Newsletter – November 2020

- Ergonomics in the Workplace;
- Showing How Worker Fatigue Harms the Bottom Line;
- Respirators – How to Demonstrate the Equipment;
- Safety Rewards and Incentives that Result in Safety Improvements;
- What Can be Done to Control Exposure to Bloodborne Pathogens;
- Safety Talks on First Aid Fundamentals, Cold Weather, Near Misses, and Workplace Hazards;
- and more…

Near Miss Stats and Facts

DID YOU KNOW?

Near miss incidents, close calls, or close shaves have often been referred to as "safety in the shadows," as this is where the heart of the accident problem lies. Near miss incidents offer management an opportunity to rectify a system breakdown before it happens. They are inexpensive learning opportunities. Because there are no losses as a result of an undesired event does not necessarily mean that the event is insignificant. Many of these seemingly unimportant events have high potential for injury and other losses. If recognized, reported, and rectified, near miss incident root causes will be eliminated leading to a radical reduction in injury-causing accidents.

Research of thousands of undesired (accidental) events has shown that the outcome of the event cannot be predicted and that, under slightly different circumstances, the consequences could have been better or worse if it were not for some factor of luck or good

fortune.

The principle of multiple causes indicates that accidents are usually the result of a multitude of causes and there are usually many immediate causes and numerous root causes behind every event.

These loss-producing events are termed accidents. Some refer to them as incidents, but, for clarity, they will be referred to as accidents in this publication. No-loss events with potential for loss will be termed near miss incidents.
The high risk acts of a worker or a high risk work environment riddled with hazards, or a combination of both, are the immediate causes or the closest causes of an accident, which results in accidental losses, such as death, injury, property damage, fire, or business interruption. High risk acts and/or conditions are the most obvious accident causes, or the causes that lead to the contact with a source of energy that causes the subsequent loss.

Root, or basic, causes are the deep hidden person and job factors that give rise to the immediate causes in the form of high-risk acts and/or conditions. If they are not identified and rectified, the accident problem will not be eliminated. Fixing the immediate causes rectifies the symptom, but not the root or basic cause. Risk assessment of all near miss incidents will determine which near miss incidents warrant a full investigation to track and eliminate the source of the problem at the root.

Near misses don’t exist in a vacuum. Conoco Phillips Marine conducted a study in 2003 that examined at-risk behaviors, near misses, injuries, and fatalities. The study found that, for ever fatality, there are at least 300,000 at-risk behaviors (such as skipping a safety step to save time).

300,000 at-risk behaviors (estimated)

3,000 near misses (estimated)

300 recordable injuries

30 lost workday cases

1 fatality

2,953,500 injuries and illnesses to private-sector workers in 2014.

4,821 worker deaths in 2014

8,092 injuries and illnesses to private-sector workers in 2014

13 worker deaths per day in 2014

Most safety managers do not usually put much credence to near-miss accidents. Most employees do not even consider reporting them when one happens to them or a coworker, dismissing it as a “no harm done” incident. However, near-miss accidents could be opportunities for corrective actions to prevent serious injuries or even worse, fatalities in the workplace.

Let’s start out with some sobering statistics reported by the U.S. Occupational Safety and Health Administration (OSHA) and the U.S. Bureau of Labor Statistics:

- In 2018, there were 2.8 million lives impacted by workplace incidents that resulted in injury or illness.
- 900,000 of those incidents were so harmful that workers needed days away from work to recuperate.
- Out of all goods-producing industries, the manufacturing industry had the highest rate of incidents resulting in days away from work.
- 14 workers died per day in work-related incidents, which was a 2% increase from the year before.

According to the NSC, “a Near Miss is an unplanned event that did not result in injury, illness, or damage – but had the potential to do so. Only a fortunate break in the chain of events prevented an injury, fatality or damage; in other words, a miss that was nonetheless very near.”

The NSC points to faulty processes or management systems as the most common root causes of near misses. When near misses go unreported, accidents are likely to occur.

Simply, reporting a near miss isn’t enough. Each report must be thoroughly investigated in order to identify the root cause. After the root cause is identified, corrective actions must be taken to eliminate the likelihood of injury, damage or loss. Corrective actions can take many different forms including:

- Safety training
- Process changes
- Maintenance
- Procurement of protective equipment and more

To make the most out of any near miss reporting system, you should establish a reporting culture and conduct all investigations in a timely manner and make the entire process simple.

How to Deal with Coronavirus Burnout and Pandemic Fatigue

We have been living with the coronavirus for several months and the spread of COVID-19 is still going strong in many areas of the world. As the pandemic wears on, it is understandable that some people are feeling burnout and exhaustion caused by the situation. As the pandemic still remains present, mental health is continuing to take a hit. Anxiety and stress due to the pandemic is being fueled by uncertainty, lacking a sense of control, and having a number of important values in our lives threatened. Now more than ever, we need to work extra hard to manage our emotions.

Tips on How to Combat Pandemic Burnout

1. Find those uplifting and close social supports: Set up regular video and phone calls with the people closest to you. This is easier now with all of the unlimited technology and resources readily available. Taking time to share your

feelings and to listen and support others will go a long way. Talking with others who have our best interests at heart makes us feel safe and validated. Starting a book club online or hosting a dinner using a video platform are examples of ways to stay connected positively.

2. In a world of confusion and upheaval, find ways of expressing kindness and compassion: First and foremost, you must remember to be kind to yourself. This is a hard time for everyone. It is important to remember that we are all in this together and we may all emerge with a renewed appreciation for our connections which creates more purpose to our days and well-being.
3. Continue to create new routines and practice healthy behaviours: Routine and rituals are healing to us. Our brain wants predictable activity so we can relax our nervous system. Remember that our activities, thoughts and mood are closely linked. If you want to change your mood, change your activities and/or your thoughts. Good nutrition helps our mood. For many, stress makes us seek comfort foods and often we may make poor choices. Junk foods and processed foods are linked to depression and anxiety. Try to fill your home with fresh produce and whole foods whenever possible. But don’t be afraid to indulge occasionally and enjoy it!
4. The power of focusing on the present and finding gratitude in challenging times: Focusing on the present is a way to get through stressful and overwhelming times. Consider taking each day as it comes. There is often a pressure to get things back to where they were before, but the pandemic has shown us that life often takes unexpected turns. Learning to be grateful and mindful of the present moment can change our outlook for each day. Gratitude is something that with a little practice can become a regular habit. It can help you cope better with the stress of these uncertain times.

Fall Protection Training Verification Form – Spanish

CÓMO USAR LA HERRAMIENTA

Adapte este formulario a su programa de salud y a los requisitos de las leyes de salud aplicables al EPP. Utilícelo para documentar que usted ha proporcionado entrenamiento de protección contra caídas a los trabajadores, qué cubrió ese entrenamiento y que los trabajadores entendieron su entrenamiento y demostraron cómo usar el equipo en el que fueron entrenados. Conserve estos formularios completos en caso de que su entrenamiento en protección contra caídas sea cuestionado.

Nombre del trabajador:

Número de identificación del trabajador:

Título del trabajo / Área de trabajo:

Nombre del entrenador (persona que completa este formulario):

Fecha de entrenamiento:

Tipos de sistemas, equipos y dispositivos de protección contra caídas que los trabajadores están siendo entrenados para utilizar:

_____ _____

_____ _____

_____ _____

Verificación de la Capacidad

En la sesión de capacitación se trató la siguiente información y

capacitación sobre los equipos de protección contra caídas enumerados anteriormente y el trabajador ha demostrado capacidad en estas áreas:

☐Los peligros a los que se enfrenta el trabajador, los tipos de equipo de protección contra caídas que debe utilizar para protegerse contra estos peligros y la forma en que el equipo protegerá al trabajador mientras realiza sus tareas.

☐Las limitaciones de los sistemas, equipos y dispositivos de protección contra caídas que se utilizarán.

☐Cuando el trabajador debe llevar o usar el equipo.

☐Cómo utilizar el equipo adecuadamente en el trabajo, incluyendo seleccionarlo, ponérselo, quitárselo y usarlo y ajustarlo (si corresponde) para un ajuste cómodo y efectivo.

☐Cómo cuidar, mantener e inspeccionar adecuadamente el equipo de protección contra caídas: buscar signos de desgaste, limpiar y desinfectar, y cuándo y cómo desechar y reemplazar el equipo.

Nota para el trabajador: Este formulario formará parte de su expediente personal. Por favor, lea y entienda su contenido antes de firmar.

(Trabajador) Entiendo el entrenamiento que he recibido, y puedo usar el equipo de protección contra caídas adecuadamente.

Firma del trabajador _____
Fecha _____

☐El trabajador ha mostrado una comprensión del entrenamiento.

☐El trabajador ha demostrado la habilidad de usar el equipo de protección contra caídas correctamente.

Firma del trabajador _____
Fecha _____

Farm Worker Dies from Heat Stroke – Spanish

Joe había estado trabajando en el campo de tabaco de Carolina del Norte por poco más de una semana. Los primeros días en la granja fueron calurosos y húmedos, con bienvenidas lluvias. Pero ese día, no hubo lluvia. El termómetro ya había subido a 95F cuando Joe se detuvo para su descanso de refrescos y galletas a las 10 a.m. Para cuando la temperatura alcanzó entre 100F y 108F a las 3 p.m., Joe se quejó al líder de la tripulación de que no se sentía bien. El líder de la tripulación le dio a Joe un trago de agua y lo llevó de vuelta con los trabajadores… …donde dejó a Joe para que descansara un rato. Cuarenta y cinco minutos después, Joe fue encontrado en las escaleras de la casa. Estaba inconsciente. Se llamó a los servicios médicos de emergencia y Joe fue transportado al hospital, donde se registró su temperatura corporal a 108F. Pero Joe no respondió a los intentos del personal médico de enfriarlo. Su muerte se atribuyó a un golpe de calor.

