.









### Southern Oregon Occupational Safety & Health Conference

Ashland Oct. 13-15, 2015

Don't miss this conference offering extensive training for the safety and HR professional, owner, safety committee member, and front-line supervisor.

Register now at www.regonline.com/southern oregon15

### Western Pulp, Paper, & **Forest Products Safety & Health Conference**

Portland Dec. 1-4, 2015

The 25th annual safety and health conference is specially designed for the pulp, paper, and forest products industry. An excellent workplace safety and health training resource.



For more information, visit www.orosha.org/conferences

### **Education:**

**Upcoming October workshops:** Hazard Communication Program - Aligned With GHS: Pendleton: 10/08/2015 Worker Protection Standard Pendleton Fall Protection Rosebura Lockout/Tagout and Machine Safeguarding Roseburg Hazard Identification and Control Milwaukie 10/22/2015 Worker Protection Standard Forklift Safety Eugene Hazard Identification and Control



**Mid-Oregon Construction Safety Summit** 

Bend Jan. 25 & 26, 2016 Join us for training designed for residential, commercial. and industrial

construction workers, and agriculture.

For more information, visit www.orosha.org/conferences



For more information: www.orosha.org/educate/pdf/schedule4.pdf





# Delayed reaction

A 2009 video recorded by Oregon OSHA compliance

officer **Tim Marcum** showing a worker narrowly escaping a trench cave-in went viral Sep. 2, 2015, on the social networking site Reddit.

### Just published

### Posters

Oregon OSHA's safety and health poster "It's the Law" has a new look. The redesigned poster includes the same information as the previous one and is available in English and Spanish.

### Fact sheets

Our fact sheets are getting a makeover, too. Check out the new look on three that have been recently updated.

- Crane standard: A timeline
- Operating powered
   industrial trucks (forklifts)
- All-Terrain Vehicles (ATVs)



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# **Data points**

Number of serious workplace injuries this year
caused by hazardous energy or contact with parts
in moving equipment: 16
Number of violations this year of 1910.147(c),
Control of hazardous energy – general
requirements: 73
Average penalty per violation of 1910.147(c):
\$430

# Blissful ignorance:

### It's not the way to deal with hazardous energy

by Ellis Brasch

### Remember the toy called a Jack-in-the-box?

Basically, Jack was just a spring stuck in a small tin box that had a hinged lid for a top and a hand crank on the side. To get the toy to work, you pressed Jack into the box, closed the lid, secured it with a latch, and then turned a crank. At some point, Jack popped out of the box, delighting generations of youngsters. But this simple toy offers a lesson that many workers ignore. It's all about energy. When you push Jack into the box and close the lid, you compress the spring and your effort is stored as *potential energy* in the spring. Potential energy is energy just waiting to do something – think of it as motion waiting to happen. When you release potential energy, something *will* move. That movement is *kinetic energy*. When the lid unlatches, it is kinetic energy that pops Jack out of the box.

Energy exists in many forms, all of which are associated with motion – and it is motion that makes energy hazardous.

ow imagine huge amounts of potential energy stored in industrial equipment that could start or move unexpectedly, just like a *Jack-in-the-box* – room-size ovens, mixers, vehicle lifts, compactors, and robotic arms, for example. Most accidents that involve energy happen when workers release that energy on themselves or another unsuspecting co-worker. Why? Many workers do not follow – or are not aware of – four critical steps that are necessary to keep energy from becoming deadly:

- **1.** Know the forms of energy that power the equipment
- 2. Isolate the energy from the equipment
- **3.** Safely release any potential energy
- 4. Verify that the energy has been controlled

### **1** • Know the forms of energy that power the equipment

Energy exists in many forms, all of which are associated with motion – and it is motion that makes energy hazardous. Energy can harm you in different ways depending on its form. The first step in controlling hazardous energy is to know the forms of energy that power the equipment you use *and* how that energy can harm you if you do not properly control it. Typical energy forms include:

- **Chemical energy:** Released in a chemical reactions, often producing heat as a by product.
- **Electrical energy:** Produced by the flow of an electric charge through a conductor.
- **Gravitational potential energy:** The energy stored in an object because of its vertical position or height.
- Hydraulic energy: The power of a pressurized fluid, typically hydraulic fluid.
- Mechanical energy: The power that an object gets from its motion and position.
- **Pneumatic energy:** The power of pressurized air.
- Radiant energy: The energy that travels in electromagnetic waves and particles.
- **Thermal energy:** The energy that is associated with heat, especially in steam, liquids, and gasses.



