Health and Safety

RESOURCE

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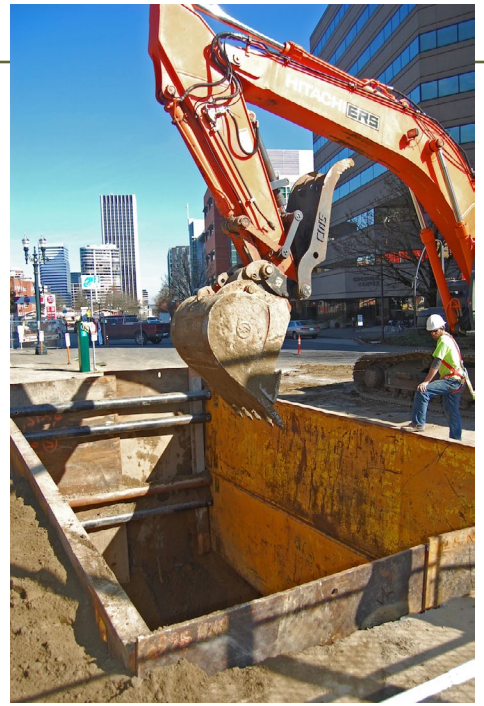

Aaron Girdinger helps guide an excavator into the trench. Photo: Stacey Thias

On the cover: (Left to right) Rick Long, Gabriel Mullins, and Brian Morgan use a crane to off load a truck in downtown Portland. Photo: Stacey Thias

RESOURCE

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DEPARTMENT OF CONSUMER & BUSINESS SERVICES
Oregon OSHA

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Measuring success – a challenging proposition

By Michael Wood

Those of us who engage in the professional practice of workplace health and safety operate in what is, in many ways, a data-rich environment. We can count injuries and days away from work. We can calculate rates based on worker hours or products produced. We can track our success – in days without injury or in the number of person hours worked since the last recordable incident.

Indeed, we have a great deal of information, whether we're looking at it from the perspective of an individual workplace, the corporate office, or the government agency with the responsibility to report it. But firm conclusions? They can be surprisingly difficult to reach.

If I were to ask you if your safety and health program is successful, you'd probably be prepared to answer the question with data. And that's good. But, at times, the data itself can be misleading.

When we looked at our safety committee requirements several years ago – and at our safety enforcement scheduling system a bit more recently – one of the realities that became apparent to me is that we tend to look at our data as though it is more meaningful than it really is. Too often, we look at a sample that is too small to sustain the conclusions we draw from it. That was the problem with our previous safety committee requirement that applied to workplaces with a higher injury rate than the average for their industry – the simple truth is that most Oregon workplaces are too small for a one-year injury rate to have any statistical validity. We faced the same problem when we used those same rates to decide which workplaces to inspect.

But, even on a broader level, concrete proof of our success can be somewhat more challenging – particularly if we try to evaluate the various elements of an overall strategy.

Here in Oregon, for example, it is pretty obvious that the risk of workplace injury, illness, and death has been declining over the past two decades. There are just too many indicators that have steadily declined for me to believe that they can all be explained as some sort of statistical aberration. I am confident that the data show a steady decline, exceeding national trends and not explained by shifts in the balance of industry, since the Mahonia Hall reforms of more than 20 years ago.

I am also confident that Oregon OSHA, in partnership with workers and employers throughout the state, has had something to do with that success. We've achieved those results through a multi-faceted program of training, education, enforcement (including our reliance on a relatively high presence and relatively low penalties), and the broad availability of worksite consultation. That program works. But ask me which elements are most important? Or how do the elements work in concert with one another to ensure our success? Those are tougher questions.

I've seen preliminary results of some research the department's Information Management Division has conducted suggesting that our enforcement activity has a positive impact on the injury rates of the workplaces we visit. And that's good. But we haven't yet been able to devise studies to answer the same question one way or the other for the other components of our program. And as I'm asked to describe the value of the things we can do, I am often tempted to offer the equivalent of "Don't touch it – we know it's working but

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Excavation safety

Avoiding the pitfalls of common violations

By Melanie Mesaros

Oregon's hills and steep terrain, coupled with the wet climate, pose unique safety challenges for anyone undertaking an excavation project.