Un poco sobre Joe

Joe, de 44 años, había viajado de México a los Estados Unidos para unirse a una tripulación de 12 trabajadores H-2A empleados por el agricultor, que también empleaba a 5 trabajadores a tiempo completo y 3 a tiempo parcial. (Los trabajadores H-2A son

trabajadores extranjeros temporales y no inmigrantes que son contratados bajo contrato para realizar trabajos agrícolas en los Estados Unidos cuando los trabajadores americanos no están disponibles). Joe no tenía experiencia en el cultivo de tabaco y cuando murió llevaba 11 días en los Estados Unidos.

La investigación

Los investigadores se enteraron de que el granjero había distribuido a todos los trabajadores agrícolas, incluido Joe, un folleto de seguridad y salud escrito en español que incluía información sobre las enfermedades y los golpes de calor. Lamentablemente, el empleador no exigió que los trabajadores leyeran el folleto ni que se discutiera o revisara su contenido.

Los trabajadores tienen cuidado

¡El golpe de calor se puede prevenir! Para evitar ser víctima de una muerte similar, cualquiera que trabaje en el calor debería:

- Mantenerse hidratado. En un ambiente caliente o húmedo, un cuerpo puede perder hasta un cuarto de agua por hora a través de la transpiración. Este fluido debe ser reemplazado regularmente. Las bebidas deportivas están bien porque reemplazan los electrolitos, pero el café, el té y los refrescos con cafeína deben evitarse porque deshidratan el cuerpo. El alcohol también debe evitarse porque afecta a la capacidad del cuerpo para regular la temperatura. El agua es lo mejor.
- Tómese un tiempo para aclimatarse al trabajo y al calor. El cuerpo necesita adaptarse a trabajar en temperaturas más altas para poder mejorar el mecanismo de transpiración. Según el Instituto Nacional de Seguridad y Salud Ocupacional (NIOSH) una persona requiere aproximadamente de cinco a siete días para aclimatarse a un ambiente caliente.
- Aprenda a prevenir, reconocer y tratar las enfermedades causadas por el calor. A Joe se le dejó solo para que descansara, en lugar de recibir atención médica inmediata. A toda persona que muestre signos de enfermedad por calor se le debe dar agua y permitirle refrescarse, descansar y

recuperarse, pero no se le debe dejar solo.

- Los nombres no son reales, pero los incidentes sí. Estas historias están basadas en investigaciones de muertes reales.

Toolbox Talks – Template

WHAT'S AT STAKE?

Toolbox / Safety Meeting

A **Toolbox Talk** is an informal safety meeting that focuses on safety topics related to the specific job, such as workplace hazards and safe work practices. Meetings are normally short in duration and are generally conducted at the job site prior to the commencement of a job or work shift. It is one of the very effective methods to refresh workers' knowledge, cover last minute safety checks, and exchange information with the experienced workers. **Toolbox Talks** are also intended to facilitate health and safety discussions on the job site and promote your organization's safety culture. Toolbox talks/meetings are sometimes referred to as tailgate meetings or safety briefings.

WHAT'S THE DANGER?

CAUTION

Failure on your part to select an appropriate topic to present will result in uninterested workers, a waste of time and a loss of credibility on the part of company management.

Example:

You wouldn't want to present "dressing for winter work" at the start of summer.

Accidents result from unsafe acts or unsafe conditions. For a variety of reasons, unsafe acts typically account for 90% of all accidents, according to some experts. Safety meetings serve as a preventative measure against unsafe acts by educating employees on how they can do their job safely.

HOW TO PROTECT YOURSELF

CREATION OF TOOLBOX TALK

There are certain points that the manager or safety officer must consider to ensure a more effective toolbox talk for the workers. Here are seven ways how to create and write a good toolbox talk:

#1 Determine a topic of focus

Choosing a topic for toolbox talks should be based on the type of work that employees are performing every day, of course. This highlights the relevance of the job and all the related matters that should be reminded to them every now and then. Also, create a list of these toolbox topics and organize them in a calendar so that workers can follow through with the next meetings. In addition, select topics that would help refresh their knowledge of safety and quality.

#2 Conduct research

How do you know if the content that you are using is up to date and reliable? Simply get your resources to the most reliable associations and government bodies that release relevant and timely updates about safety. Examples are OSHA toolbox topics, HSE website, and more health and safety sources. Gather the most important chunks during your research and associate them with the current work that your organization has. Remember not to provide too much information that would cause information overload. Things like importance and best practices are already enough for these toolbox meetings. In addition, performing a survey to workers can also provide more insights into what they want to learn during these short meetings.

#3 Use online tools to prepare and discuss the toolbox topics

Paper-based toolbox talks can be time-consuming and cumbersome. Using digital tools and applications can help ease the preparation and actual demonstration of the toolbox topics. Doing so may also help standardize how toolbox talks are formatted. During the discussion, the toolbox talks can be sent individually so that all workers have their own copy as a guide, meaning it can be distributed to all affected and involved individuals. Remember to keep the toolbox talks short but meaty.

#4 Evaluate learnings and get feedback

Assessing the workers' learnings can be in the form of questions or simple teach-back after the meeting. With this, leaders can gauge how deep do the workers understand the toolbox topics. Conduct a post-meeting survey to learn what the employees say about toolbox meetings. And then, from all of these insights leaders can now further improve how they can make the content simpler, clearer, and easier to digest.

#5 Keep the records of all toolbox meetings

All toolbox talk meetings must be kept in a safe place as these records serve as proof for complying with legal requirements that regulate the maintenance of health and safety training, information, and initiatives. These can be potential documents that can be used for accreditations.

Toolbox Talk Example

There are a variety of toolbox talk examples that can be discussed to workers. Learn more about these examples here. Here is a basic example of a toolbox talk specifically for people working in confined spaces.

Topic: Working in Confined Spaces

Site: Hot Works, Sioux City, Iowa

Involved Team: Tom Hunt, Joe Brown, John Black, Shelly Smith

Supervisor: Joe Blow

Conducted on: September 7, 2020

What is a Confined Space?

A confined space can be any area that is sufficiently large to enter and perform jobs. It is has a limited entrance and egress points and not built for any type of occupancy.

What might happen if working in confined spaces was not performed properly?

1. Oxygen deficiency or asphyxiation due to the harmful environment inside the confined spaces.
2. Exposure to deadly gases and other organisms.
3. Loss of coordination.
4. Heatstroke
5. Death

Safety reminders when working in confined spaces:

1. Identify all hazards present before entering the confined space.
2. Conduct atmosphere tests.
3. Install proper ventilation systems.
4. Fortify communication amongst co-workers.
5. Ensure that personal protective equipment is in good condition.

Signatures: (assuming all people involved have confirmed and signed)

- **Look up reference information**

Use iAuditor as a visual aid or training guide by adding relevant information while inspecting. You can look up references in plain text, image, or external link format.

- **Easily document toolbox meetings**

Record the takeaways, concerns, corrective actions, and recommendations from your toolbox talk meeting using iAuditor.

Records are automatically saved in the cloud.

- **Take or Attach Photos**

Take pictures, annotate, and attach them to your template for a more comprehensive report.

- **Capture digital signatures**

Sign off your toolbox talk documentation by capturing digital signatures. These include time and date stamps to provide accountability and confirmation on the information recorded.

IMPORTANT QUESTIONS

Why Have Safety Meetings?

Safety meetings are an opportunity for management and your safety department to communicate to employees how they can do their jobs safer and better. Topics discussed in safety meetings may be topics that you are familiar with or topics that you have limited knowledge about. If the topic is something that you're are familiar with, it may be easy to tune out and not listen to the safety information presented. Do yourself a big favor and listen to the information as if you have never heard before. You may just learn something new, about the newest protective equipment, or a smarter way to do your job. Information passed on in a safety meeting has a purpose…..To stop you or your co-worker from being injured. Safety meetings also allow employees an opportunity to relay safety/health concerns or improvement ideas to their supervisors.

What are Frequency of Toolbox Talks

Most organizations conduct these safety meetings once a month. The data however show that an increased frequency of toolbox talks from a monthly meeting to a daily meeting has the potential to decrease total recordable incident rates (TRIR) by up to 85%. If you happen to perform toolbox talks weekly, then the increase to daily has the potential to decrease TRIR by up to 72.8%. This simple switch is not just an exercise in administration. It sets a safety first mentality and highlights how your company is

dedicated to education and safety.

What is the delivery of a successful Toolbox Talk?

A successful toolbox talk meeting should have workers walking away feeling like they've learned something valuable that they never thought of before. It's important that toolbox talks be engaging. If you want your toolbox talks to have any effect, they should be interactive, interesting, and give useful information. Stay away from monologues and lots of slides – instead, ask questions, interact with workers, and be clear and to the point.

The Importance of Toolbox Talks

Having short but frequent Toolbox Talks can significantly reduce workplace incidents. A recent report found that companies that conduct Toolbox Talks daily had a 64% reduction in total incident rates than those that conducted their Toolbox Talk meetings on a monthly basis.

1. Grow a positive safety culture within an organization.
2. Keep all workers alert.
3. Improve team communication and productivity.
4. Serve as a reminder of workers' duties and responsibilities.
5. Function as an updated record of hazards and action plan

BENEFITS OF HAVING TOOLBOX TALKS

Toolbox talks can make a great difference when conducted before employees start to work on site. These simple meetings are a vital safety measure for preventing bigger and complex risks. Managers and safety officers should invest their time and efforts in using tools or apps to administer these safety meetings regularly. **Here are some BENEFITS of performing toolbox talks**:

1. Boost worker knowledge on hazards and risks.
2. Strengthens leaders' and workers' sense of responsibility.
3. Improves team coordination and productivity.
4. Establish a good communication system within teams.
5. Documents and organizes safety meetings.
6. Creates a secure working space and safety culture.

Tips from Toolbox Talks for OSHA Safety and Health

These short pre-written safety meetings are designed to heighten employee awareness of workplace hazards and OSHA regulations. They are not intended to take the place of formal OSHA safety training for workers, but to supplement it.

