Butler County’s Worker Safety Culture Has One Goal: Get Them Home Safely

By Lisa Harris

A cultural shift toward greater worker safety is saving the county hundreds of thousands of dollars due to fewer injuries and claims.

What motivated the new program?

Sometimes it takes a serious incident to motivate real change. That is what happened in Butler County. One harrowing incident with a public works employee cemented the County’s interest in getting serious about safety. Another one drove the point home even more. “After these incidents, we could not go back to ‘business as usual’,” said Darryl Luz, director of public works. The County needed to make significant changes to see different results.

The first incident was an electrocution. A truck bed in the process of dumping a load hit an overhead power line. An operator on an attached piece of equipment was thrown over 10 ft, and suffered permanent nerve and muscle damage in one hand. Luz said it was a miracle the employee survived at all, and was able to return to work. It shook up Luz and the County’s administration a great deal. “That was the turning point,” Luz said.

Public works departments always have worker safety as their top priority. But how does that translate in terms of numbers of injuries and insurance premiums and claims? Butler County, Kansas, had a few incidents that convinced them that they could do better in making safety a priority, and with the help of their insurance company and support from county Administration, they got every department in the county on board. This article will describe Butler County’s safety program and what motivated it, and describe some of the benefits they are seeing now that it has been in place a few years.

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Safety Tips for Trench Digging

By Mehrdad Givechi

Several factors affect trench safety.

Excavation and trenching are among the most hazardous construction operations, with two workers killed every month in trench collapses, according to the federal Occupational Safety and Health Administration (OSHA). Requirements for excavation and trenching operations are covered in OSHA’s Excavation and Trenching Standard, Title 29 of the Code of Federal Regulation (CFR), Part 1926.650. In Kansas, this Standard applies to both private sector and government employees because the State has adopted OSHA standards by reference in its worker safety regulations, said Terri Sanchez, director of the Kansas Department of Labor Division.

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The second incident, around the same time, involved a summer employee driving a county pilot truck. A motorist following the pilot truck was confused by what the truck’s driver was doing, and he followed the pilot truck into the active work zone and collided with it. Luckily, no one was seriously injured in that incident.

Post-incident interviews revealed room for improvement
For the electrocution incident, the County’s insurance company, ICI, Inc., carefully reviewed the incident. They put together a team to look at what happened, why it happened, and other things that could have contributed.

The in-depth review called attention to some things the county could be doing better in worker safety, and resulted in a county-wide shift towards seeing safety as everyone’s responsibility, not just the individuals. Administration invested in an on-call consultant and several tools and new procedures to make the shift a reality. We’ll highlight some of these later in this article.

Follow-up after the pilot truck incident revealed that the county needed to do a better job of creating a culture where employees could report safety problems and not feel like tattlers, Lutz said. The insurance company conducted interviews of employees who were at the scene. Employees were reluctant to say what really happened. “The 5th employee interviewed finally spoke up about what went wrong,” Lutz said.

The follow-up to that incident resulted in a change in how pilot truck drivers are trained.

The post-incident interview process also revealed that the county needed to change its approach to incident reporting. “We were not asking the right questions, Lutz said, “and we needed to be more thorough in our documentation.”

Going beyond business as usual
Lutz said that safety has always been a consideration in his department, but they treated it “passively.” He described their former approach, unfortunately all-too common:

“We routinely talked to our employees about the importance of working safely, watching out, being smart… and then sent them out to do their work. Then someone would get injured. In response, we’d do the same thing again. We would repeat our safety message, our employees would get on with their business, and we would keep seeing injuries.”

Lutz said they did not spend as much time as they needed in asking: What could have been done differently to prevent that injury? ...maybe things that they had not thought of before. As it turns out, they could do several things differently, and now they’re doing them. And they are seeing the results.

The right tools, the right backing
What was needed to get to significant and lasting change? “The right tools and the attention and support of Administration,” said Lutz. A cultural shift was needed from the top down, he said, along with a commitment of priorities, staff time and dollars.

The resources and tools adopted by the County include the following:

An on-call consultant. ICI is the Kansas affiliate of Three Sixty Safety™, a safety consulting program originally developed for the private sector. The program’s approach is to provide hands-on, ongoing consultation for their customers to help build safety into their operations and to provide accountability for results. Lonnie Currier from ICI helps the County develop and implement their safety policies, procedures, and training programs.

Training programs. Three Sixty Safety™ has over 160 worker safety courses, accessible online. Currier created a customized safety training program for Butler County using the program’s courses that best fit the county’s needs.

The online training courses usually last 20-30 minutes. They are in PPT format, so they can be paused at any time. Some of the training is interactive, with quizzes to help employees retain what they learn.

New training policy. Every department in the County is charged with developing its own safety training program based on the needs of its employees and their jobs. Some departments provide training quarterly, some more often.

Regular training sessions. Public Works holds about 12-15 training sessions per year, Lutz said. Training can be taken individually or in a group setting. Lutz said most public works employees participate in group training sessions for the entire department.

Every employee must take a test on the material and pass it. If an employee does not pass, he or she will have an opportunity to re-take the test. If an employee refuses to take the training or the test, that is reflected in their annual performance evaluation, Lutz said.

Training sessions are also an opportunity to review incidents with employees and share any lessons learned from other departments that may be relevant to their job(s). Employees also learn about safety policy changes that are being considered.