"When you have saturated or wet soil, it makes it more likely to cave in," said Steve Barrett, an Oregon OSHA safety inspector, who has cited many companies for excavation violations. "Anytime you are working on a slope, it makes a job more dangerous."

With a national emphasis program on trenching, Oregon OSHA inspectors have issued more than 200 citations in the past five years for violations of 1926.652(a): Protection of employees in excavations. Of those violations, nearly all the citations were rated as "serious."

Rick Long directs an excavator inside a trench box provided by D.P. Nicoli.
Photo: Stacey Thias

D.P. Nicoli, a Tualatin-based company, consults with contractors across the state on what's permitted under Oregon OSHA rules and provides shoring. Dawn Morse, the company's Oregon sales manager, said there are often misconceptions in the field.

"I bet one out of every 10 jobs isn't compliant because of shortcuts," she said. "With the market the way it is, companies can't afford to include shoring in their bid and tend to make do with what equipment they have."

Morse said she once saw a worker hanging by his knees from a ladder over an open hole. While it was an extreme case – the trench had no shoring either – she said some contractors, especially those who are new to the underground market, don't fully understand OSHA requirements.

"Sometimes, they think they can just slope it back but they may not have the room to do that," she said. "Sometimes, they are using equipment incorrectly – hydraulics, boxes will be staggered, stacked pins aren't in place."

Barrett said many contractors haven't taken the time to fully understand the rule.

"If you are working in a trench and it is five feet or more, you need to have shoring," Barrett said. "But the other, lesser-known part of the rule says if the trench is not stable and it's *less* than five feet, they still need cave-in protection."

Kyle Lewis, a sales associate at D.P. Nicoli, said they encourage supervisors to talk about near-miss incidents openly with their crew.

"We tell foremen to keep a notebook in their truck and write down issues as they come across them," he said.

Barrett said it's also a good idea to keep Oregon OSHA rule requirements on a job, too.

"A lot of companies think if they aren't working in what we define as a trench, they believe they are exempt from the rules," said Barrett. "For instance, if you have a hillside that's cut out for the foundation of a house and you are going to lay form work. People don't realize they just created a trench right there."

Left: Shawn Morgan (left) and Rick Long back fill around a trench box.
Middle: Workers check the grade inside the box.
Right: Jim Dale (left) with Extreme Excavating and Dawn Morse of D.P. Nicoli oversee an excavation.

In 2003, an Oregon OSHA compliance officer happened by this Gresham jobsite and caught a cave in on tape (it occurred just 30 seconds after he arrived) that measured roughly the size of a small car. The video has earned more than 35,000 views on YouTube.

Assessing cave-in fatalities – then and now

By Ellis Brasch

According to a 2011 federal OSHA *Trenching and excavation* fact sheet, two workers are killed every month in cave-ins. Of course, 24 fatalities are too many, but consider the past. In 1983, OSHA estimated there were 70 fatalities from trench and excavation cave-ins each year and NIOSH put the annual number at 75. Is there some good news in these numbers? Definitely. The annual fatality toll from cave-ins dropped about 66 percent in those 28 years.

We know that bad safety practices in trenching persist. But fewer workers are dying from cave-ins now than in years past. Why is this happening?

In 1989, the *Resource* featured an article titled, *"Ten-year record set for no excavation fatalities."* The article stated, "Since June 26, 1979, there have been no industrial fatalities in Oregon as the result of trench cave-ins on projects covered under workers' compensation to date." And in the eight years before 1980, according to the article, there were "approximately two trenching fatalities each year." A special emphasis program designed and implemented by Oregon OSHA in 1979 to reduce such accidents was credited for the success.