- Read the toolbox talk to yourself a couple of times before you hold the actual meeting with workers. That way you will be more familiar with the content to be covered and therefore less apt to stumble while reading to the group.
- Try to hold the toolbox talk in an area that is free of noise and other distractions. If the workers cannot hear you talking, or are distracted by other activities in the area, they won't be focusing on your talk.
- Speak clearly and directly. Mumbling or reading too fast makes it difficult for the workers to understand you. Just take a deep breath, and then speak clearly and at a natural pace.
- Use a prop when possible to help you keep the workers attention. If you are giving a toolbox talk on setting up a portable step ladder, have one set up nearby so you can point out things as you read the toolbox talk. To really drive home a point, have an unlabeled container you found on the job-site available when giving a toolbox talk on OSHA's hazard communication standards about labeling requirements.
- Always give workers an opportunity to ask questions at the end of the toolbox talk. Don't make snide remarks to employees who do ask a question, as this will discouraging others from asking questions later.
- Always document your toolbox talks. Even if certain OSHA standards do not require documentation of safety training, it can't hurt to have the information about the topic, the trainer, the date, and names of the workers on file.
- Last but not least, practice what you preach. Nothing makes a trainer lose credibility faster than to have a worker see them doing something that violates the safety precautions that were covered in a previous toolbox talk. Always set a good example for others.

Overview

Observe job-safety techniques. Focus on what is important (and mandatory). Listen to and follow up on company Safety Committee and employee recommendations. Identify what poor work practices are causing injuries or accidents on the job. Plan for and schedule out for a month so you have time to research and possibly modify your company policy.

The Toolbox Talk should:

- Be scheduled as needed, depending on the level of risks faced on the job, or the levels of experience of the workers. Management should assess how often and for how long Toolbox Talks should be held in your company.
- Generally, but not necessarily, be conducted by an employee of supervisory level or with basic OHS awareness. Any issues raised that cannot be resolved should be addressed by senior management.

FINAL WORD

A Toolbox Talk Template is the starting block to help to build and sustain employee safety and security in your business operations. Take the template and adjust and modify it to custom fit your operations. The template can address any issues, concerns that your operations may have.

Transporting Oversized Loads

WHAT'S AT STAKE?

GENERAL

If you've ever spent much time driving on U.S. expressways, then you're familiar with this sight: A large flatbed tractor-trailer is in front of you with what looks to be a full-sized house at rest on the bed. There are signs everywhere declaring it an "oversize load," and a small car with a tiny, yellow warning light on top is following it to make sure nobody gets too close.

Oversize load

It's what you call it when a truck needs to haul something that's deemed too large for the road it's traveling on. This can be anything from a mobile home to a large piece of construction equipment or materials. The common denominator for oversized loads is that they can't be made smaller for transport.

What constitutes an oversize load varies from state to state and within those states, from city to city, if the truck travels on smaller, local roadways. This is important because wherever you travel, you'll need a permit. Any time you cross a state line, you'll need to have your permit in hand. If you get off the major highway to deliver your load, you'll need a city permit, even if you have the state permit. State highways are governed by a different agency than local roads. It's the same reason you'll see highway patrol cars writing tickets on expressways and local law enforcement setting up shop in town.

WHAT'S THE DANGER?

HAZARDS

Oversize loads present a hazard to roadway structures as well as to road traffic. Because they exceed design clearances, there is a risk that such vehicles can hit bridges and other overhead structures. Over-height vehicle impacts are a frequent cause of damage to bridges, and truss bridges are particularly vulnerable, due to having critical support members over the roadway.

It is important to know that overweight loads can be damaging to highways, bridges and local roads. In fact, studies have found that a single truck carrying a 40-ton load can do as much damage

to a highway as 9,600 cars. Overweight load rules and regulations allow states and cities to protect their infrastructure and save on repairs.

Overweight Load

Maximum limits can vary by state. For example, in Wisconsin and many other states an oversize load cannot exceed 40 tons or 80,000 pounds. Some states have exceptions, thanks to influence from local industries and lobbies. They say everything is bigger in Texas, and this includes load size. The Lone State allows overweight limits to be exceeded by 2 tons. Nevada can permit overweight load extensions up to 170,000 pounds.

Dimensions of an Oversize Load

Determining whether a load is oversized will largely depend on where you're traveling and what roads you're using, so make sure to investigate local laws before shipping any items you think might fall into this category.

Every state has slightly different regulations when it comes to oversize loads, but below are the average dimensions that qualify a load as oversized:

- **How wide is a wide load?** Any load that is more than 8 ft. 6 in. in width is considered a wide load.
- **How high is an oversize load?** Any load that is over 13 ft. 6 in. high is considered an oversize load.
- **What is considered an overweight load?** Generally, any load that is over 46,000 lbs. is considered overweight.

Examples of Oversize or Wide Loads

Regulations around oversize loads fluctuate depending on the area. That being said, here are some examples of items that are generally classified as oversized:

- Tractors
- Combines
- Bulldozers

- Cranes
- Loaders
- Backhoes
- Mobile homes
- Prefabricated homes
- Wind blades
- Steel beams
- Generators

HOW TO PROTECT YOURSELF

SPECIFICS ABOUT OVERSIZE MOVE

The first step is to determine the height, width, and weight of the load. This information will determine the following:

- Truck and bed size needed.
- Route it'll be able to take.
- What kind of devices needed to safely secure the load.
- What permits it'll need to secure.
- How to accurately price your move.
- How many and what kinds of signage to bring.
- Whether you'll need one or more pilot cars.

Be Aware

The use of pilot cars is often dependent in the laws of each state.

Example:

The state of Georgia requires a permit on state highways for a load larger than any of the following:

- 8 feet, 6 inches wide (2.59 meters)
- 13 feet, 6 inches high (4.11 meters)
- 100 feet long (30.48 meters)

More Examples:

- In towing oversize loads, you'll need one pilot car on two-lane highways if your load is more than 75 feet (22.86

meters) long or more than 15 feet, 6 inches (4.72 meters) high.
- You'll need two pilot cars, one in the front and one in the rear, if your load is more than 125 feet (38.1 meters) long or more than 12 feet (3.65 meters) wide.
- On four-lane highways, you'll have to get one pilot car when your load is more than 75 feet (22.86 meters) long and 12 feet (3.65 meters) wide.
- The double pilot becomes necessary when it's more than 125 feet (38.1 meters) long and 14 feet (4.26 meters) wide or more.

Oversize Towing Tips:

- All states and cities have different laws for when you're allowed to travel with your oversize load.
- Most won't let you drive during the morning or evening rush hours, or at night.
- Some states won't allow travel on Sundays, so keep this in mind when making your moving arrangements.
- Signage also varies from state-to-state, requiring specific sizes, colors and quantities of signs and flags, depending on your load.

FINAL WORD

It is clear that in order to accomplish oversize loads, there has to be a thorough understanding of civic, local and national regulations dealing with oversize loads.

Safe Ladder Use

WHAT'S AT STAKE?

Even the thought of climbing a ladder can be scary for some people. The potential for falls and serious injury is enough for many homeowners to leave the gutter cleaning and holiday decorating to the pros. But if you're a do-it-yourselfer, or you have to reach a high cabinet or replace a bulb in a ceiling fixture, you're probably going to use a ladder.

A ladder might be a common tool, but just like any other piece of equipment, it needs to be used correctly to be safe—something that happens far less than it should.

The misuse of ladders and relate incidents are a common problem. Ladder safety begins by delivering appropriate training and respect for safe ladder use at work and at home.

WHAT'S THE DANGER?

Not long ago, a cable installer in Texas was climbing a ladder to work on some overhead lines. To waterproof the cable splices, he and his colleague used a silicone-based product, which left residue on the gloves, and the ladder rungs. As the worker descended the ladder, he slipped on the slick rungs and fell more than 13 feet, hitting the concrete below headfirst – a fatal injury.

Ladders are one of the leading sources of workplace injury. The Centers for Disease Control (CDC) report **eight-in-10 construction injuries** treated in emergency rooms nationwide involve ladders. Most ladder injuries are the result of falls. Either a worker loses balance and falls off a ladder, or it's unstable and tips over with a worker on it. Another big injury risk is electrocution when working near power lines. Your employees are at risk of ladder injuries each time they set foot on one. But most of those injuries are preventable, just by following some **do's** and **don'ts**.

Falls are the third leading cause of unintentional injury-related deaths and the top cause of nonfatal injuries, according to Injury

Facts. In 2017, 36,338 people died from falls at home or at work.

LADDER RISK/HARMS

6 Important Points

1. Despite some of the safety rules being very simple—or maybe because of their simplicity—they get ignored. When a piece of equipment is very familiar and used every day, it's easy to become complacent and misuse it. Every year, many experienced workers fall off ladders seriously injuring themselves or dying because they've become so comfortable with working at heights that they've forgotten how dangerous it is. Frequent reminder training for ladder safety is an effective way to curb the effects of complacency as is building strong ladder safety habits that can compensate for moments when complacency strikes.
2. The portability of ladders can give you a leg up just about anywhere, so ladder safety habits need to be carried everywhere too. Ladders are one of those pieces of equipment that are used at work and at home. Even though the same rules and risks apply both on and off the job, it can be easy to forego or forget workplace procedures when nobody is watching or the perception of risk changes in a more comfortable home environment.
3. The more frequently someone uses ladders at work, the more comfortable they'll be at home. This makes it especially important to instill strong safety habits and help people understand the temptation they'll face to take shortcuts, change their behavior or relax their attention to safety without the company culture and supervision that makes them think twice.
4. When using ladders at home, people are more likely to find reckless workarounds to work-impeding problems. If a ladder is too short, prop it up on something. No PPE handy? Use a hand to shield your eyes. These kinds of solutions would make a safety manager shudder and get employees into trouble, but at home there is only the person's knowledge, judgment, habits and internal culture of safety to guide

them.

5. Employees who don’t use ladders at work may have never been trained or given even a basic understanding of ladder use. So consider providing your entire staff with some level of ladder knowledge regardless of whether it is a requirement of the job. If they fall from a ladder at home, it may not be your responsibility, but it can lead to a lost-time injury that will affect your company negatively in many ways.
6. Additionally, whether you’re talking ladder safety, PPE or DIY projects around the home, all types of workers would benefit from having a good understanding about how human factors like rushing, frustration, fatigue and complacency can lead them to make mistakes or not follow sound safety practices at home that could lead to serious, unexpected outcomes—and therefore how important it is to understand and follow rules even when nobody is watching.