Put yourself in the role of explaining a tragedy to a fellow employee’s family. Ask yourself if you did everything possible to prevent that tragedy. What are the natural consequences of silence or inaction? Can you live with that?
Multi-department safety committee. Currier chairs a new County safety committee that meets for one hour at a set day and time each month. Members are department heads and hourly employees from departments with high exposure rates, including public works (landfill, office administration, shop, noxious weeds), the Sheriff’s office, emergency management, EMS, and facilities management. The county administrator and finance director also participate. This committee reviews every incident and near-miss report in the County and actions taken, reviews employee suggestions for improving safety, and reviews and updates safety policies and procedures as needed.

Accident investigation teams. Teams have been formed for each shift, and have been trained in how to respond to an incident should one occur.

New accident investigation procedures and forms. Lutz describes these as “aggressive,” designed to get to the root of the problem. Most of the injuries at the County were found to be the result of human error.

PPE policy. Public Works has adopted a very strict PPE policy, and it is evolving, Lutz said. They have a basic minimum requirement for PPE but they are now identifying which personal equipment is needed for each task.

The County pays for PPE. “If it is for safety, we pay for it,” Lutz said. Employees receive an annual subsidy for the right type of boots and for jeans. The County provides shirts, vests, gloves, and eye and ear protection. They refresh PPE when needed.

In addition to providing PPE, Public Works has a policy that when you start your day and starting planning what tools and equipment you will need, you FIRST consider the safety equipment you will need, Lutz said.

Steve Wilson, shop foreman, said that, in the past, crews would sometimes improvise their own PPE; now the County makes sure the appropriate equipment is available, well-maintained, and crews are using it.

Tips for Creating a Worker Safety Culture From Butler County

• Never pass off an incident that occurs, no matter how minor. Treat every incident as a learning opportunity. You may not have a 100 percent preventable work environment, but you can learn from it. The aim is not to find fault, but to learn from it.

• Look beyond the person to their supervisor and to management. A lesson learned here might be relevant to other departments.

• Throw out old attitudes about safety training (it’s boring, I already know this stuff, waste of time…). Communicate clearly that employees are responsible for their own safety and the safety of their co-workers.

• Having and using PPE appropriate to the job is critical.

• An incident affects not just the person, but the person’s co-workers, management, and the department’s productivity.

• If you are in an area with rough ground, be careful when you jump down out of a vehicle. Wear work boots that protect your ankles from sprains. Wear shirts with sleeves.

• Make your safety message hit as close to the heart as possible. Don’t sugarcoat what’s at stake.

• It’s human nature to not want to tattle. But it’s important to create a workplace culture where taking safety issues seriously, and reporting them – no matter how minor – is seen as positive by everyone.

Clear accountability. Perhaps the most important aspect of the County’s new safety culture is impressing on every employee that they are responsible for their own safety as well as that of their coworkers. Employees, coworkers, crew leaders and supervisors all have equal accountability—and consequences—for action and inaction.

As Lutz explains it, “Our goal is to make sure every employee makes it home safely at the end of the day. We tell our employees: Put yourself in the role of explaining a tragedy to a fellow employee’s family. Ask yourself if you did everything possible to prevent that tragedy. What are the natural consequences of silence or inaction? Could you live with that?”

The County has made it clear that safety has to be primary in every task, every decision, and every action. Employees are expected to report safety problems. “We found that some employees knew about a safety problem and kept quiet about it. We treat those employees now as if they caused an incident,” Lutz said.

New “Thanks a Million” Program. Employees who report a near-miss or have a safety suggestion are eligible to receive a scratch-off lottery ticket from Administration. They also have their names printed in the County safety newsletter.

The results

During the first year following implementation of the training program, July 2012 to June 2013, Lutz said Butler County had a “banner year” of almost no claims across all departments.

“We’ve had some ups and downs since then, but overall it has been phenomenal. In 2015 we paid $100,000 less in premiums than in 2012,” Lutz said. “The County’s premium modification factor dropped 40 points during that time period. Our bean-counters are thrilled. What we save in premiums alone more than offsets what we pay for Three Sixty Safety™ and our consultant. But more important, fewer of our employees are getting injured.”

The County still adopting new safety policies and procedures and “adapting

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employees,” Lutz said. Wilson said some employees are skeptical that the safety emphasis is really just a way for the County to cut costs. But lack of safety has many more costs than financial. Wilson said they emphasize to employees: “it’s not about the County saving money in claims, it’s about YOU.”

In sum
When workers are injured it affects agency productivity, morale, and the bottom line. Public works departments commonly see leg, ankle, and back injuries, trauma to hands and body, and joint injuries. Butler County has had its share of those, plus a few close calls for potentially deadly incidents. Those incidents paved the way for a major shift in looking at safety in the County—one that involves everyone—in every department—from Administration on down.

Lutz said: “No doubt about it—it requires a lot of staff time to do something like this—to create a safety culture. But it’s worth it.”

Wilson, who has worked for the County a long time, and much of that operating equipment, has seen first-hand the benefits to the public works crews of the stronger emphasis on safety. “Safety now is everybody’s responsibility—not just a ‘safety guy’ preaching at them,” Wilson said. “There is heightened safety awareness, and more guys are looking out for each other. That, more than anything else, is helping us reach our goal of getting our people home safely, every day, to enjoy their lives.”