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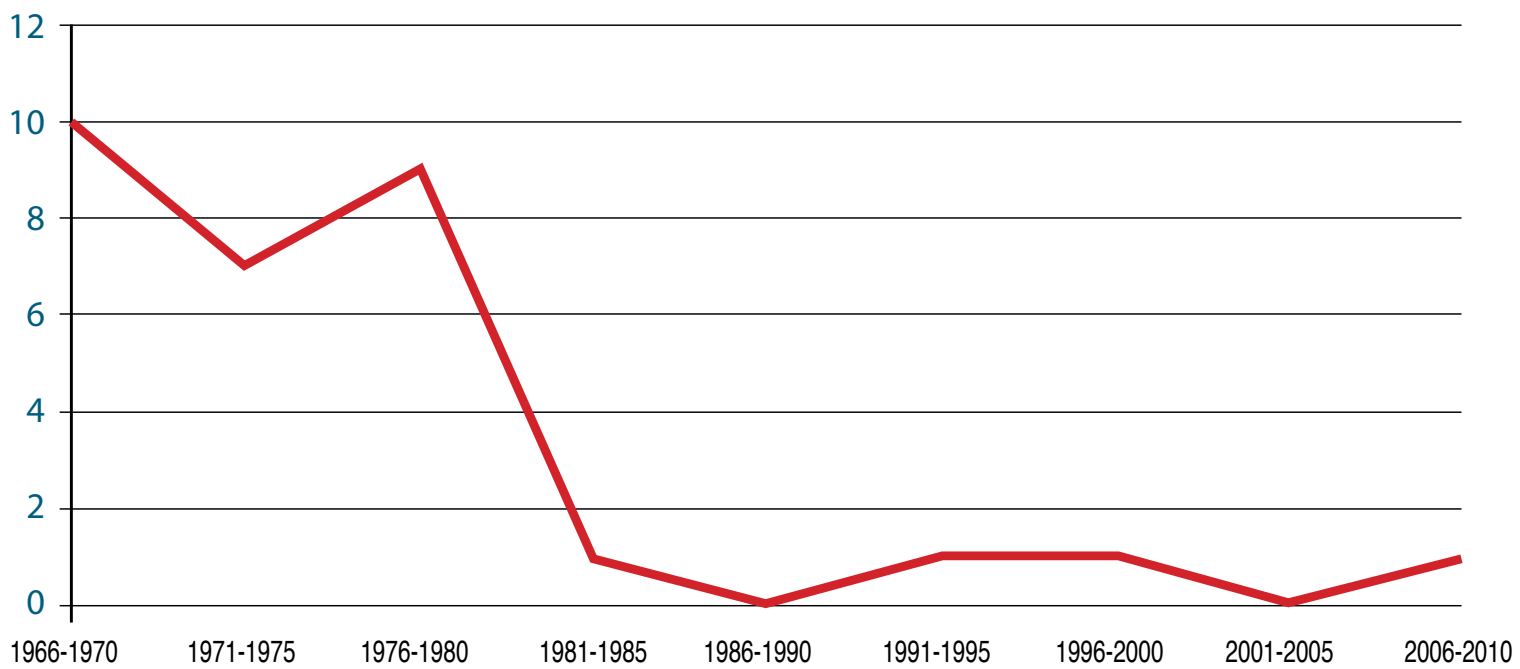
Work-related cave-in fatalities in Oregon: 1966-2010



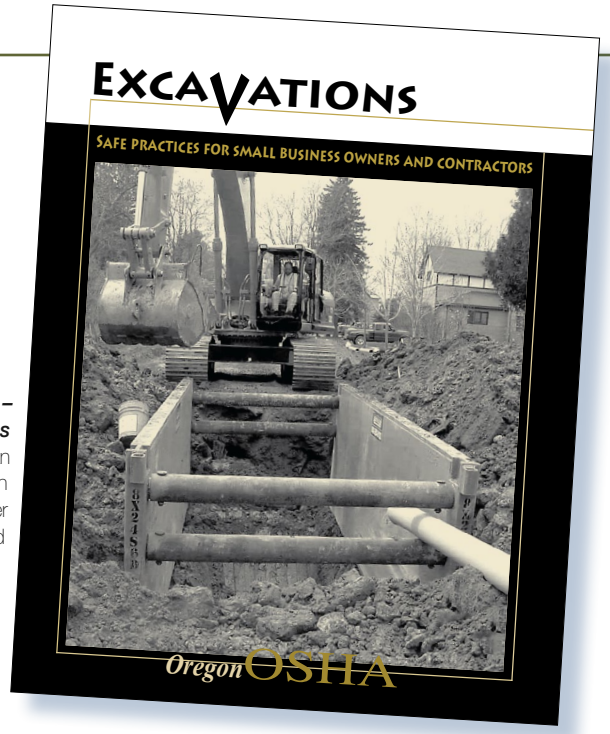
Assessing cave-in fatalities — then and now – continued

In fact, there were two industrial cave-in fatalities between 1979 and 1989 – one each in 1980 and 1983 – but neither worker was covered under Oregon's workers' compensation laws. Nevertheless, the drop in fatalities from earlier years is striking.