POTENTIAL HARMFUL LADDER USE

Injuries and even death may ensue in failing to adhere to the following:

- Avoid using the ladder if you feel dizzy or tired or are impaired.
- If using a ladder outside, do not use in windy or inclement weather.
- Make certain the ladder is free of grease, oil, mud and other sticky or slippery materials.
- Wear slip-resistant shoes with clean soles for maximum traction.
- Face the ladder and always grip the rungs, not the side rails.
- Always keep three points of contact with the ladder: Two hands and one foot or two feet and one hand.
- Extension ladders should extend 3 feet above the roof or platform you’re trying to reach.
- Do not stand higher than the step indicated on the label marking the highest standing level.

- Don’t lean or overreach; reposition the ladder instead.
- Do not move the ladder while in use.
- Take your time when climbing down so you don’t skip any steps.
- Don’t climb while carrying tools; use a tool belt.
- Never have someone climb up to bring you something; only one person should be on a ladder at a time.

HOW TO PROTECT YOURSELF

ALL ABOUT EMPLOYEES

Employees Need to Do This

The first step toward ladder safety is choosing the right ladder for the job. And, the right ladder isn’t just the first one available or easiest one to carry.

If power lines are nearby, trade the aluminum ladder for a **non-conductive** one with wooden or fiberglass sides. Should an aluminum ladder come in contact with live power lines it immediately energizes. Workers are at risk of electrocution.

Ladder Safety Tips

- Inspecting the ladder for damage before use. Look for corrosion, cracks, splits, and bent edges.
- Removing damaged ladders from service and tagging them as damaged.
- Extending the ladder three feet above the landing—the **three-foot rule).**
- Moving the base out at least one foot for every four feet of ladder height—**The 4-to-1 ladder safety rule.**
- **Securing the ladder** in accordance with Cal/OSHA regulations.
- Always maintaining three points of contact when climbing.
- Making sure all locks on extension ladders are engaged to prevent a sudden retraction.
- When moving a ladder, retracting it all the way and when possible having two people move it.
- In order to maintain three points of contact on a ladder,

never carry anything while climbing. Workers are encouraged to use a tool belt for small tools and a rope system for larger tools and other materials.

Start with a Firm Foundation

No matter what kind of ladder you're using, place the base on a firm, solid surface and avoid slippery, wet or soft surfaces.

- Never lean a straight or extension ladder against a window pane or other unstable surface; use a stabilizer and ladder leveler as needed.
- A straight or extension ladder should be placed 1 foot away from the surface it's resting on for every 4 feet of the ladder's working length, the distance along the side rail from the ground to the top support point.
- Securely fasten straight or extension ladders to an upper support.
- Make sure stepladders are open completely before climbing.
- Block or guard doorways near any type of ladder so no one can open it and knock you off.
- Make certain the area is free of clutter both at the base and top of the ladder.

Fall protection and other OSHA considerations

OSHA does not require fall protection when using portable ladders, but the agency addresses fall protection when using ladders in several Letters of Interpretation (LOI). As stated in a January 13, 2000, LOI, if the user is at risk of falling from a portable ladder, then OSHA encourages employers to provide additional fall protection. There are a number of factors to consider in these situations, including:

- The height of the ladder
- The type of work being performed
- Conditions of the work environment
- The limitations of the fall arrest system used

Employees should be properly trained to use a ladder as a means of fall prevention.

In terms of storage, OSHA recommends that ladders be secured in passageways, doorways, driveways and other areas where they can avoid be accidentally displaced by workplace activities or traffic.

For inspection and repair, OSHA requires portable ladders to be inspected, though exact intervals are not given. Certainly, if there is an incident, the ladder should be inspected before reuse. Take damaged ladders out of service for repair or destruction, and tag or mark them as “dangerous, do not use” or incorporate similar wording. Repairs can be done by either an employer’s designated personnel or the manufacturer.

Ladder safety tips

- Read and follow all labels/markings on the ladder.
- Avoid electrical hazards. Look for overhead power lines before handling a ladder. Avoid using a metal ladder near power lines or exposed energized electrical equipment.
- Always inspect the ladder prior to using it. If the ladder is damaged, remove it from service and tag it until repaired or discarded.
- Always maintain a three-point (two hands and a foot, or two feet and a hand) contact on the ladder when climbing. Keep your body near the middle of the step, and always face the ladder while climbing.
- Only use ladders and appropriate accessories (ladder levelers, jacks or hooks) for their designed purposes.
- Ladders must be free of any slippery material on the rungs, steps, or feet.
- Do not use a self-supporting ladder (e.g., step ladder) as a single ladder or in a partially closed position.
- Do not use the top step/rung of a ladder as a step/rung unless it was designed for that purpose.
- Use a ladder only on a stable and level surface, unless it has been secured (top or bottom) to prevent displacement.
- Do not place a ladder on boxes, barrels, or other unstable bases to obtain additional height.
- Do not move or shift a ladder while a person or equipment is

on the ladder.

- An extension or straight ladder used to access an elevated surface must extend at least three feet above the point of support. Do not stand on the three top rungs of a straight, single, or extension ladder.
- The proper angle for setting up a ladder is to place its base a quarter of the working length of the ladder from the wall or other vertical surface.
- A ladder placed in any location where it can be displaced by other work activities must be secured to prevent displacement, or erect a barricade to keep traffic away from the ladder.
- Be sure that all locks on an extension ladder are properly engaged.
- Do not exceed the maximum load rating of a ladder. Be aware of the ladder’s load rating and of the weight it is supporting, including the weight of any tools or equipment.
- Only use ladders for their designed purpose.
- Make sure you’re using the right type of ladder for the job.
- Rethink your plans if you’re dizzy or fatigued.
- Make sure that your shoes are clean of any substances which could cause you to slip.
- Protect your ladder at the base to prevent people or objects bumping into it.
- Do not carry objects that could cause loss of balance.

FINAL WORD

Ladders are used at home and the workplace. People who use them at home often do not use ladders in the workplace; rules at home are often more relaxed than in the workplace. Using a ladder unproperly causes many accidents resulting in injuries and even death.

Repetitive Strain Injuries (RSI)

WHAT'S AT STAKE?

Repetitive Strain Injuries (RSI) is not one diagnosis, but rather an umbrella term for disorders such as Bursitis, Carpal Tunnel Syndrome, tennis elbow, tendonitis, and trigger finger. Also known as Cumulative Trauma Disorder, RSI is caused by constantly repeated physical movements, awkward postures and sustained force, among other risk factors. These repetitive motions damage the soft body tissues (tendon, cartilage, nerves, ligaments, and muscles) that are involved in producing the motion.

RSI is a painful and potentially debilitating condition that if left untreated, can lead to permanent damage.

WHAT'S THE DANGER?

RSI IS MOST COMMONLY CAUSED BY REPEATED ACTIONS THAT ARE CARRIED OUT ON A DAILY BASIS OVER A LONG PERIOD.

Symptoms of RSI

- Pain or tenderness
- Stiffness or joint restriction
- Tingling or numbness
- Cramping
- Swelling in the hands or forearms
- Referred pain – where the pain is felt in a different part of the body to the one that is injured.

Two Main Types of RSI:

- **Type 1**– pain is the result of a recognized medical condition such as tendonitis, cellulitis or carpal tunnel syndrome.
- **Type 2**– no specific diagnosis can be made, and the injury is

often referred to as non-specific upper limb pain or diffuse RSI.

SIGNIFICANT RISK FACTORS

- carrying out repetitive tasks for long periods without suitable rest breaks
- poor posture or activities that require you to work in an awkward position
- poor working environment setup

OCCUPATIONS AT RISK/DANGERS

These manual tasks are at risk

- Office work (such as typing and clerical duties)
- Process work (such as assembly line and packing duties)
- Piece work (such as sewing)
- Manual work (such as bricklaying and carpentry)

Psychological Stress

- Studies have shown that the onset of repetitive motion injuries may be affected by factors like work satisfaction.
- People who experience high amounts of psychological stress at work are *more likely*to develop repetitive motion injuries than those who don’t experience high amounts of stress.

Overview

Any manual task that requires repetitive movements or working in fixed or awkward positions for long periods of time can trigger a repetitive strain injury.

HOW TO PROTECT YOURSELF

TREATMENT

Minor repetitive motion injuries can be treated with home remedies, such as:

- Rest

- Ice packs
- Over-the-counter pain relievers

For repetitive strain injuries that are more serious, the following may be necessary:

- **Physical rehabilitation.** Physical rehabilitation for repetitive stress injuries may include occupational therapy, exercise programs to stretch and strengthen the area, condition exercises to prevent further injury, pain management techniques, and education regarding proper ergonomics for the workplace.
- A surgical procedure that can improve tendon health may be necessary. Damaged tendons can be removed to promote the formation of healthy tissue and, in certain cases, surgeons can repair tendon tears to reduce pain and restore function.

“THE WHAT TO DO”

Seek out a medical provider. The most important thing for you to do is seek medical attention the moment that repetitive motion injury symptoms appear. By seeking medical attention early, you may be able to avoid developing a more serious injury.

Tell your employer. The law requires that employers identify and correct hazards such as those that lead to repetitive strain injuries. An employer can’t fix the problem if they’re not aware that a problem exists in the first place.

PREVENTION

Good Ergonomics

The best way to avoid repetitive strain injuries is to implement good ergonomics in your workplace. Ergonomics is a science concerned with designing and arranging things people use to avoid occupational injury. Ergonomics looks at the design of tools, equipment, workstations, and job tasks.