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of Industrial Safety and Health. KDOL has inspectors who will issue citations for trenching practices that are not OSHA-compliant, and fines will be levied if the local government does not correct the problems. Safety problems are usually identified through complaints registered with KDOL, but sometimes inspectors will drive by a site and notice issues to be addressed.

This article highlights key elements of the OSHA Standard, shows ways to protect against cave-ins, and describes work practices for safety. As you will see, safe trenching is a complex topic, involving engineering, training, proper use of the trench, and proper operations around the trench.

Cave-ins are biggest safety risk with trenches
A trench is a specific type of excavation that is defined as a narrow underground excavation that is deeper than it is wide, and no wider than 15 feet at the bottom. According to OSHA’s Standard, cave-ins are the greatest risk to workers for fatalities in trenching operations. They usually happen in trenches five to 15 feet deep with no warning, even in seemingly safe conditions. Earlier this year, tragically, one of the City of Manhattan’s city employees died in a trench failure. It can happen to any worker, and every precaution must be taken to try to ensure worker safety.

What causes a cave-in?
According to OSHA’s Standard, a cave-in can be caused by a number of factors including:
• Vibrations of the operating equipment in and around the trench (e.g. dump trucks, backhoes, bobcats, jack hammers, etc.)
• Unstable adjacent structures.
• Surface water from rain and ground water, including location of the water table.
• Weather conditions such as freezing and thawing that can affect soil stability.
• Weight of soil itself. A small amount of soil can be surprisingly heavy. One cubic yard of soil can weigh as much as a car!
• Soil properties such as frictional/cohesive capacities. Soil classifications for trenching purposes must be conducted by a designated “Competent Person” (see sidebar above) because many factors (such as previously disturbed soil, soil subjected to vibration, soil being submerged in water, soil from which water is freely seeping) can change physical properties of the soil.

What is wrong with this picture? Plenty! This unsafe trench has at least six safety problems. Can you spot them? See answers at the end of this article.
How to help prevent cave-ins

Trenches susceptible to cave-in must be protected by one of the following three methods:

• **Slope or bench the sides of the excavation.** Slope the sides to an angle not steeper than 1-1/2:1 (H:V); for example, for every foot of depth, the trench must be excavated back 1-1/2 feet. A slope of this gradation or less is safe for any type of soil.

• **Support the sides of the excavation.** Use tabulated data such as tables and charts approved by a registered professional engineer to design the excavation. These data must be in writing and include explanatory information including the criteria for making a selection and the limits on the use of the data. At least one copy of the data, including the identity of the registered professional engineer who approved it, must be kept at the worksite during construction of the protective system. After the system is completed, the data may be stored away from the jobsite, but a copy must be provided upon request to the Assistant Secretary of Labor for OSHA.

• **Place a shield between the side of the excavation and the work area.** Use a trench box or shield designed or approved by a registered professional engineer or based on tabulated data prepared or approved by a registered professional engineer. Timber, aluminum, or other suitable materials may also be used. OSHA standards permit the use of a trench shield (also known as a welder's hut) if it provides the same level of protection or more than the appropriate shoring system.

Other precautions

If you are digging next to an unstable structure, make sure you provide some type of support systems such as shoring, bracing, or underpinning to ensure that adjacent structures such as buildings, walls, sidewalks, or pavements remain stable.

Do not excavate below the base or footing of any foundation or retaining wall unless
—You provide a support system such as underpinning,
—The excavation is in stable rock, or
—A registered professional engineer determines that the structure is far enough away from the excavation and that excavation will not pose a hazard to workers.

Also, do not excavate under sidewalks and pavements unless you provide an appropriately designed support system or another effective means of support.

Precaution should also be taken when working in accumulated water. Controlling water and water removal must be monitored by the designated Competent Person who determines how much water accumulation is too much. Ditches, dikes or similar means should be used to keep surface water from entering the trench.

**OSHA requirements**

• Trenches need to be inspected periodically (i.e., daily, at the start of each shift, and as conditions change) by the Competent Person prior to worker entry.

• It is important to establish and maintain a safety training program for the worksite to protect employees from, and allow them to recognize job-related safety and health hazards. The Kansas Department of Labor (KDOL) has a library of workplace safety videos available for checkout, a number of which deal with trench and excavation safety. To check out a video, contact KDOL at (785) 296-4386, then 0 and extension 2307 or e-mail jeana.payne@dol.ks.gov. To learn more about upcoming training opportunities through KDOL, call (785) 296-4386.

• Trenches 5 ft. or deeper require a protective system unless the excavation is made entirely in stable rock. If trenches are 20 ft. or deeper, the protective system shall be designed by a registered professional engineer or be based on tabulated data prepared and/or approved by a registered professional engineer. For trenches less than 5 ft. deep, the requirement for a protective system is a judgment call for the “competent person”.

• Trenches 4 ft. or deeper require safe access including ladders, steps, ramps, or other safe means of exit for workers. These access points must be located within 25 ft. of all workers.

**General tips for trenching safety**

The following tips are from a number of OSHA’s publications including posters, safety-tip cards, and fact sheets:

• Keep heavy equipment and surcharge loads at least 2 feet from trench edges. It is a good idea to provide some kind of warning system such as mobile equipment, hand or mechanical signal, or stop bars to alert the equipment operator to the edge of the trench.