Most accidents that involve energy happen when workers release that energy on themselves or another unsuspecting coworker – typically during service or maintenance work.

A recent accident: A worker reached

into a 6-inch by 3-inch inspection hole on a mixing machine with his left hand to clean an auger. In the meantime, a co-worker pressed a switch on a nearby control panel that he thought turned on a conveyor, but it turned on the auger, and the worker who was cleaning it lost his left arm. Neither worker had been trained to recognize the machine's hazardous energy sources, the forms and magnitude of the energy used in the workplace, or the methods necessary to control them.



BLISSFUL IGNORANCE: IT'S NOT THE WAY

### **2.** Isolate the energy from the equipment

The most effective way to isolate energy is with an energy isolating device – a technical name for mechanisms such as manually operated circuit breakers, disconnect switches, line valves, and safety blocks that ensure the equipment will not move or become energized. But these are effective only if you know that no one will interfere with them while you are working on the equipment. There are only two ways to be certain: They are called lockout and tagout.

Lockout is a procedure for physically securing an energy-isolating device in a safe position – typically with a lock that has a unique key. Tagout is a procedure for securing a warning sign to an energy-isolating device when a lockout device cannot be used. (Tagout requires an additional step to ensure the same protection that a lock provides.)



A recent accident: A mechanic pressed a push-button switch to de-energize a large computer-controlled machine but did not use a power disconnect switch (the energy isolating device) as required by his company. The pushbutton switch stopped the machine but did not isolate the energy – the machine started unexpectedly and crushed the mechanic's legs.

### **3.** Safely release any potential energy

Remember the compressed spring in the Jack-in-the box? There could still be potential energy to account for after you have isolated energy from the equipment. Capacitors, coiled springs, elevated machine parts, rotating flywheels – and air, gas, steam, chemical, and hydraulic systems – are all sources of potential energy. Common ways to relieve potential energy:

- Drain pressurized fluids and gases
- Discharge capacitors
- Release the tension in springs or block them so they do not move
- Ensure that all moving parts, such as flywheels and saw blades, come to a complete stop



A recent accident: Two workers were repairing equipment that had electrical, hydraulic, and thermal energy sources. The workers isolated and locked out the electrical and hydraulic energy but did not close a valve that blocked the thermal energy (pressurized steam). As they worked on the equipment, the pressurized steam shot through an eight-inch pipe and severely burned one of the workers across his face, arms, legs, and stomach.



### **4.** Verify that the energy is controlled

Double check to ensure that the equipment is completely isolated from its energy source, that the appropriate energy isolating devices are locked or tagged, and that any potential energy has been removed.

A recent accident: A worker walking by a plywood stacking machine noticed that the machine had stopped and a plywood panel was out of place. When he tried to reposition it he triggered an electric eye that started the machine, which pinned him and severely injured him. He said he was trying to help a co-worker, but he did not know how the electric eye controlled the machine.

You are most likely to encounter hazardous energy when:

- You work on equipment that could start or move unexpectedly
- You work near equipment when it's being serviced
- You remove or bypass guards to work on energized equipment
- You do not follow established energy control procedures

# Understanding the three critical components of an energy control program

### by Ellis Brasch

Every year since 2008, *The control of hazardous energy* (1910.147) has been one of Oregon OSHA's 10 most violated standards. Also known as the *lockout/tagout standard*, 1910.147 covers the safety requirements for employees who perform service and maintenance work on equipment that could unexpectedly start up or release hazardous energy.

hat keeps 1910.147 in the top10 list are the violations that come from just one part of the standard: 1910.147(c) – most of which have been rated "serious" every year since 2011.

What is it about 1910.147(c) that leaves many employers out of compliance? There are three critical components to any energy control program and the requirements for those components are all in 1910.147(c). Most of the violations and many accidents involving hazardous energy happen because one or more of those components were missing or employers did not enforce them. Those components include:

- Documenting procedures for controlling hazardous energy
- Training all employees about hazardous energy
- Conducting annual inspections of the procedures
- Are they part of your energy control program?

### **Document energy control procedures**

If you have employees who perform service or maintenance work on equipment that could start up unexpectedly they must follow specific procedures that will ensure the equipment is safe when they are doing the work. The procedures must describe:

- How they will be used
- The necessary steps for shutting down equipment and controlling hazardous energy sources
- How to place, remove, and transfer locks or tags
- How to test the equipment and verify that all sources of hazardous energy have been controlled
- How a lock or tag will be removed if the person who initially applied it is not available to remove it



Employees must follow specific procedures to control hazardous energy when they work on equipment

that could start up unexpectedly.