Examples of “good” ergonomics:

- Adjusting a workstation to fit a specific task

- Properly locating bins so workers can place products in the bins rather than tossing the products
- Mechanical supports to eliminate the use of extreme force
- Varying the speeds of conveyor belts so certain activities can be performed at slower rates
- Adjusting a seat so that it’s tilted slightly forward to encourage good posture

In addition, the following more general tasks can help prevent repetitive strain injuries:

- Report early symptoms before they get worse
- Ease back into work after a vacation
- Maintain good general health and fitness
- Take regular breaks

WHAT EMPLOYERS CAN DO

1. **Invest in properly set up workspaces for employees**
    - Studies show that for every $1 invested in injury prevention, $2 or more was returned. 40% of CFOs reported that increased employee productivity was the greatest benefit.
    - Blue Cross reported a 70% reduction in lost workdays and an 89% reduction in worker’s compensation costs after it improved office ergonomics.
2. **Educate and train employees** about the risk of RSI so they can identify potential ergonomic problems and recognize symptoms early.
3. **Encourage employees to report any symptoms or issues** they are experiencing early so that the appropriate intervention can be implemented.
    - If RSIs are left without treatment or correction these symptoms can evolve into chronic or crippling disorders.
    - On average, an employee with an RSI is off work for 7 weeks; longer if it becomes a chronic condition.
4. **Allow for regular breaks throughout the working day.**
    - Not only is it beneficial for employees to stretch or do some light exercise throughout the day (especially

office workers), studies show that taking a brief break every 50 minutes improves productivity, focus, and creativity.

MORE HELP FROM EMPLOYERS

To reduce the risk of RSI or any other harm or injury, employers should also:

- consult employees on potential risks arising from their work
- consider changing the way work is organized
- provide clear instructions, information and training on any measures being taken to control the risks
- help sufferers when they come back to work.

FINAL MEASURES

Simple Procedures That Help Prevent RSI Using Standard Equipment

- resting your feet flat on the floor, or on a footrest
- sitting central to the curve on any curved desk
- placing your screen at eye level and directly in front of you
- having your keyboard directly in front of you, with a space at the front of the desk to rest your wrists when you are not typing
- positioning your mouse as close to you as possible so you can use it with your wrist straight, avoiding awkward bending
- using a ‘compact’ keyboard without a number pad (if you do not do much number work) so that the mouse can be brought in closer still
- avoiding reflections from overhead lighting and sunlight
- using a document holder, to avoid bending your neck – position this centrally (with your monitor to the side) to also avoid twisting (if you tend to look at documents more than the screen)
- touch typing, to spread the load
- using predictive text and auto-correct features, to reduce keystrokes
- learning common keyboard shortcuts, to reduce the use of the

mouse
- slowing your mouse down, to reduce muscle tension.

Laptops / Tablets / Smartphones

The main problem with laptops is that the keyboard is attached to the screen, this has a tendency to create a poor posture. To reduce such risks when working with a laptop for sustained periods, a good practice is to:

- use a separate keyboard, screen and mouse
- place your laptop on a raiser (so the screen can be raised as close to eye-level as possible)
- If using neither an external keyboard or mouse (not recommended for long periods of work), make sure that the laptop is on a stable base and not your lap
- take regular short breaks to relieve upper body tension
- sit up straight with your back supported.

FINAL WORD

As with any hazards, RSI are best eliminated at the source which, in this case, is the repetition of the tasks performed. Prevention of these injuries should focus on eliminating repetitive work through job design which may involve mechanizing certain tasks. In addition, jobs should be structured so that workers can rotate between various tasks where they do something completely different, using different muscles groups.

Pre-Operational Inspection of Equipment

WHAT'S AT STAKE?

Performing the pre-operational check is important for the safety of the operator and everyone in its working environment. Unfortunately this safety check is often forgotten or ignored. Not every operator is aware about the items that need to be check before he can start his machine and begin to perform his daily tasks.

The equipment operator can prevent downtime, extend service life and ensure more efficient operation with just a few minutes of preventive inspection both pre- and post-operation.

But the key is consistency. These **inspections** must be engrained into the consciousness of all parties and performed every day.

WHAT'S THE DANGER?

HAZARDS / RISKS / DANGERS

You cannot accomplish much or have optimum productivity if your equipment / machinery is not up to par. Or your employees are not working to a high level. Those are the components of the equation. These are inherent risks, dangers and hazards in equipment and labour.

The **reasons** why equipment is so vital are set out as follows.

1. LOWER RISK OF WORKPLACE INJURIES

Regular inspections lower the chances of one of your workers getting injured. Unfortunately, injuries do happen on the job, and most of the time, they are preventable. Inspections are a preventive safety measure for you and your employees.

Consider that in 2016, there were 4,693 deaths in private industry, according to OSHA. About 21 percent of the deaths occurred in the construction industry. Excluding highway injuries, the leading causes of construction workers' deaths were the "fatal four" – falls, struck by an object, electrocution or caught

between two pieces of machinery. Eliminating the fatal four could save 631 lives each year in America.

Now, consider how failing equipment could play a part in these statistics. A failed horn, brakes or any other important component could lead to a crash, or a vehicle driver striking another worker. A collision or failed system could cause a heavy object to fall and lead to injury or death. Or, a worker could become distracted by broken-down equipment and less aware of nearby workers, putting their safety at risk. If brakes fail or if equipment suddenly shuts down, it could easily cause a dangerous chain reaction to occur.

- **Lost Time**

If a worker gets injured as a result of damaged equipment, chances are, they are going to miss some time. Common injuries relating to heavy equipment are often serious, such as amputations, spinal injuries, sprains, fractures and cuts.

Workers who suffer any of these injuries could be out for days. According to a 2015 Bureau of Labor Statistics news release, workers who sustained sprains or strains resulting from a workplace injury required 10 days off work, on average. Workers with fractures needed 31 days, and those who suffered amputations required 22 days or more.

- **Restaffing Costs**

If a worker is severely injured, they might need a long time to recover, or they may never return to the jobsite. In such a case, you will need to replace the worker with someone new. Whenever you hire a new employee, you take a chance.

According to a 2016 survey by the Society for Human Resource Management (SHRM), it takes 42 days to fill a job vacancy with a new employee, which is a lot of time with insufficient staff. New employees cost money, too. On average, it costs companies $4,129 to hire someone new.

Even if you think you’ve found the perfect worker, there is no

guarantee they'll stick around to see a project through. According to the SHRM survey, the average annual turnover rate is 19 percent. Considering an employee who makes $8 an hour could wind up costing a company $3,500 in turnover costs, your best bet is to try to keep the employees you have.

- **Higher Workers' Compensation Premiums**

Workers' compensation means employers are required by law to pay for workers' compensation benefits if a worker gets hurt on the job. Injuries can be from one event or repeated injuries, such as those caused by regular exposure to chemicals or loud noises. Sometimes, workers' compensation even covers psychological stress.

When an employee files a workers' compensation claim, your workers' compensation premium increases as a result. Injury can also affect health care premiums. However, if your claim costs are lower than average compared to similar companies, your premium may decrease – more incentive to keep your equipment fully intact.

- **Possible Fines**

Avoid fines and serious violations with regular inspections by ensuring safety at all times. Under OSHA law, employers are responsible for maintaining safe workplaces for their employees. If you ignore safety, you break the law.

- **Could Be Held Liable**

There are plenty of ways you could legally be liable if equipment fails and causes injury. For example, if a worker is injured and sent home, and if you hurriedly hire another worker to help your team finish a project on time, you might be putting yourself and workers at risk if the new employee is unqualified for the job. If the new worker causes harm to another worker, you could be held liable for hiring someone who brought danger to other employees.

Another way you could be liable as an employer is if you are aware your equipment needs repair, even if it had passed a mandatory inspection, but fail to repair it. If someone is injured, you could be liable for negligence.

2. INCREASE PRODUCTIVITY

Although safety is a priority, consider how damaged equipment can also affect productivity. When equipment fails, the workflow gets interrupted, and projects come to a halt.

When projects are interrupted, you might not be able to stick to your schedule and meet deadlines. It is important for customers to know they can depend on you, and regular inspections help make sure your equipment is reliable for you, your workers and your clients.

Machinery failure is usually due to one of the following.

- **Thermally induced failure:** Equipment overheats, or extreme temps cause equipment to break down.
- **Mechanically induced failure:** It is easy to prevent this with inspection and replacing parts. Mechanically induced failure often happens due to overexertion, collision and misuse or abuse.
- **Erratic failure:** Occurs randomly due to harder-to-detect reasons, such as electrical issues or software malfunction. Erratic failure can be prevented with the help of diagnostic equipment used during inspection.

Equipment failure can be sudden or gradual. Inspections are important because you may not notice the seriousness of an issue until it’s too late. By regularly having a professional check your equipment, you prevent disaster and make informed choices. You can replace parts when necessary and not wait until equipment breaks down in the middle of the workday to make repairs. As a result, you decrease unscheduled downtime and improve productivity.

3. LOWER REPAIR COSTS

With regular inspections performed by a trained technician, you will be able to make a repair before it leads to a much more expensive problem. Your equipment will run better, and you’ll extend its lifespan significantly with inspections and maintenance. The better condition your equipment is in, the less time you’ll need to spend on repairs, and the more work you can

get done.

HOW TO PROTECT YOURSELF

The Pre- and Post-Operation Equipment Inspection Checklist

- Check tires, rims or undercarriage for damage or abnormal wear and clear away debris. Much like you don’t operate at full capacity on a broken foot or while wearing shoes that are broken or don’t fit, a machine can be hobbled by the inefficiencies of the tires or tracks it sits on. Identify and report any damage or potential damage.
- Check fluid levels – engine and hydraulic oil, diesel and diesel exhaust fluid (DEF), and coolant. Fluids are the lifeblood of each machine and require specified levels to operate properly. A sudden drop in fluid levels may point to any number of problems with the machine that require immediate attention (blown hoses, leaking filter, etc.).

Clear any accumulated debris from around the radiator and other engine components. The engine is made of moving parts and belts that generate heat and friction – and systems designed to cool the engine compartment require room to breathe. It’s important to check and remove any clutter or material from the jobsite that may have found its way into the engine compartment.

- Check the fuel, oil, air and other filters for signs of damage or leaking. Filters are often a quick and easy item to replace – and operating with properly working filters can prevent any number of problems with the machine.
- Check belts (alternator, fan, etc.). A worn and frayed belt is another wear item that is relatively easy to replace. If noticed before it fails, then the operator can communicate with the maintenance team to replace during scheduled downtime or the next PM to ensure it doesn’t create unplanned downtime during the course of the work day.
- Identify greasing points and frequency. Every machine and every OEM is different – and keeping the machine properly greased is critical considering the power and friction

created by these giant pieces of steel working together. It can also help keep out moisture and abrasive materials from the jobsite that can work into joints and friction points if not properly greased.