• Know where underground utilities are located by

**WHAT IS AN OSHA-DEFINED “COMPETENT PERSON?”**

OSHA defines “Competent Person” as one who has specific training in and knowledge about soils analysis, the use of protective systems in trenching, and the requirements of OSHA’s excavation standard 29 CFR 1926.650-652, Subpart P. A trained Competent Person is capable of identifying existing and predictable hazards or working conditions that are hazardous, unsanitary, or dangerous to employees, and who is authorized to take prompt corrective measures to eliminate or control these hazards and conditions.

See more at this link: [http://www.competentpersontraining.net/](http://www.competentpersontraining.net/)
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staking them. If they your excavation exposes them, make sure you protect them, properly support them, or remove them as necessary.

- Test for low oxygen, hazardous fumes and toxic gases. If there are any hazardous conditions, you must provide the workers with proper respiratory protection or ventilation and regularly test them to make sure they are functioning properly.

- Inspect trenches at the start of each shift and following a rainstorm. This must be done by the designated Competent Person.

- Do not work under raised loads.
- Do not enter an unprotected trench.
- Do not work over unprotected workers.
- Wear proper personal protective gear and equipment such as hard hats, retroreflective safety vests, steel toed boots, etc.
- Only properly-trained personnel should be allowed to operate equipment.
- Provide walkways or bridges over trenches.

In case of a trench failure

Trenching is unpredictable and dangerous. Sometimes even the best precautions will not prevent an incident. In case of an incident caused by trench failure, your action can save lives!! OSHA provides these tips:

**DO:**
- Immediately call 911, or your local Emergency Response Team.
- Report the exact location, number of injured workers, nature of the emergency, trench measurements and any special hazards.

- Keep all life-support equipment such as breathing apparatus, safety harnesses and lines readily available, and keep dewatering systems operating in case of water accumulation in the trench.
- Clear workers away from the excavation.
- Shut down heavy equipment.
- Be prepared to meet and brief rescue personnel.

**DON'T:**
- Don't panic!
- Don't sacrifice anyone else. Control would-be rescuers.
- Never attempt to dig someone out using motorized equipment.

In sum

There are very specific safety requirements for trench digging in the OSHA Standard for Trenching and Excavating that apply to private sector workers and to public employees in Kansas. Make sure those requirements are followed for your projects.

For more information and technical assistance, contact Kyle Lang, public safety coordinator, at the Kansas Department of Labor: phone (785) 296-4386, ext. 2319. In addition to the safety training videos mentioned earlier, KDOL will provide free, on-site consultation/training for your employees for trench-digging. Sanchez said the DOL wants to work with local governments and their contractors, and KDOL will not assess fines if the problems are remedied.

You can also contact OSHA with questions. Kansas is in OSHA's Region VII and they have an Area Office in Wichita (https://www.osha.gov/oshdir/ks.html.)

Trench-safety problems in photo on page 4: 1) improper sloping; 2) spoil pile too close to the edge; 3) worker is outside the trench box; 4) trench box is not an effective design; 5) worker too closer to the excavator; 6) no ladder.

Sources:


By Lisa Harris

Fall 2014 and Spring 2015 saw 19 new Kansas Roads Scholar graduates, many of them from cities. Below are the graduates, listed by the level achieved and their jurisdiction.

LEVEL I, Technical Skills Program
Allen County:
Rachel Covey
Dennis Gardner
Jeff Jackson
Terry Johnson
Harry Maley

City of Lawrence
Carol Fittell
William Koerner
Steven Unfred

City of Augusta
Evan Cain

City of El Dorado
Sue Austin

City of Ottawa
Bob Crowell
Dan Fehling
Ryan Sink
Kyle Thurman
Douglas “DJ” Welsh

LEVEL II, Supervisory Skills Program
Leavenworth County
Doug Smith

Lyon County
Travis Heins

LEVEL III, Executive Development Program
City of El Dorado
Jason Hughey
Brad Meyer

New recognitions
We reported in our last newsletter that the sponsoring associations for the Roads Scholar Program, APWA-Kansas Chapter for the cities and the Kansas County Association for the counties, are changing in-person recognitions to bring them closer to home for the agencies that have graduates. The City of Lawrence had its recognition in May at a city commission meeting. The City of Ottawa had its recognition at a June city commission meeting, with certificates given to the graduates by the mayor (see picture above). This is a great way to share your employee’s professional development accomplishments with elected officials and highlight the importance and value of public works as a public service.

Cost break available (to most)
In our Winter 2015 newsletter, we provided information on the overall cost for an employee to complete each level of the Roads Scholar program, for budgeting purposes. We provided a Kansas Association of Counties member price, available to KAC-member counties and the cities and townships within those counties, and a non-member price. Currently only one county is not a member of KAC, so the member price applies to almost every local agency in Kansas. Course costs are approximately:
Level I—9 classes for $260 total;
Level II—8 classes for $1090,
Level III—11 classes for $1035.

Cost reimbursement available (to some)
Counties that are members of the KCAMP insurance pool are eligible to be reimbursed for the $35 Roads Scholar application fee and for the cost of an employee’s classes. Contact Larry Sharp at KCAMP for details at sharplarry@gmail.com.

If you are not a member of KCAMP, perhaps your insurance pool would be willing to do the same. It can’t hurt to ask! And if they say yes, please let us know, so we can spread the word.