In the five years between 1966 and 1970, trench and excavation cave-ins killed 10 workers. (In 1967 alone, cave-ins claimed the lives of five workers). Seven workers died in cave-ins between 1971 and 1975, and nine more workers died between 1976 and 1980. The last time more than one worker died in a trench cave-in a single year was 1978.

By the numbers, June 26, 1979, really was a benchmark date in Oregon's history of work-related cave-in fatalities. Can we explain the change?

It's certainly possible that Oregon OSHA's 1979 trenching emphasis program – which preceded federal OSHA's program by six years – played a critical role. The 1979 program was based on a policy that required compliance officers to increase inspections of open trenches and to ensure that violations of trenching standards were corrected before workers were exposed to unsafe conditions. And, in 2008, Oregon OSHA adopted OSHA's National Emphasis Program, which is still in effect.



Oregon OSHA's ***Excavations – Safe practices for small business owners and contractors*** gives an overview of the dangers of excavation work, such as cave-ins and other hazards and how to avoid those situations.

Former compliance officer Ken Austin, who created Oregon OSHA's first trenching education program in 1979 to supplement the emphasis program, believed that three things were required to prevent cave-in accidents: enforcing occupational safety and health standards; engineering safety into work, methods, and equipment; and educating workers about workplace hazards.

Of course, the historical decrease in trenching fatalities follows an overall decline in work-related fatalities in Oregon. An average of 80 workers died each year in Oregon the 1980s; in 2011, 28 workers died.

Bad safety practices in trenching persist for any number of reasons – pressure to get the job done, belief that regulations are unnecessary, confidence that the work will go unnoticed, and blissful ignorance. But it's reasonable to suppose – and the numbers suggest – that things are changing, even if we have to look back 46 years to notice a difference. We may not be able to identify a single reason for the change, but many of us believe three factors affected it. They're essentially the same ones echoed by Ken Austin in 1979: enforcing occupational safety and health standards; engineering safety into work, methods, and equipment; and educating workers about workplace hazards.

What's wrong with this picture?