To learn more about hazardous energy and how to control it, see *Lockout/Tagout: Oregon OSHA's guide to controlling hazardous energy*. UNDERSTANDING THE THREE CRITICAL COMPONENTS OF AN ENERGY CONTROL PROGRAM



All employees should know basic hazardous energy concepts and the purpose of the devices used to control hazardous energy.



An authorized employee must inspect each energy control procedure at least once each year.

The procedures should also describe how to temporarily remove locks or tags if it is necessary to energize equipment for testing, and how to reenergize equipment when the work is done.

*Is it necessary to have a separate procedure for each piece of equipment?* Not necessarily. Similar equipment can be covered by one procedure when the equipment:

- Uses the same type and magnitude of energy
- Has the same or similar types of controls
- Is made safe using the same sequential steps in the procedure

### Train all employees about hazardous energy

Make sure that your employees know basic hazardous-energy concepts and the purpose of the devices used to control hazardous energy. They should also know what tasks might expose them to hazardous energy and that they are not allowed to restart equipment that is locked out or tagged out. *Authorized employees* and *affected employees* need additional training.

*Authorized employees* – Those who service equipment. They must know how to find and recognize hazardous energy sources, how to identify and find the types and magnitudes of the

energy sources in their workplace, and how to isolate and control the energy sources.

*Affected employees* – Those who operate equipment or work in areas where the equipment is serviced. They must understand the purpose of energy control procedures and how they are used.

Keep current training records for each authorized and affected employee that includes their name and their training date.

Retrain employees when there are changes in the workplace that could introduce new hazards such as jobs, the energy control procedures, the equipment or work processes. Employees must also be retrained when they do not follow established energy control procedures.

### Inspect the procedures at least annually

Annual inspections ensure that the procedures are effective and that your employees are correctly using them. An authorized employee must inspect each energy control procedure at least once each year. The inspection can be scheduled or done randomly; the authorized person who does the inspection must understand the procedure and must not be among those who are using the procedure at the time of the inspection.

### A successful inspection confirms that:

- The procedure is accurate
- The procedure is being followed
- The procedure addresses all energy sources
- Employees understand the procedure
- Employees understand their responsibilities for controlling hazardous energy

When the inspection shows that employees are not following the procedure or that the procedure is not protecting them, you must take corrective action, which might include:

- Revising the procedure
- Acquiring additional lockout or tagout devices
- Providing additional employee training
- Increasing supervision over employees who use energy control procedures

The inspection must also be "certified" to show that it has been completed. The certification identifies the equipment, the inspection date, the employees included in the inspection, and the inspector.

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# Short takes

### Does a required poster cost \$84? Nope, it's a scam.

Compliance poster solicitations may look official, but they are scams that charge employers \$84 for posters that are free on the Bureau of Labor and Industries (BOLI) website. BOLI's Technical Assistance for Employers Program offers free online access to all required posters, as well as nine-inone and seven-in-one composite versions that are available for \$12.50 plus shipping.



 Download required posters: www.oregon.gov/boli/TA/Pages/Req\_Post.aspx



### SHORT TAKES

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### Serious workplace injury? Call 911 first

When a worker needs medial attention for a serious injury (or any other medical condition), call 911. Do not rely on self-assessments or medical assessments from well-intentioned co-workers. This year, a number of workplace medical emergencies have left workers waiting while co-workers discussed whether a 911 call was necessary. In one case, co-workers loaded an injured worker – who was sitting in a chair, unable to move – into a truck and drove him to an urgent care center, only to discover that the facility was not equipped to deal with his injuries.

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There is nothing wrong with an emergency plan that relies on a 911 call for serious medical events. In fact, it is a good idea!



SHORT TAKES

### Oregon OSHA honors students with Workers Memorial Scholarships

Oregon OSHA awarded five students with Workers Memorial Scholarships during a public ceremony in August. Those who received scholarships included (one recipient asked to remain anonymous):

- Amanda Shaffer (Medford) \$500
- Daisy Maldonado Dominguez
   (Wilsonville) \$500
- Kassandra McCabe (Springfield) \$1,000
- Nicole Beck (Gold Hill): \$1,000

Award recommendations are made by Oregon OSHA's Safe Employment Education and Training Advisory Committee, which includes members from business, organized labor, and government. Oregon OSHA presents the awards annually to help in the postsecondary education of spouses or children of permanently and totally disabled or fatally injured workers.