For more information on the Kansas Roads Scholar Program, visit the Program website at http://www2.ku.edu/~kutc/cgi-bin/ltap/rs_index.php where you can read more or download a brochure, or contact Kristin Kelly, who administers the Program, at (785) 864-2594 or kbkelly@ku.edu.
Douglas County, Kansas, public works employees built a simple tailgate storage rack with a swinging boom and chain hoist to lift tailgates off trucks to install sanders on the truck beds before a snow event. Before building the rack, crews moved tailgates around with forklifts and stacked them on the ground. “The one on the bottom was always the one you needed,” said Larry Wilson, assistant operations manager. However, if a storm hit quickly, tailgates would be removed quickly and would not get stacked—then get covered with and obscured by snow—a safety hazard. The boom and hoist help remove and store the tailgates in one location, vertically, and also aid in getting the tailgates back on the trucks.

Manoeuvering the tailgate is easy once the chain supports it. The boom moves freely and the tailgate can be positioned where needed.

This close-up view of the rack shows a tailgate stacked at the right end of the rack, and slots available for other tailgates. Wilson said the slots are wide enough for a tailgate plus an inch or so extra. “You want a good fit, but not too tight,” he said.

Out of the rack and back on the truck: Wilson attached a chain to the ring on the back of the tailgate and pulls on the hoist’s chain hand-over-hand to shorten it and lift the tailgate out of the rack.
Safety Working Near an Asphalt Distributor

By Patrick O’Brien

Many who have worked around asphalt for years consider the hazards of working with asphalt to be obvious. Even so, we hear all too often about workers being injured because they did something obviously wrong.

This article covers some of the safety practices that need to be followed when storing, handling, heating, and spraying liquid asphalt products.

First, it must be recognized that all asphalt products, when hot enough, are flammable. If you heat any asphalt hot enough, whether it is a cut back, an asphalt cement, or an emulsion, hazardous vapors will be produced. When these vapors are mixed in proper proportion with oxygen in the air, and come in contact with a source of ignition, a flash fire can occur. The flash may be quite violent, and if enough vapors are present, a raging fire may develop. These types of fire can and have burned people very badly, and have killed some.

The flash point is the product temperature where a source of ignition will cause the vapors produced to catch on fire. Many of the asphalt products used every day are used at temperatures above their flash points, including RC and MC cut back asphalts.

Asphalt cements may be used at temperatures below their flash points, but not by much. You may be using an asphalt cement (AC) at only 20 to 25°F below its flash point. If that AC is overheated in a small area, flammable vapors will be produced. If the water is boiled off of a bit of emulsion, the remains may be AC or there may be solvents in the asphalt that can produce flammable vapors. In either case the remains are dangerous if overheated. You may be producing flammable vapors without even realizing it. If the vapors mix with oxygen and reach a source of ignition, a fire will develop.

The flammable nature of asphalt vapors, and the quick, violent fires that can develop lead us to recommend the following safety precautions.

When heating asphalt in a transport tank, distributor, or tack truck, position the tank broadside to the wind! Never heat in a confined area like a garage or shed!

If any flammable vapors are present, the vapors must escape from the tank through the vent pipe. Typically the vent pipe exits at the bottom of the asphalt tank. Positioning the tank broadside to the wind will allow the wind to disperse the vapors safely away from the burners and other sources of ignition on the truck. If the tank is parked facing into the wind or with its back to the wind, the wind may carry vapors to the burners at the rear, or to other sources of combustion near the engine. If you heat the asphalt tank in a confined area flammable vapors can collect in combustible concentrations.

If the heating flues are not sufficiently covered, the asphalt near the flues will be overheated. Flammable vapors will be produced. ACs will be heated above their flash points. Emulsions will be broken and heated above the flash point of their base asphalt. The flue pipe may be heated hot enough to provide a source of ignition. When this happens, an explosion can occur, which may rupture the tank or blow the man hole cover off.

Before lighting the burners it is very important to be sure that the flues are covered over their entire length. Many asphalt tanks are built with a slope or pitch for better drainage. If the tank is parked on a grade, one end or one side of the tank may be higher than the other. You must be sure that the highest point on the flue is covered according to the equipment manufacturer’s recommendation. Never, under any circumstances light the burners without the flues covered to the depth recom-
Signs in a work zone communicate to the drivers what actions they are supposed to take. They also alert drivers to workers in the area. With those benefits, are work zone signs ever a bad thing? The answer is yes, if the signs indicate workers are in the area, but they are not. This article will explain why. This topic was suggested by Kelly Gaer, KDOT safety coordinator.

What happens when signs are not consistent with what’s really happening?
When signs indicate an active work zone and no one is working, drivers get complacent and they lose caution, said Gaer. Driver complacency increases risk in a work zone, and endangers workers. Drivers may drive 2-3 times through a signed work zone with no workers there, and stop paying attention.

Is consistency just common sense, or is it a regulation?
Signing consistent with work zone conditions is a federal requirement, per the Manual on Uniform Traffic Control Devices (MUTCD). Part 6, Section 6B, addresses having necessary signs in place, and taking them down when they don’t communicate the actual conditions.

Before any new detour or temporary route is opened to traffic, all necessary signs shall be in place.