- Check for leaking or pooled fluid around and under the machine. This is an easy indicator that something isn't right, and the source of that fluid should be identified and addressed/fixed before operation, and those fluids should be replaced.
- Check auxiliary hydraulic connections and pressure. Simply check the integrity of the coupling structure and that it hasn't been damaged. Newer equipment often includes pressure relieving quick disconnects – take the time to relieve the pressure when disconnecting attachments.
- Check for new signs of structural damage, scratches or dents on the machine. This is almost more important post-operation than it is pre-operation. Once done for the day, noticing and identifying any damage to the machine ensures that needed repairs are made before the next shift starts, and also allows the operator to identify how that damage occurred. Is there another structure on site that the machine came into contact with? Is there damage elsewhere on site that needs to be addressed? Similarly, if damage is noticed before a shift starts, and it was not there when the operator inspected it the day before, that pinpoints that something happened overnight or that there was possible unauthorized use of the machine.
- Check for damage on ground engaging tools (buckets, teeth, etc.). A machine's performance is affected greatly by the efficiency of how its working tools engage with the material it is digging into and moving. Worn or broken buckets and teeth lead to inefficient operation, greater fuel use, and greater wear and tear to the machine as a whole. Identifying and addressing these elements of the machine before they become problematic will make the operator more productive and efficient.
- Inspect the attachment mount-up to ensure proper connection. This includes checking that the coupler is flush and fully

engaged (either via manual or automatic/hydraulic means), and that the hydraulic hoses (and electrical connections, if applicable) are properly connected.

- Inspect the operator compartment and clear away any debris or obstructions. Clutter can be distracting – and anything in the cab that ultimately prevents the full range of controls from being engaged is a hazard to operation.
- Check and set mirrors. This might seem obvious, but visibility is critical to jobsite awareness, safety and productivity. Having mirrors set to the operator's preference will make them a better operator.
- Familiarize yourself with the control style and change as needed. Most of today's machine's come with rather simple pattern selectors that allow the operator to use the control pattern that they are most familiar with. This will lead to greater productivity and greater operator satisfaction.
- Identify auxiliary/attachment controls. Each type and style of machine controls attachments differently – operators should identify how to properly work their attachment prior to attempting to use it.
- Start the engine and review console indicators and warnings. Today's machines are built to give the operator more feedback on the workings of internal systems than ever previously available. Take note of any flashing symbols or warning lights, check the owner's manual and consult with maintenance staff prior to operation.
- If equipped, check the rearview camera. Again – jobsite awareness and safety is paramount. If that rearview camera is otherwise obstructed or disabled, it handicaps the operator's ability to have full awareness of the worksite around him/her.
- Review all external surroundings from the cab. Know your work site, and the people and structures that exist inside your working envelope. This will ensure optimal jobsite safety and productivity.

VISUAL, PRE-USE OPERATIONAL INSPECTIONS

A **visual "circle check" and pre-use operational check** will reduce

the chance of equipment being operated in an unsafe condition (which could cause injury to operators workers, facilities or product). It also allows you to spot and deal with maintenance issues early, before they turn into larger problems like downtime, equipment damage, or expensive repairs.

Visual Inspection

- Overall condition
- Frame
- Tires and wheels
- Forks
- Mast, carriage and load backrest extension
- Lift chains
- Hydraulic hoses
- Overhead guard
- Battery
- Cables and connectors
- Battery restraints
- Electrolyte level
- Hood latch
- Capacity plate and all warning decals
- Operator’s compartment

The Operational Inspection

- Operator restraint system
- Horn
- Warning devices
- Unusual engine noise
- Fuel level
- Displays and gauges
- Hydraulics:
- Mast
- Tilt
- Other hydraulic functions
- Service and park brake
- Steering
- Plugging on electric lift trucks

Pre-Operational Checklist

Use a checklist when performing the pre-operational inspection. A checklist may include the following cautions and checkpoints:

CAUTION: When checking lift chain tension, use a board or a stick. Never place your fingers in this dangerous pinch point area.

CAUTION: When checking hydraulic hoses, use a piece of cardboard. Escaping fluids under pressure can penetrate body tissue causing serious injury or possibly death. If fluid is injected in your skin, seek medical attention immediately.

CAUTION: When checking LP tanks and fittings, always use personal protective equipment such as a face shield, long sleeves and gauntlet gloves when checking LP tanks and fittings. LP is very cold when released and can cause frostbite.

CAUTION: When checking LP tanks and fittings for leaks, use soap solution, no matches or lighter.

CAUTION: When checking battery levels, never use matches or a lighter – hydrogen gas may be present, resulting in an explosion or fire. Always use personal protective equipment such as a face shield and goggles, rubber apron and rubber gloves when checking electrolyte. This is an acid and will cause severe burns to the skin if in contact.

FINAL WORD

A visual “circle check” or pre-operational inspection of equipment prior to every use will reduce the chance of equipment being operated in an unsafe condition. This makes it easier to spot and deal with maintenance issues early before they turn into a problem causing downtime, equipment damage or expensive repairs. Unsafe machinery can also cause injury to the operator or other workers and damage to facilities or product.

Proper Load Handling

WHAT'S AT STAKE?

Overhead majestic cranes and the work acholic forklifts are the driving forces in our industrial and manufacturing operations. Business everywhere in the world would come to a deafening stop without them. The common denominator with them is lifting, moving or lowering a load in a smooth and safe operation.

WHAT'S THE DANGER?

FALLING LOADS

When working with overhead cranes, and forklifts falling loads are one of the most common, and most dangerous, hazards. A falling load can result in severe injuries, fatalities and significant structural damage to buildings and property. Additionally, it will also lead to significant time and money costs.

Falling loads crane could be the result of:

- **Operator incompetency.** You must ensure your employees are adequately trained so they are able to carry out their roles competently and safely.
- If you don't secure loads properly it can result in slipping material.
- **Mechanical failure.** The risk of mechanical failure can be reduced if you ensure a competent person carries out routine inspections, maintenance and repairs at suitable intervals.
- **Two blocking.** Two blocking occurs when an uppermost hoist line component (i.e the load block, hook block, overhaul ball) touches the upper block, boom tip or similar component. When two blocking occurs, increased tension is

placed on the line which can result in falling loads or crane components.

Electrical Hazards

Around 50% of accidents involving overhead cranes are a result of a metal part of a crane coming into contact with a power source (i.e a high-voltage power line). There’s a risk of a crane’s hoist line or boom touching energized power lines when moving materials nearby or underneath. While those directly touching the crane are the most likely to be electrocuted, any workers in the vicinity are also at risk. Therefore, one accident can result in multiple deaths and injuries. Around 200 fatalities per year are the result of contact with power lines, so it’s crucial that pre-job planning is carried out prior to starting work.

Crane Overload

The majority of crane structural failures and upsets are the result of somebody overloading a crane. If you exceed a crane’s operational capacity, you are likely to subject it to structural stresses and cause irreversible damage.

You could overload a crane if you:

- Swing or suddenly drop loads.
- Hoist loads beyond the cranes capacity.
- Use defective components.
- Drag loads.
- Side-load a boom.

HOW TO PROTECT YOURSELF

FIVE KEY SAFETY PRECAUTIONS

1. Pre – Operation Checks

- It’s vital that you check every piece of equipment over before you use it. The necessary checks are typically outlined in the operating and maintenance manual that comes

with all lifting equipment. Conducting these will ensure that the machinery you're working with are set up correctly and ready for use.

- You should also check the Certificate of Thorough Examination before using any equipment. If this is in date, it means that the machinery has been examined in line with the manufacturer's instructions for cranes, this needs to be done at least once every 12 months.
- If you don't conduct these pre-operation checks, you will be putting yourself and those around you at risk.

2. Never Position Yourself Underneath the Load

- While the risks seem obvious, it's still quite common for workers to position themselves underneath a load when operating lifting equipment. It's incredibly important that you don't do this as, if anything goes wrong, you'll be at serious risk of being struck by whatever you're lifting.
- It's vital that you always stay a safe distance away from the load you're moving. This will ensure that, if you do make a mistake, the equipment malfunctions, or you encounter any other problem, you'll be out of harm's way and will be able to deal with the situation safely.

3. Don't Work on A Truck Bed

- When using lifting equipment, it's quite common for operators to jump on and off the truck bed to move and position loads for transit. However, this is a significant safety risk and should be limited as much as possible. Fully hydraulic lifts are ideal for solving this problem, as they can lift and precisely position a load on a truck bed with ease. This stops operators from having to work from a height, and allows them to carry out their work using just the crane's controls.

4. Ensure Training Is Up to Date

- Employers and operators of lifting equipment should ensure that their training is always up to date. This means that workers should be given extra training whenever they're

introduced to new equipment or feel like they could do with refreshing their knowledge. Being trained once at the beginning of their careers isn't enough for operators. It's an ongoing process. Having up to date knowledge is the only way staff will be able to work safely, effectively, and efficiently.
- These are just some of the most common precautions businesses and lifting equipment operators might be tempted to ignore. But, they're vital for helping you and staff to avoid taking unnecessary risks that could lead to accidents.

5. Raising the Load

When a load is raised, the lift truck is less stable.

- Check that the overhead clearance is adequate before raising loads.
- Do not raise or lower the fork unless the lift truck is stopped and braked.
- Lift loads straight up or tilt back slightly.
- Do not lift a load that extends above the load backrest unless no part of the load can possibly slide back toward the operator.
- Attend the controls of the forklift truck when a load is elevated. In other words, the operator must stay on the forklift when the load is in a raised position.

THE LOAD – THE CARRY – THE UNLOAD

The Load

- Fasten your seat belt.
- Make sure the load is within the forklift's rated capacity. The nameplate on the forklift lists its maximum load weight. Never exceed it!
- Use the proper lift fixture for the type of load, such as a carpet spike or drum grappler.
- Make sure the load is stable and centered; stack or tie uneven or loose loads.
- Spread the forks as wide as possible for even distribution and load stability.