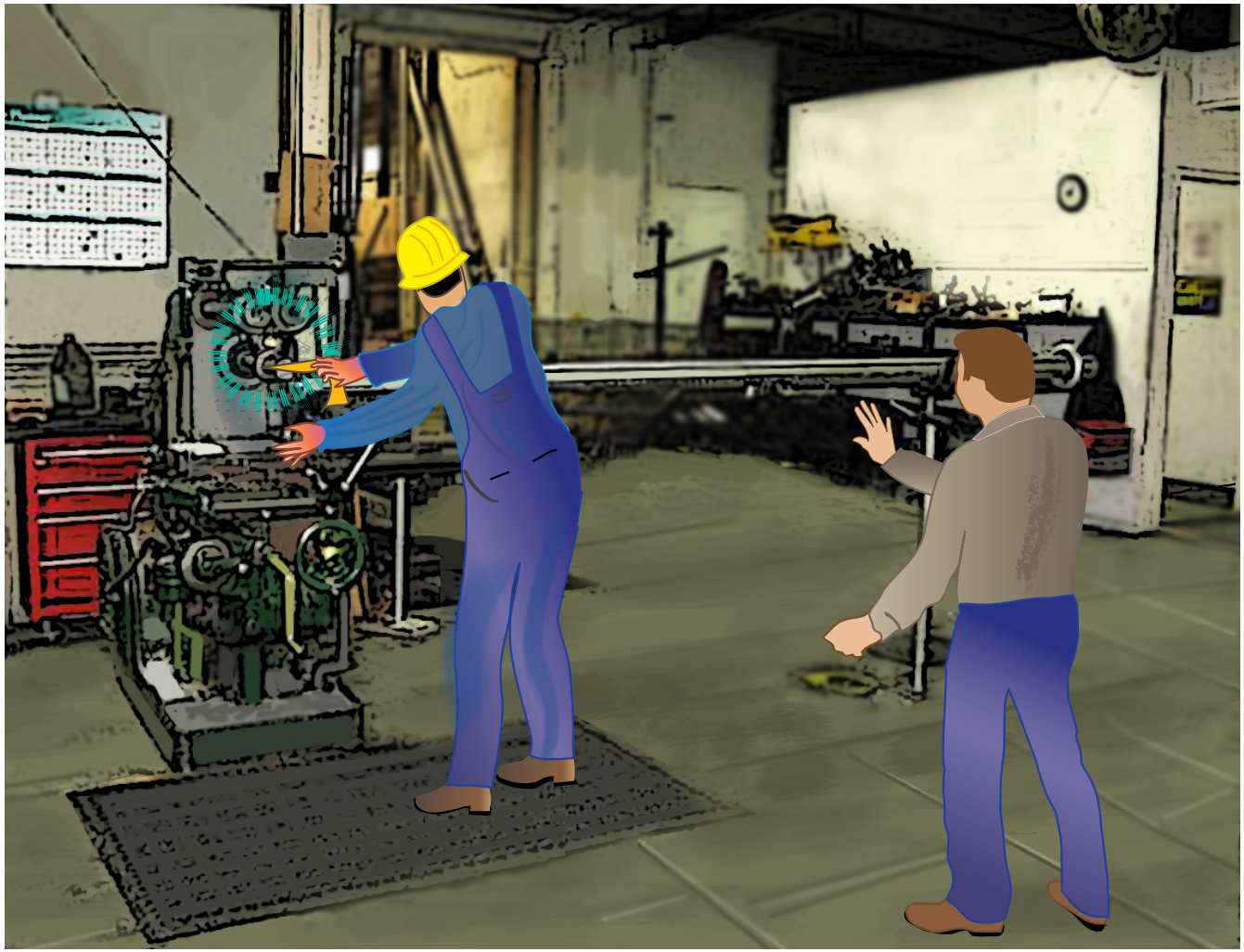
These photos were taken during recent Oregon OSHA inspections and depict a number of real-life hazards and violations.

1: Water and a lack of shoring make this trench in Cornelius unstable and the left bank shows signs of sloughing. The rebar also poses an impalement hazard.

2: This employee was found working in an unprotected trench in Hillsboro in 2008. The trench was approximately seven feet deep and the soil was pre-disturbed.

3: An employee was working in type C soil (gravel) without cave-in protection. The employer was also cited for not providing any means of egress (ladder), forcing the worker to climb up the side.

4: This employee in Aloha was exposed to a cave-in while working in a trench with no protection. The excavator track is closer than two feet from the edge of the trench, creating an extra weight surcharge against the trench wall.



Accident Report

Incident | Caught in

Business | Manufacturing

Employee | Machine operator

A machine operator's hand was caught in a horizontal milling machine as he tried to wipe off excess coolant from a part being processed.

The company manufactures switchgear for high-voltage electrical transformers. Early in the morning, the machine shop supervisor set up the horizontal mill and made two slot-cuts on a part about 126 inches long and five inches in diameter. (According to employees, the horizontal milling machine is always set up by the machine shop supervisor who receives orders of parts to be processed, selects the type of blades to use, and adjusts the machine's revolutions per minute accordingly.)

After the supervisor made the cut, the victim removed the part from the mill and placed it on a pallet. They continued working and had finished approximately 30 other pieces when the quality assurance inspector and the manufacturing supervisor stopped by and asked the machine shop supervisor to rework some fittings on a machine in another area. Before he left, the machine shop supervisor asked the victim to continue running the horizontal mill. He had processed six pieces when another machine operator came and offered to help.

Continued on page 10

After he finished making the cuts on another part, and while the machine was still running, he tried to wipe off the excess coolant on the part with a rag. The rag got caught in the rotating blade and pulled his right hand into the machine. The other machine operator immediately disengaged the machine and turned it off.

An ambulance arrived and took the victim to the hospital; he was released four days later. Because of the accident, his right index finger was amputated, his right ring finger was partially amputated, and the pinky finger on his left hand was lacerated.

Horizontal mill machine at time of investigation.