All TTC devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, TTC devices that are no longer appropriate shall be removed or covered. (Sect. 6B.01 08-09)

When a contractor does not follow the MUTCD for temporary traffic control (TTC), who is liable in the case of an incident?
We asked this question of Kristi Ericksen, TTC engineer for KDOT, who is responsible for working with contractors and communicating contractor responsibilities for TTC. She said both the contractor and the agency are liable, but you can reduce share of agency liability by clearly spelling out your expectations in your construction contract with the contractor. KDOT does that, following its KDOT Standard Specification and Construction Manual. This manual has useful guidance for any agency, and is available for reference, for $5 on CD or $30 hard copy. The order form is here: http://kdotapp.ksdot.org/StdSpecsConsManForm/default.aspx.

Tips for consistent and safer work zone signing
• Gaer recommends that you drive through your contractors’ work zones to make sure they are set up properly. He suggested doing that for your own work zones, as well. “You might see things you missed, like having a right lane closed sign posted when it is really the left lane this is closed,” he said. “These things can happen.” KDOT trains its crews to follow this practice on its own jobs.
• Make sure you are following the MUTCD Part 6. Signs should be out only when workers are working. If they are not working, including when flaggers go to lunch, take the signs down, cover them, or turn them away from traffic, Gaer said.
• Some utility companies have been known to leave their signs up when workers are not present. The traveling public needs consistency in every work zone. Talk with the utility company if they are not following the MUTCD.
• Be careful when setting up signs. This is one of the most dangerous jobs in a work zone, Gaer said. “At KDOT we encourage our employees to work with a buddy or spotter, especially when setting out signs so they can watch for traffic. We put out the signs first, then get flaggers in place to divert traffic off a lane, then work in the blocked lane to set out cones. The employees placing the initial signs are the most exposed.”

Conclusion
It is in your agency's best interest to follow the MUTCD and cover or remove or turn around work zone signs when workers
are not present. This practice provides better safety for your workers, it communicates to drivers the actual conditions in the area, and it helps protect your agency in terms of liability.

**For more information**

More information can be found in the MUTCD Part 6 at the link below.

Sources:

- Interviews with Kelly Gaer on 7-2-15 and Kristi Ericksen on 7-6-15

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**Asphalt distributor Continued from page 9**

mended! If the tank is partially loaded you may need to add more asphalt before heating.

**Never spray asphalt while the burners are running!**

If you spray asphalt with the burners running, you may uncover the flue causing a fire inside the tank. Running the burners while spraying will provide a source of ignition for vapors produced while spraying, causing a fire outside the tank. Be sure the burners are completely out before spraying. LPG burners will support a flame for several minutes after the valves are shut off.

**Keep all sources of ignition away from manholes and tank vents!**

When you open the manhole flammable vapors may escape. There may be flammable vapors in the tank which are too concentrated to burn. When you open the manhole fresh air or oxygen is introduced. The cigarette in your hand becomes a source of ignition and you may be additional fuel. Flammable vapors are intended to escape out of the tank vent. Keep hand torches, cigarettes, engine exhaust, and other sources of ignition away from these vapors.

Keep vent pipes clear and open! This will allow the vapors to escape and will keep them from building pressure inside the tank.

**Do not operate or weld on a tank which is leaking!**

A leaking tank must be repaired before continuing use. The repair should be performed by an experienced tank repair shop. An “empty” tank may contain flammable vapors or residual asphalt. You would never consider welding on a gasoline tank. You should never consider welding an asphalt tank either. A tank repair shop will have sensors which can determine if there are flammable vapors present and if the tank is safe to weld.

Of course this is just a short list of the many safety practices you need to follow every day. For more information we recommend you read the operations, safety, and maintenance manuals supplied with your equipment. We also recommend you read the Asphalt Institute’s booklet titled Safe Storage and Handling of Hot Asphalt. This booklet is identified as IS-180 by the Asphalt Institute. Their phone number is (606)288-4690. You can get a free copy from E.D. Etnyre & Co. by calling (800) 995-2116 and asking for part number 6001085.

The hazards identified in this article are very real and very dangerous. We do not take these hazards lightly. We hope that you won’t either.

Source:

The Important Role of Personal Protective Equipment (PPE) to a Safety Program

By Kim Carr, West Virginia LTAP

Having PPE in good condition and requiring employees to use it shows them that your agency cares about their well-being, even if your employees don’t want to wear it. Here are some tips for managers.

Public works employees are faced with hazardous situations every day, including working around or operating heavy equipment, dealing with motorists, working with dangerous products, and exposure to environmental issues (such as excessive heat or cold, poisonous plants, ticks, etc). The numbers of potential hazards that road crews and other public works employees face are extensive, which is why it is important to have an understanding of common safety practices, foster a culture of safety, and have procedures for safe operations in place.

The most important things to remember in terms of safety are to use common sense and have the right attitude. If these two things are present, the rest will fall into place much easier.

Personal Protective Equipment (PPE)

A basic foundation of any safety program for public works is the use of personal protective equipment (PPE). PPE includes items such as safety vests, gloves, hard hats, steel toed work boots, eye protection, ear protection, dust masks, chaps, and so forth. It is essential that each employee is provided with training on who is required to wear PPE, why they are required to wear it, and when they are required to wear it.

Common PPEs and complaints about using them

Most workers appreciate the value of safety, but they often don’t like the inconvenience of wearing PPE, or they don’t think an accident will happen to them.