- Approach the load squarely, positioning and inserting the forks far enough to be sure the pallet is completely on the forks. Take care not to damage materials stacked next to the pallet.
- Drive under the load until it touches the carriage. Tilt the forks back to shift the weight of the load and make it more stable.
- If the load is unbalanced, keep the heavier end closer to you. Tilt the mast back.
- Lift the load and tilt it back a little more before traveling.

The Carry

- Keep the forks 6 to 10 inches above the ground to avoid potential hazards on the ground.
- Remember that forklifts are top-heavy. Carry the load low and tilted back.
- Use caution when carrying a load on an uneven surface; it creates a tip-over hazard.
- Don’t carry anything on the overhead guard.
- Travel in reverse if the load blocks your vision.
- Always look in the direction of travel.
- Keep your arms and legs inside the forklift.
- Never reach through the mast to adjust the load.
- Do not raise or lower the load while moving.
- Use a spotter if you don’t have a clear view.
- Exercise caution and adjust your driving and speed to current weather conditions, particularly on wet surfaces.
- Travel at a speed that will allow the forklift to be brought safely to a stop.

The Unload

Turn the forklift slowly into position, squaring it up to the drop-off location.

If unloading onto a semi-truck and trailer:

- before driving in, visually inspect the inside of the trailer to ensure that the bed is in good condition and of

adequate height to accommodate the forklift;
- make sure the trailer’s rear wheels are chocked, the parking brake is set, and the dock plate is down and secure;
- slowly drive in, position the load, and tilt it forward until it is even with the surface of the unloading location;
- then lower the load and release it.

If unloading onto a stack:

- position the forklift properly before lifting the forks;
- check for overhead clearance before raising the load;
- raise and position the load to the correct height – 2 inches above the stack;
- allow 2 to 3 inches of clearance at the sides and back of the load;
- move the load slowly into position;
- tilt the load forward, then lower it;
- level the forks so they are no longer tilted; and – pull the forks back slowly.

Overview Take Away

- When using lifting equipment, it’s vital that you stay vigilant and take the necessary safety precautions. Accidents will be much more likely to happen, otherwise. These incidents can cause injuries, costly damage, and even death in the most serious of cases.

The more time you spend using lifting equipment, the more respect you’ll gain for the safety procedures and requirements that are in place to protect you.

FINAL WORD

Running over bystanders, touching overhead wires, and falling loads are just a few of the hazards of loading and unloading.

Snow Blower Safety Talk

WHAT'S AT STAKE?

If you use a snow blower, it is important to recognize that this machine doesn't make snow removal either effortless or risk-free. While not as strenuous as manual shoveling, using a snow blower remains a physical labour that is done outdoors in the snow and cold. Snow blowers have various degrees of effectiveness depending on their design and price. Snow blowers also cannot remove the build-up of ice under the snow.

WHAT'S THE DANGER?

GENERAL

When the snow flies, nothing beats a snow blower for clearing walks and driveways. But snow blowers are inherently dangerous machines, not only to the operator but to people nearby—some models can throw snow, along with rocks or anything else hidden in the snow, a distance of up to 30 feet. And if you have children in your neighborhood, you need to be extra vigilant because they may not be aware they need to stay away from the snow blower while they run around.

Each year, hundreds of thousands of people suffer serious damage to their fingers or hands due to the improper handling of snow blowers. Most commonly, the tips of the fingers need to be amputated, so preventing the injury initially is key.

Injuries usually occur when the snow is heavy, wet, or has accumulated several inches. The snow clogs the exit chute of the machine, and the person using the machine tries to unclog this using his/her hand. Unfortunately, the blades still can rotate when the machine is off, and these cut whatever is in their path.

Snow blowers (also known as snow throwers) were involved in an estimated 7,000 injuries in 2011, according to data reported to the Consumer Product Safety Commission from hospital emergency rooms. Compared with other household products, snow blowers have a relatively high rate of hospitalization and severe injury, according to our safety experts. A great many injuries occur when consumers try to clear the discharge chute with their hands—causing, in some cases, severe fractures and even amputation.

SNOW BLOWER OPERATIONAL PROCEDURES

Hot Muffler

Two-stage snow blower models have exposed mufflers that are a burn hazard—even those with "metal muffler guards," which only help prevent a serious burn. (A single-stage model's engine is almost always tucked away, unexposed, underneath the machine.) Even if you keep your kids inside while you clear snow, warn children about this danger, and when you're done clearing snow, always return the snow blower to a locked garage, shed, or storage space to keep children safe.

Machines / Fuel / Children

Once your snow blower is turned off, cooled down, and ready to put away, store it in a locked shed or cabinet in your garage or basement to keep kids away from it, and make that area off-limits. A number of child injuries have occurred when children have come near a snow blower that was not in operation, and gotten hurt. CPSC reports describe a 12-year-old boy who was filling a snow blower tire with air that exploded in his face, causing a concussion and an eye injury, and a 9-year-old boy who lacerated an eye when a spring came flying out of a snow blower he was helping to fix. A 7-year-old girl walking into the garage at her home fell and hit her head on a snow blower, resulting in a laceration and loss of consciousness. Never let a child repair, walk near, or operate a snow blower. Also lock up extra fuel for any gas-powered equipment, and make sure children never have access to it.

Reminders When Using Snow Blowers

It is important to make sure that powered equipment, such as snow blowers are properly grounded to protect workers from electric shocks or electrocutions. When performing maintenance or cleaning, make sure the equipment is properly guarded and is disconnected from power sources.

Snow blowers commonly cause lacerations or amputations when operators attempt to clear jams with the equipment turned on. Never attempt to clear a jam by hand. First, turn the snow blower off and wait for all moving parts to stop, and then use a long stick to clear wet snow or debris from the machine. Keep your hands and feet away from moving parts. Refuel a snow blower prior to starting the machine; do not add fuel when the equipment is running or when the engine is hot.

SPECIFIC DANGERS

Projective Discharge

Snow blowers scoop up whatever is on the ground, including rocks and sticks, and shoot them out at dangerous speeds—powerful enough for a rock to break a glass window, in some cases. A child (or pet, or neighbor) who unwittingly crosses into the stream of snow can get hurt by these fast moving objects, including damaging an eye. Be mindful of where the chute is aimed at all times, and be sure no one is in the path of the snow stream. Again, the best bet is to keep kids and pets indoors.

THE AUGER AND CLOTHING

The auger can pull in clothing. The area that pulls in massive amounts of snow is powerful because it has to be—so much so that it can draw in anything in its path, including a loose scarf, jacket, pants, long hair, shoelaces, or drawstrings, for example. A child who runs or falls near a snow blower in operation runs a risk of getting hurt or killed. CPSC data show that within a two-month period from December 2007 to January 2008, two 8-year-old girls suffered the same tragic fate when their jacket hoods got caught in a snow blower. According to a CPSC report, one girl

playing outside fell backwards into the path of a snow blower her mother was operating. The hood of her jacket became entangled in the auger of the snow thrower and constricted around her neck, resulting in death. The other girl's clothing also becoming entangled in the auger, causing her to be strangled, according to CPSC records.

NO PLACE FOR A CHILD.

Injuries to young children associated with snow blowers run the gamut from finger injuries to lacerations, and in the worst case, strangulations when a child's clothing gets caught.

HOW TO PROTECT YOURSELF

BEFORE THE START THE INSPECTION

- Inspect your snow blower thoroughly before each use.
- Part of following snow blower safety rules involves keeping the machine in good repair, so make a point of ensuring the machine has enough oil and that its tires are inflated properly before use.
- If you are using an electric snow blower, check the cord to make sure that it hasn't become frayed or damaged

GENERAL SNOW BLOWER SAFETY TIPS

- Before you use a snow blower for the first time, be sure to read the manual thoroughly. Even if you have used one of these machines before, there may be specific instructions that pertain to that particular model. It's a good idea to review the manual before the first time you use the snow blower each winter to refresh your memory about the proper way to operate it.
- The shields that come with a snow blower are an important safety feature, and they should be kept in place.
- Keep your hands away from the moving parts when the machine is in operation. If you need to clear a blockage in the machine, shut it down first. Use a long stick to dislodge

any snow or debris before you start it again.

- Do not start the snow blower in an enclosed area. Always move it outside before you hit the start button.
- Keep in mind that the snow blower will pick up rocks, chunks of ice and other objects off the ground while in use. Consider the direction where the discharge chute on the machine is pointed before you start using it.
- Make sure guards are properly installed.
- Never use hands to clear snow from chutes or moving parts. Many snow blowers now come with a special tool for this.
- Turn snow blower off before clearing snow.
- Do not wear scarves or other loose clothing while operating a snow blower.
- Be aware some snow blower surfaces can become hot enough to cause burns.
- Wear sturdy footwear with good traction. Appropriate footwear will help to prevent slip and fall injuries. Consider using shoe or boot grippers, such as ICEtrekkers. These are also referred to as ice cleats or spikes; no matter what you call them, they will reduce the risk of a slip and fall.
- Stay focused. Pay close attention to the task at hand and refrain from the use of medication, drugs or alcohol.
- Start the machine outside. Do not start your snowblower in a garage or shed. Gas-powered snowblowers produce dangerous carbon monoxide
- Think about where the snow is blowing. Never direct the discharge chute toward people, traffic, or areas where damage can occur.
- Keep children indoors. Children enjoy playing in the snow, but hold off until after you are done snow blowing.
- Pace yourself. Although snowblowers are safer and faster than shoveling, you should still take rest breaks.

OTHER SAFE-OPERATING GUIDES

Be prepared for the whole job before you start. Wear adequate clothing—warm jacket, hat, gloves, and boots—and have enough fuel in the gas tank to complete the job. Stopping to go in the house

for more clothes increases the risk of children or animals accessing the machine unsupervised. Being cold and getting snow in your eyes reduce your awareness and ability to see what's going on, and cold hands can also make it hard to hold the controls properly. And if you add more fuel in the middle of the job, while the muffler is hot, an overspill could ignite on it. If you must refuel, let the engine cool down first.