Conclusions

- Several factors contributed to the accident but the critical one was that the operator was not protected from the machine's moving parts. Also, the projecting shaft end was not guarded.
- The manufacturing supervisor stated that the machine came without guards. He also said that because of the types and sizes of the parts the company processed, it was not possible to guard the mill.
- Employees were allowed to wipe off the excess coolant from the part while the part was still on the feeding worktable. The quality assurance inspector stated that the employees were allowed to do that on the mill machine or on a nearby worktable. He also said that there was no written procedure for that activity.
- The mill's clutch was positioned so that the mill operator had to reach over the rotating blade in order to disengage the machine.
- Through employee interviews, it was determined that the machine shop supervisor and the manufacturing foreman primarily operated the horizontal mill. Therefore, management should have known about the hazards associated with the mill.
- Throughout the facility, there were lathes and threading machines that were properly guarded; the employer was cited for violating the same rule in 2009. After investigating the accident, the company restricted the use of the mill to the machine shop supervisor, properly guarded the machine, and posted warning signs around it.

Side note: *The horizontal mill machine was rebuilt in the 1940s without a guard. To be in compliance, the company designed a special guard for this equipment built in the company's own machine shop.*

Citations

- **1910.212(a) (1)** - Types of guarding. One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips, and sparks.
- **1910.219(c)(4)(i)** - Projecting shaft ends shall present a smooth edge and shall not project more than one-half the diameter of the shaft unless guarded by non-rotating caps or safety sleeves.

New citation appeal and extension request form now available online

Oregon OSHA's website now has an online form that reduces the paperwork and time necessary to appeal a citation or request an extension of an appeal date.

The only information needed to complete the form is the inspection number or the optional report number.

Find the form under **"Quick Links"** on Oregon OSHA's home page.
Select **"Online tools"** > **"Request"** > **"Appeal a citation or request an extension."**

Employers invited to participate in Safety Break for Oregon May 9

Employers across Oregon are encouraged to use award programs and trainings to promote workplace safety and health during Safety Break for Oregon on Wednesday, May 9, 2012.

Oregon OSHA coordinates the one-day event, designed to raise awareness and promote the value of safety and health in preventing on-the-job injuries and illnesses.

"Employers can use this day to really engage employees in safety and health matters," said Michael Wood, Oregon OSHA administrator. "Discuss workplace hazards, honor safety all-stars, or hold a training event. Focus on issues at your jobsite that still need attention."

Companies planning to participate will be entered to win one of three $100 pizza luncheons when they sign up online before May 1. The prizes will be given to participating companies as part of a random drawing. The Oregon SHARP Alliance is sponsoring the contest.

For more information, ideas on how to host an event, or to download graphics, go the Safety Break for Oregon website at www.orosha.org/subjects/safetybreak.html.

Finalists named in student video contest

A humorous lesson from a safety cop, the return of "Safety Man," and other stories told through special effects are among the finalists of the young worker safety and health video contest. The top 11 videos are now posted on YouTube for viewing (click on 2012 video submissions): www.youtube.com/user/OregonSafetyHealth

2012 Finalists

"Better to be Safe than Sorry"
– Springfield High School

"A Conversation"
– Summit High School

"Building Construction"
– St. Helens High School

"Construction Safety"
– Portland Youth Builders

"It's Better to be Safe than Sorry"
– Hermiston High School

"Saving a Friend"
– South Salem High School

"Street Racing"
– Parkrose High School

"The Importance of Ear Protection"
– Sisters High School

"The Safety Police"
– Salem Academy

Honorable mention

(not eligible for prize money):

"Don't Lose Sight Over What's Important"
– Lakeridge High School

"Safety Rules!"
– South Salem High School

The top three entries will take home cash prizes ranging from $300 to $500 and will earn a matching amount for their school. The Oregon Young Employee Safety Coalition (O[yes]), Oregon OSHA, SAIF Corporation, local chapters of the American Society of Safety Engineers, the Center for Research on Occupational and Environmental Toxicology (CROET), Liberty Northwest, the Greater Portland Construction Partnership, and Hoffman Construction sponsor the contest.

Open to all high school students in Oregon, the contest was designed to increase awareness about safety on the job for young people with the theme of "Save a Friend. Work Safe." Students were advised to create a 45-second public service announcement based on the concept of speaking up about potential workplace hazards.