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# Fifth-year SHARP for Boise Cascade's White City Veneer plant

Boise Cascade's White City Veneer plant recently celebrated its fifth year as a SHARP company. Oregon OSHA safety consultant David Heath and health consultant Paul Utterback were part of the team that helped the plant achieve the five-year milestone. The celebration brought in several visitors from Boise Cascade plants across the country who wanted to learn more about SHARP and White City's success.

The Safety and Health Achievement Recognition Program (SHARP) recognizes employers that have implemented commendable safety and health programs. Companies that complete four years in the SHARP program and successfully renew for a fifth year are eligible to graduate.





### SHARP and VPP

Oregon OSHA recognizes workplaces with excellent safety and health management systems through its SHARP and Voluntary Protection (VPP) programs. For more information, see Oregon OSHA's SHARP and VPP webpages.

### Kids' Chance of Oregon awards scholarships to three Oregon students

Zsofika Wigney and Kayla and Randi Johnston recently received scholarships from Kids' Chance of Oregon, a two-year-old nonprofit organization that provides post-secondary and trade school scholarships to children of Oregon workers who have been severely or fatally injured in a workplace accident.

The three students received their awards on Sept. 16 at McMenamin's Kennedy School.

Zsofika Wigney lost her father to a workplace accident in 2012. She attends Clark Honors College at the University of Oregon, and plans to go to medical school to someday work as a geriatric physician. Zsofika received a \$14,000 scholarship.

Twins Kayla and Randi Johnston were 5 years old when their father was killed in a job-related accident. Both are studying business management at Lower Columbia College in Longview, Wash., and plan to attend Oregon State University next year. They received \$1,200 and \$1,400 scholarships, respectively.

Oregon is one of 27 states with a Kids' Chance chapter. The Kids' Chance organization was founded in 1988 by Robert Clyatt, a workers' compensation



Photo: NW Labor Press

Bob Shiprack, president of Kids' Chance of Oregon, presents scholarship awards to Zsofika Wigney (left) and twins Kayla and Randi Johnston.

attorney from Georgia who saw firsthand the devastating impact that severe workplace injuries had on children and their families. The Oregon chapter's 12-member board is represented by Bob Shiprack, a retired executive director of the Oregon State Building Trades Council, and Bob Tackett, executive secretary-treasurer of the Northwest Oregon Labor Council. Other board members include Nelson Hall, a labor attorney at Bennett, Hartman, Morris & Kaplan, and Jennifer Flood, State of Oregon ombudsmen for injured workers.

**Source:** The Northwest Labor Press





A millwright was on the north side of a wood press marking a leaking steam line so that he could replace it with one cut to size in the millwright's shop.

The wood press operator, who ran the press from the opposite side, had just shut it down and locked out the hydraulic ball valve for an adjacent unit called a "charger" that moved on rails, retrieved plywood sheets from another area, then moved back and transferred them into the press. Then, he walked over to help the millwright trace the replacement line so they could determine its correct length.

After helping the millwright, the operator went back to the other side of the press, unlocked the hydraulic ball valve, and started the machine, thinking the millwright had gone back to the shop.

As the charger began to move into position to transfer plywood to the press, it suddenly stopped. The press operator checked for problems on the machine's two operating consoles, but did not see anything wrong. Then, he noticed that the millwright appeared to be still standing next to the charger.

As he walked around to the other side of the machine, he found the millwright pinned between the charger and a steel post.

He blew a whistle for the foreman, who called 911, but the millwright, who remained pinned between the charger and the post, died by the time responders arrived.

### **Accident Report**

Incident: Crushed by wood press Industry: Softwood veneer and plywood manufacturing Employee: Millwright



### Key findings

- There was no energy control program covering service or maintenance work on the wood press or the charger.
- Different lockout and tagout procedures were used by clean-up workers, press and charger operators, and millwrights.

![](_page_17_Picture_4.jpeg)

- There were no written lockout and tagout procedures for the wood press or for the steam lines.
- Wood press operators did not check to be sure that all other employees were in the clear before starting of the machine.
- Lockout and tagout training on the wood press and charger had not been certified for all affected and authorized employees.

![](_page_17_Picture_8.jpeg)

- 1910.147(c)(4)(i): Procedures were not developed, documented and used for the control of potentially hazardous energy.
- 1910.147(c)(7)(iv): The employer did not certify that employee training has been accomplished or kept current.

![](_page_17_Picture_11.jpeg)

# Ask Technical

Q: Do Oregon OSHA rules require all locks used to control hazardous energy in the same plant be made by the same manufacturer?

**A**. No. As long as the locks that you choose are readily identifiable as "lockout devices," you can use them.

A "lockout device" as defined by 1910.147(b), is a device that uses a positive means such as a lock, either key or combination type, to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment.