Hearing protection. Wearing hearing protection is an item some employees balk at. You may hear statements such as, “If I wear it, I can’t hear other workers.” “I’m used to the noise.” “Protectors are uncomfortable.” “I’ve already lost some of my hearing.” Explain that the reality of not wearing hearing protection can lead to hearing loss, even complete hearing loss. Besides the obvious personal downside to hearing loss, it also affects job safety for that employee and his or her coworkers.

Hard hats. In some instances, workers may be required to wear hard hats. This is another PPE that workers sometimes balk about wearing. “It makes it hard to see.” “It’s not really going to help save my life if something falls on my head.” Facts are important here. Educate your employees about how a hard hat resists and deflects blows to the head, how it acts as a shock absorber, and that it shields the employee’s scalp, face, neck, and shoulders against splashes, spills, and drips. Also, remember that as a general rule, a hard hat should be replaced every two years if it is worn every day. However, if a hard hat has had direct impact, such as by falling debris, it needs to be replaced immediately.

Reflective vests and uniforms. These are another essential type of PPE, but again, some employees are resistant to wearing them. “They’re not comfortable.” “The lime green color attracts bugs.” “They’re too hot.” All of these statements may be true, but the benefits of wearing this PPE outweigh the potential risks and discomfort. Explain that by wearing this PPE, motorists and fellow workers have a better chance of seeing the employee, which helps decrease the risk of getting hit, run over, seriously injured, or even killed. Explain why there are different standards for vests for night work versus day work. Also educate employees on why it is important to keep vests relatively clean and to replace them periodically. A vest that is dirty could obscure the reflective stripes, thus decreasing the garment’s visibility and effectiveness. Keep in mind that a vest will need to be replaced after it has been washed the designated number of times as indicated by the manufacturer on the garment’s label.

Getting by-in from employees

If you are looking at purchasing new PPE, solicit feedback from your employees about the PPE you are looking to reorder or replace. For example, for hearing protection equipment, find out what items they like and have found more comfortable. While you might not be able to provide everyone with his or her first choice, by incorporating your employees’ feedback in the process, you’ll often end up with better products and a better attitude toward using your PPE and about your safety program in general.

Adapted with permission from the West Virginia LTAP Newsletter, Spring 2015. From: http://wvltap.wvu.edu/assets/spring2015.pdf
Compressed Air Safety

This information is from the Connecticut LTAP Safety Brief series. Read about air compressor safety here, and see some of the other topics they have in their safety series, available free to anyone, online.

Compressed air is often misjudged and not recognized as a hazard because people think of air as harmless. However, misuse of an air compressor may cause serious injury or even death.

Did you know...

- Air forced into body tissues through skin can cause an air embolism (air bubbles in the bloodstream) which can be fatal if it reaches the heart, lungs, or brain.
- Inflation injuries of the intestine can be caused by air being directed at private body areas. A worker in the U.K. died of injuries sustained through horseplay with a compressed air hose. Horseplay can be deadly!
- Air blown into the mouth at only 5 PSI can rupture the esophagus or the lungs.
- Eye and ear injuries can occur from a blast of air or flying particles. These types of eye and ear injuries can cause partial or total loss of sight and hearing.
- The sound from a compressed air hose can reach 120-130 dB which is well above OSHA’s 90dB permissible exposure limit.
- 40 PSI can blow out an ear drum from 4 inches away and possibly cause brain damage.
- As little as 12 PSI can blow an eye out of its socket!
- Flying particles can cause cuts and bruises to any part of the body.

Remember:

- Hoses and lines should be rated to meet the maximum operating pressure of the equipment.
- Always wear proper Personal Protective Equipment:
  - Safety glasses with side shields; a face shield if needed.
  - Hearing protection.
  - Respiratory protection, depending on the material(s) being worked with.
- Normal work clothing does not protect against compressed air.
- If you must clean with compressed air, do not use air that is set above 30 PSI. You must have effective chip guarding to prevent a chip or particle of whatever size from being blown into the eyes or unbroken skin of the operator or others nearby, and use proper PPE (OSHA standard 1910.242(b)).
- Never use compressed air to clean clothing or hair!
- Never point compressed air at yourself or another person!

Action item:

Go through the manufacturer’s safety recommendations in the air compressor’s safety manual and read and understand the maintenance requirements for the compressor.

Other Safety Topics from CT LTAP

by Dale Dorsch, Kansas LTAP trainer

As I read the Connecticut safety briefs, I think of all the new-hires that need a little reminder of everything the briefs cover. Things I strive to emphasize are using PPE, safe machine operations, hazards of working near traffic (alerting sign crews etc.), and the reality that someone is probably liable if there is an incident. Take a look at some of Connecticut’s other impressive safety briefs on:

- Hearing loss
- Noise Induced Hearing Loss
- Work Zone Safety.
- Protecting Workers from Effects of Heat
- Hard Hat Use
- Safe Motor Grader Operations
- Operational Safety for Public Works Responders
- Protective Equipment for Workers in Hurricane Flood Response [useful tips for any flood response]
- Chainsaw Safety
- Skid Steer Loader Safety Tips
- Fire Safety at the Shop
- Lifting Safety: Tips to Help Prevent Back Injuries
- Mowing Safety Tips
- Using Portable Generators Safely
- Be Alert of Moving Equipment
- Hand Safety and Glove Use
- Eye Strain
- Hand and Arm Vibration
- Hazards Of Solvents
- Hand Tool Safety
- Spontaneous Ignition
- Near Misses
- How To Conduct A Tailgate Talk

Access all of the CT LTAP safety briefs at http://www.t2center.uconn.edu/safetybriefs.php#safetybriefs

MORE

By Lisa Harris

See download / ordering information on next page.