Contest winners will be unveiled at an April 14, 2012, screening event at Northern Lights Theatre in Salem starting at 1:30 p.m. For contest information, go to www.orosha.org/psacontest/.

2012
Save a friend. Work safe.
PUBLIC SERVICE ANNOUNCEMENT
video contest

Feedback on our new design

We received some positive feedback on the new Resource design and wanted to thank readers who took the time to write us. Below are a few of the comments we received:

"The format (previous and most recent) is great and easy to read. The content is excellent – educational with just the right amount of information. I am our clinic's health and safety coordinator and read the newsletter from front to back each month and share relevant information at our monthly safety committee."

— Alicia Beachy, Grants Pass

"Love the new look of the newsletter! Good job!"

— Sylvia J Nichols, Roseburg

Administrator's message – continued from page 3

we're not sure how!" Unfortunately, that will never be a satisfactory answer for any of us. So, we'll keep trying to measure our successes – and even, on occasion, our failures.

What I do know, however, as I look at the fatality numbers for Oregon workers' compensation claims and as I prepare to speak at this year's Workers Memorial Day ceremony, is that the key story is not the increase in workplace deaths between 2010 and 2011. The simple truth is that 2010's 17 fatalities was a record-breaking low – far below the previous record (2009's 31). And 2011's 28 deaths is still the second-lowest number we've recorded. The overall trend remains downward, just as it has been for more than two decades.

No, the real story is the number of deaths in both 2010 and 2011 that could have been easily prevented. Whenever we talk about the data and about rates and about trends and about statistical validity, we must never lose site of the reality behind all of those numbers: real people with real stories and real friends and family. I am convinced that the work we do has made a difference for others just like them.

Can I prove it? Perhaps not entirely, at least not yet. But I'm not going to wait for perfect data before continuing to do the job. None of us can afford to. Because it's not a research project. It's real life.

Q: **I've been working in a properly sloped excavation that has type B soil. Recently, I encountered water at the bottom of the excavation. Does the water change the classification of the soil and if so, why?**

A: Of the three types of soil that you may encounter in Oregon – type A, type B, and type C – type C is the least stable. One category of type C soil is "submerged soil" or soil in which water is freely seeping. Type B soil that is submerged in water at the bottom of an excavation would most likely be classified as a type C soil.

Keep in mind that workers must not enter an excavation when water has accumulated unless they are protected from the unstable soil. (See *1926.651(h), Excavations*.) Protection includes support systems and water-removal equipment. A ***competent person*** must inspect the excavation and monitor methods used to control water accumulation.

Photo: Steve Barrett, Oregon OSHA

GOING THE DISTANCE – Meet a leading Oregon health and safety professional

Company: Eugene Water & Electric Board

Safety manager: Mark Maguire

Workforce: 570 employees

Common Hazards: High-voltage electrical hazards, confined space, trenching/shoring, overwater work (drowning), falls, ergonomic concerns

What is your background and safety philosophy?

I worked 12 years with International Paper as a production superintendent in the agriculture and nursery business and later worked at the University of Oregon for 17 years. I was a safety officer focusing primarily on occupational safety issues such as confined space, zero energy, and vehicle safety. For the past four years, I have been the safety coordinator at the Eugene Water & Electric Board, a utility that provides electrical and water service to approximately 100,000 customers.

What are some of the unique safety challenges you have tackled?

I have taken on safety issues ranging from serious ergonomic challenges in a highly mobile and seasonal agricultural business to working with cutting-edge university researchers and their associated chemicals and equipment. I am currently engaged in the generation, transmission, and distribution of electrical energy up to 115,000 volts and caring for the treatment, storage, and distribution systems that provide water to a large customer base.

After a near-miss battery explosion that soaked an employee in acid (no injuries), we designed and built a state-of-art "stand-alone" mobile battery bank and charger trailer that can be used during emergency outages as well as routine maintenance. The trailer is able to be staged

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adjacent to our substation structures and through a rollout cable system, provide temporary DC power at either 48 or 125 volts. It can be set up in substantially less time than when using past methods.