Lockout devices must also be standardized within the plant by color, shape, or size. You can do this by selecting a specific size, shape, or color and using them for lockout applications only. Employees also need to be trained how to identify the size, shape, or color locks that you have chosen to be lockout devices.

Lockout devices must be standardized by color, shape, or size.

**Aster** 

![](_page_18_Picture_7.jpeg)

![](_page_19_Picture_0.jpeg)

# **Going the Distance**

### What is your background and safety philosophy?

I am a building trades steamfitter by trade and a safety professional by training. I have been a full-time safety professional for 20 years. I was with Hoffman Construction for 16 years before coming to Arctic Sheet Metal three years ago. I have a few mentors I stay in contact with on a regular basis.

My safety philosophy is:

- Know what you are talking about. Attend trainings and classes in your local area with the people you will be working with. Engage in the safety community. Create a network of people to communicate with.
- Give the team members the training, equipment, and tools they need to perform their work and they will be safe.
- Provide assistance to the crew for the task that ensures all crew members go home healthy and safe. Be collaborative with information: listen, learn, and share.
- I work now with our estimators and project managers to identify concerns during the planning process so "safety" is looked at as a resource and not as "stopping the work." If I can help design out a hazard, well that is just cool!

Company: Arctic Sheet Metal, Inc. Corporate Safety Director: Clark Vermillion, CHST Workforce: 125 employees Common Hazards:

Lacerations, sprains and strains, working at height

I think what makes our safety program successful is that I am not afraid to call anyone to ask for help. We have a great network of sharing here in Oregon, with the Construction Safety Summit, ASSE, and Oregon OSHA training workshops. I make friends whom I can call for help and, likewise, I make time for people when they call me. We all go home at the end of the work day to our families." — *Clark Vermillion* 

Photo: Ron Conrad

GOING THE DISTANCE

### What are some of the unique safety challenges you face on current projects?

Material handling is always a challenge. Ductwork is not normally heavy, but it is awkward in size and shape. It is difficult to carry and the ends are sharp, raw-edged sheet metal. There is also continuous change in the way material is moved and raised into place. Working at heights with our architectural group is another challenge, including devising a way for 100 percent personal fall arrest systems on a finished metal roof.

### How do you ensure employees are aware of all the hazards?

Communication is the key to logistics on any project. It is best to separate walking workers and mobile equipment. Set up pathways for the crew to move freely to and from the building without worrying about being run over. This also makes it easier on the equipment operators and delivery drivers. We recently performed work on a project where the general contractor provided all of the equipment. They had a vision where five subcontractors would each have five forklifts and five-plus mobile elevating work platforms (MEWPs). That amount of equipment would cause a huge congestion and logistic nightmare. The general contractor provided a fleet of MEWPs for everyone to use. They also provided forklifts with full-time operators. This made the moving on the site easier and weekly scheduling covered who would have what equipment where.

![](_page_20_Picture_5.jpeg)

![](_page_20_Picture_6.jpeg)

Photo: Clark Vermillion

*Above:* Spiral duct being formed. *Left:* Raw edge of spiral duct before sanding.

"Give the team members the training, equipment, and tools they need to perform their work and they will be safe." — Clark Vermillion GOING THE DISTANCE

### How do you keep your crews engaged in safety issues day to day?

That is the million-dollar question with an elusive answer. The crew led by a supervisor that is engaged will be an engaged crew. As the safety person, I keep safety geared to going home to your other activities: family activities, kids sports, your sports. Sometimes I have to dig around to find out what their trigger is. One time, the guy had no family, no dog, no after-work activities. Then, he finally said, "I have a motorcycle that I am rebuilding." It was the only thing I could find that made him think I have a reason to go home healthy and safe.

### What advice do you have for other safety and health managers hoping to make a difference?

Get to know the crew. Listen to them; work with them. Communicate with them; never talk at them. The people doing the job know how to do it the way they were trained by the last person. Work with them on how to prevent a potential injury or ways to increase production. Make safety and production part of your routine. A safe crew is a happy crew; a happy crew is a productive crew. What does the owner want? Production and low costs. What does the safety professional want? No injuries. Make safe production a way of life at work and everyone will be happy.

*Top:* Stephen Brooks and Vermillion reviewing the use of the Combination Head Auto Break and a project making architectural flashing.

Bottom: Spiral machine in process.

![](_page_21_Picture_7.jpeg)

![](_page_21_Picture_8.jpeg)

Get to know the crew. Work with them. Communicate with them." — Clark Vermillion