ANSI/ISEA 107-2010 Made Easy
3M. 2010. 8 pages. Describes federal regulations that pertain to wearing high-visibility safety apparel and shows when to use Type 1, 2 and 3 garments. Includes helpful illustrations and photographs.

Temporary Traffic Control for Building and Maintaining Single and Multi-Lane Roundabouts
37 pages, ATSSA. 2012. There are some unique challenges when designing a work zone for constructing or maintaining a roundabout. This document outlines those challenges and how to address them for the safety of the traveling public and your workers.

21 Tips for Safe Backing
Cornell Local Roads Program. 2007. 1 page. Backing accidents can be deadly. This guide provides concise tips for safe backing. Post this one in your shop.

Common Sense Safety
North Dakota LTAP. October 2012. 2 pages. A handout with basic safety tips, mostly for shop employees.

Tractor Mower Safety Poster
Missouri LTAP 1 page. Basic safety tips on mowing, plus illustrations of hand signals you could use when noise or distance does not allow normal voice communication. Available for download in three sizes.

CULVERT MANAGEMENT COURSE COMING TO TOPEKA
This one-day workshop includes the basics on drainage and selecting, sizing, and installing culvert replacements. Items covered will include drainage law in Kansas as it relates to back water and changing the natural drainage pattern, factors that affect the amount of runoff and the sizing of culverts, and using common sense in culvert sizing. Information will be provided on the types of culvert products available, including pros and cons of the various products. The course is designed for individuals responsible for planning, design and permitting for culvert replacement projects. See date above.

Visit our website for even more training calendar listings and to register for workshops. Go to http://www.ksltap.org and click on “View the LTAP Calendar.”

TRAINING in 2015:

Concrete Road and Street Maintenance ▲L1
October 21, Overland Park
October 22, Salina

Snow and Ice Control ▲L1
October 26, Garden City
October 27, Russell
October 28, Wichita
October 29, Topeka
October 30, Fort Scott

Bridge Maintenance
November 11, Wichita
November 12, Topeka

Project Planning and Management ▲L3-r
November 18, Salina
November 19, Lawrence

Culvert Management ▲L3-e
December 2, Topeka

Traffic Signal Design ▲L3-e
December 8, Wichita

Risk and Liability Issues ▲L1
December or January

UPCOMING MEETINGS:

Kansas Association of Counties Fall Meeting
November 3-5, Wichita
http://www.kansascounties.org/10/Annual-Conference

Kansas Asphalt Paving Conference
December 3 in Lawrence
For information, contact Stacy Walters at skwalters@ku.edu

South Dakota LTAP
FREE ROAD & BRIDGE RESOURCES

GUIDES
You are free to keep hard copies, when available. Or you can download at the links provided.

❑ ANSI/ISEA 107-2010 Made Easy
Description on page 14. Available at http://multimedia.3m.com/mws/media/646966O/ansi-made-easy.pdf

Temporary Traffic Control for Building and Maintaining Single and Multi-Lane Roundabouts
Description on page 14. Access at https://www.workzonesafety.org/lhwa_wz_grant/atssa/atssa_TTC_roundabouts

❑ 21 Tips for Safe Backing

❑ Common Sense Safety

Tractor Mower Safety Poster

EQUIPMENT LOANS
We offer the following items for loan to local highway agencies. There could be a waiting list for these items. Contact mgivechi@ku.edu for counter boards and weaver@ku.edu for the Safety Edge shoe.

Safety Edge Paving Shoe. This Advant-Edge shoe attaches to a paver with a universal bracket, provided with the shoe. Several counties have borrowed this attachment and have reported good results.

Turning Movement Counter Board DB-400, Jamar Technologies, Inc. A basic model for recording turning movements at intersections. The board is lightweight and comes with its own case.

Turning Movement Counter Board TDC-8, Jamar Technologies, Inc. Can be used to do turning movement counts, classification counts, gap studies, stop-delay studies, speed studies, and travel time studies. The board is lightweight and comes in a case.

REQUEST FORM

Name _____________________________________________________ Phone number _____________________________

Position ______________________________________  E-mail address __________________________________________

Agency ________________________________________________________________________________________________

Street Address __________________________________________________________________________________________

City _______________________________________       State  ___________________  Zip+4 ________________________

*For requests outside the United States: After receiving your request, we will notify you of the postage cost and will send materials after receiving payment for postage.
Let us help you find the answers to your transportation-related questions.

The Kansas Local Technical Assistance Program (LTAP) is an educational, technology transfer and service program of the Kansas University Transportation Center (KUTC). Its purpose is to provide information to local government highway departments and their personnel and contractors by translating into understandable terms the latest technologies in the areas of roads, highways and bridges.

The Kansas LTAP Newsletter is published quarterly and is free to counties, cities, townships, tribal governments, road districts and others with transportation responsibilities. Editorial decisions are made by Kansas LTAP. Engineering practices and procedures set forth in this newsletter shall be implemented by or under the supervision of a licensed professional engineer in accordance with Kansas state statutes dealing with the technical professions.

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