The trailer eliminates the ergonomic strain of moving up to 10 40-pound batteries while building up and breaking down temporary battery banks. It also eliminates the possibility of an electrical short and explosion while connecting the batteries together. The trailer is capable of supplying all of our substation Direct Current (DC) needs, planned as well as emergent. The trailer includes the battery charger and alarm circuits and has the capability to stand alone with its own five-kilowatt generator. This project was a great example of many sections working together after an accident to create a new and improved tool so our crews can work safer and eliminate injuries.

Top left: EWEB crews upgrade a residential water system.
Top right: Mark Maguire (left) and Erik Groomer discuss an issue inside a substation.
Bottom left: Mick Anderson connects a water line.

Photos: Stacey Thias

You have made ergonomic assessments a priority at EWEB. Can you share your approach to this issue?

For more than 30 years, I have worked in situations where sprains and strains were the greatest risks to the workers. I have found involving and educating the workforce is the best way to avoid or at least minimize injury severity. I have created ergonomic assessment teams in my past two work environments that have virtually eliminated office ergonomic-related claims. We just kicked off a "field ergonomic" assessment program here at EWEB that is targeted to providing training to lead level workers so that each crew has a member that can suggest better ways to approach day-to-day tasks.

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Top left: Erik Groomer (left) and Mark Maguire at a control panel.
Top center: (Left to right) Glen Lane, Mark Maguire, Chris Valentine, and Aaron Eisele discuss work on connecting a water line.
Top right: Mick Anderson works to fix a water line.
Bottom: Mark Maguire stands inside a substation that distributes 115,000 volts of electrical energy to EWEB customers.

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

People are engaged when they see a direct impact or benefit to themselves or their immediate co-workers. Share "what's in it for you" and then support and encourage workers to own their process. I have found collective bargaining groups to be extremely supportive of effective safety programs that protect their members. Always try to create new partnerships, which always create win-win-win situations. An example of this type of collaboration would be the EWEB safety committee, which has 28 members representing 22 separate work groups, including a representative of the executive management team. Members share safety concerns brought forward in their individual work groups with the larger safety committee and then go back and share the information that was discussed with their smaller teams.

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

I believe that the key to an outstanding safety culture is employee involvement. Everyone from customer service representatives to heavy equipment operators to the general manager owns their piece of the program. They also have the right and responsibility to speak up when they see safety concerns. What makes a difference when dealing with co-workers, is to be a good listener and really being curious about what others think. An environment that encourages open and free communication allows everyone to feel heard, to see a bigger picture, and to arrive at better solutions, regardless of the complexity of the problem. The last piece of advice I would share is to bring a high level of enthusiasm for safety to the table every day – enthusiasm breeds enthusiasm.

May 2012

Region X VPPPA Conference

The Grove Hotel and Boise Centre • Boise, Idaho

May 15-17, 2012

Tuesday, May 15

Pre-conference Workshops

($150/person except application workshop)

- *VPP Application Workshop™*
- *Leading High-Performance Teams*
- *Staying Young in an Aging Workforce*
- *Proven Strategies for Improving Safety Committees Effectiveness*

Cost to attend conference

***$225** – VPPPA member fee*

***$275** – non-member fee*

***$175** – one day*

Wednesday and Thursday May 16 & 17

Tracks:

- *VPP from A to Z*
- *Technical*
- *Injury and Illness Prevention*
- *Preparedness*
- *Health and Safety Leadership*
- *Safety Trained Supervisor Series*
- *OSHA 10 Hour for General Industry*

Register online or download a program

www.regonline.com/regionx_vpppa12

June 2012

6th Annual

Wednesday, June 13, 2012

Blue Mountain Occupational Safety & Health Conference

Pendleton Convention Center • Pendleton, Oregon

Strengthen your safety culture!
Attend this one-day event that offers help in the following areas:

- Emergency Preparedness
- Root Cause Analysis
- Confined Space Safety and Fall Protection
- Industrial and Office Ergonomics
- Workplace Violence Prevention
- Safety Leadership

Safety topics in Spanish!

- Hazardous Energy Control
- Occupational Health
- Machine Guarding

Registration fee is $50 per person (includes lunch)

Registration opens in April

This event is a joint effort of the Oregon SHARP Alliance, Oregon OSHA, and employers/employees from Northeast Oregon.