NEVER tape down the dead man's switch. All new snow blowers have a bar or lever that must be squeezed against the handlebar for the snow-removal operation to remain running. When the operator releases this lever or bar, the spinning auger (or in the case of two stage models, the spinning auger and impeller) that moves the snow shuts off. This may seem inconvenient at times, but it ensures you can't get your hands into a running machine even if you slip and lose your balance. The dead man's switch can prevent serious injury. Never disable it.

Start the snow blower outside. Any internal combustion engine can create carbon monoxide buildup when it's running in an interior space, which can kill you. If you have a two-stage model that allows you to plug it in to start the engine, make sure you have an outdoor-grade extension cord long enough to reach outside.

Clear your yard before the snow falls. Remove twigs, rocks, and of course any toys or other items from your yard so you have fewer things to worry about once they're covered with snow—and can become projectiles.

Protect your eyes and ears. Wear safety glasses to protect your eyes, and ear plugs or hearing protection to help prevent hearing damage, especially with gas-powered models. But note that you will not be able to hear kids or pets with hearing protection in place, reinforcing the need to keep children inside while snow-blowing.

Don't wear loose pants, jackets, or scarves. Loose clothing can get tangled in a snow blower's moving parts.

Use electrical cords safely. For electric models, use a three-pronged extension cord designed for outdoor use and an outlet with

ground-fault-circuit-interrupting protection. Then be sure to keep the cord safely away from the spinning auger while working.

THE CLOGGING QUAGMIRE

No season would be usual or normal without the inevitable clogging!!!

How to Keep the Snow Blower from Clogging

Stay safe this season with these snow blower safety tips:

HOW TO KEEP YOUR SNOW BLOWER FROM CLOGGING

- Work at a brisk pace. The faster the blades and pace, the less likely the snow will stick.
- If heavy, wet snow is anticipated, consider snow blowing several times during the snowfall.
- Some people spray the blades and chute with cooking oil spray. This may help.

IF YOUR SNOW BLOWER CLOGS:

- Turn it OFF!
- Disengage the clutch.
- Wait five seconds after shutting the machine off to allow the impeller blades to stop rotating.
- ALWAYS use a stick or broom handle to clear the impacted snow.
- NEVER put your hand down the chute or around the blades.
- Keep all shields in place. **Do not remove** the safety devices on the machine.
- Keep your hands and feet away from all moving parts.

FINAL WORD

Simple maintenance and safety rules on the operation of snow blowers will make sure you get through another winter without equipment breakdowns or injuries. Snow blowers were designed to make snow removal easier. If you use a snow blower it is important to recognize that this machine doesn’t make snow removal risk-

free.

Wildlife Management Safety Talk

WHAT’S AT STAKE?

As humans develop the world, the risk of conflict between wildlife and people increases. From the expansion of agricultural frontiers to habitat fragmentation by roads and buildings, to the commercialization of wildlife as food, trophies, ornaments, medicine, and pets, threats abound. Managing wildlife helps ensure they have a say in their future.

THE GOAL

Minimize threats to wildlife in the best wild places on Earth so that their populations are stable or increasing, ensure that hunting and fishing is sustainable, and that a balance is struck between the needs of wildlife and the needs of people.

WHAT’S THE DANGER?

BACKGROUND

Agricultural land covers 6.8 per cent of the surface area of Canada. In addition to producing crops, Canadian farms also support wildlife habitat, such as forests, hedgerows, wetlands and streams. There are more than 20 million hectares of pasture alone in the agricultural landscape of Canada, which is important habitat to thousands of species of birds, mammals, reptiles, plants and insects. Natural habitats on farmland not only support wildlife but also provide important ecosystem services, such as pollination, natural pest control, and drought and flood

mitigation.

BALANCE

Wildlife Management attempts to balance the needs of wildlife with the needs of people using the best available science. Wildlife management can include gamekeeping, wildlife conservation and pest control. Wildlife management draws on disciplines such as mathematics, chemistry, biology, ecology, climatology and geography to gain the best results.

Wildlife management aims to halt the loss in the Earth's biodiversity, by taking into consideration ecological principles such as carrying capacity, disturbance and succession, and environmental conditions such as physical geography, pedology and hydrology. Most wildlife biologists are concerned with the conservation and improvement of habitats; although rewilding is increasingly being undertaken. Techniques can include reforestation, pest control, nitrification and denitrification, irrigation, coppicing and hedge laying.

Gamekeeping is the management or control of wildlife for the well-being of game and may include the killing of other animals which share the same niche or predators to maintain a high population of more profitable species, such as pheasants introduced into woodland.

Pest control is the control of real or perceived pests and can be used for the benefit of wildlife, farmers, gamekeepers or human safety. In the United States, wildlife management practices are often implemented by a governmental agency to uphold a law, such as the Endangered Species Act.

Trend

Over the last several decades, agricultural intensification has diminished biodiversity on farmland because it converts land to more concentrated use, which supports far fewer species. Intensification also increases risk of agricultural pollutants flowing into watersheds, which impacts fish and aquatic invertebrates.

Farmers

Conservation of wildlife should not happen on the back of farmers. Better policies ensure incentives to farmers for maintaining wildlife habitat. We must share our knowledge about farming practices in order to reduce risks.

Game Farming

Game farming of wildlife is neither economically nor environmentally viable. It is antiethical to wildlife, our system of conservation and our living wildlife economies. Animals that have evolved in dispersed populations are especially susceptible to disease when kept in close proximity. Many of these diseases are transmissible to traditional livestock and to wild animals across fences, through flowing streams and through escaped animals. Although scientific and economic evidence indicated that game farming would have a negative impact on wildlife, would not be economically viable and would require government subsidization, the Alberta government legalized game farming in 1987 without a public review and without environmental or economic impact assessments.

Some Alberta game farm lobby groups have sought the authorization of penned “hunting” farms in order to diversify the economic opportunities available to those within the industry. The shooting of captive wildlife for a fee, as it is considered to be an unethical and unacceptable method of hunting by various hunting and fishing groups.

HOW TO PROTECT YOURSELF

WILDLIFE MANAGEMENT

How Do We Get There

Wildlife management is more about managing people. Except when wildlife populations are so small they need assistance finding food or mates, animals are perfectly capable of managing themselves. We step in only when people’s use of wild animals and

their habitat puts the long-term survival of wildlife in jeopardy.

We look to:

- Influence local, national, and international decisions about economic development and natural resource use so they benefit people but are friendly to wildlife.
- Minimize the economic costs and safety risk to rural families living in close proximity to wildlife.
- Partner with local communities and national agencies to prevent poaching and illegal fishing, ensuring that local families with legitimate rights benefit from the sustainable management of wildlife.
- Ensure that commercialization of wildlife and fish can be managed sustainably across a species' geographic range and does not place the species at risk of being lost forever.

Land Use

The Canadian agricultural landscape is a mosaic of different types of land cover, ranging from cropland to wetlands. The Census of Agriculture collects data on different types of land use, comprising the following six categories: **cropland, summer fallow, tame or seeded pasture, natural land for pasture, woodlands and wetlands, and all other land.**

WOODLANDS AND WETLANDS

Natural Land for Pasture

Wildlife habitat is any land that can be used as a shelter, breeding ground or a food source for wildlife. While most agricultural land provides at least one of these requirements, **woodlands and wetlands, and natural land for pasture** support more species and rank higher in terms of habitat value.

The **woodlands and wetlands** category includes forests, woodlots, tree windbreaks, hedgerows, ponds, rivers, marshes, bogs, riparian areas and other wetlands. These habitats are used by a variety of wildlife including birds, small and large mammals, fish, amphibians, reptiles and insects. Wetlands remain one of the most

important habitat types in the category. They support a large and diverse number of animals, and many species depend on wetlands for all of their shelter, breeding and feeding needs.

The **natural land for pasture** category represents pasture land that has not been cultivated, drained, irrigated or fertilized. It includes grasslands and woodlands used for pasture. Grasslands provide habitat to a diversity of wildlife such as small and large mammals, grassland raptors, nesting birds, songbirds and pollinating insects.

Conserving Natural Pasture, Woodlands and Wetlands

Conserving natural pasture, woodlands and wetlands in the agricultural landscape is an important step to maintaining these valuable habitats. Recent challenges faced by Canadian farmers coupled with increases in cash crop prices have made this a difficult task. Stewardship programs, such as community pastures, have played an important role in maintaining natural pasture land in Canada. For example, 468 community pastures reported over 2.4 million hectares of natural pasture on the 2011 Census of Agriculture. Overall, however, there was a 4.8% decrease in natural pasture land between 2006 and 2011.

Natural Land for Pasture

Natural land for pasture was reported on 40.3% of all farms in 2011. In general, natural land for pasture was more commonly reported by larger operations and the average area increased with farm size.

Decrease of Woodlands and Wetlands

Woodlands and wetlands reported in the Census of Agriculture also decreased between 2006 and 2011. Across Canada there was an 8.8% decline in woodlands and wetlands area on agricultural land, amounting to a decrease of approximately 0.5 million hectares.

FARMS AND FARMERS

Benefits to Farmers

Wildlife provides many benefits to farmers that are not always obvious. These “ecosystem services” include crop pollination, breakdown of organic matter to provide nutrients for crops, contaminant degradation and agricultural pest control. For example, a member of the little brown bat species can eat 600 mosquitoes in an hour, a breeding pair of ferruginous hawks can effectively control gophers, and lady beetles are important predators of numerous agricultural pests including soybean aphids.

Farms Benefit Wildlife

There are several agricultural practices that enhance wildlife habitat. Examples include rotational grazing, windbreaks, winter cover crops, buffer zones around water bodies, and tillage practices that retain most of the crop residue on the surface. These practices are mutually beneficial to both the farm and wildlife.

OTHER MANAGEMENT PRACTICES

Agricultural Dependence on Pollinators

One of the valuable ecosystem services that wildlife provides to agriculture is pollination. While some food crops grown in Canada require insect pollinators to produce a crop or to achieve maximum yields, for other crops, pollinators have little effect on crop production.

Hedgerows and Tree Windbreaks

Hedgerows, fencerows and windbreaks can provide shelter, food and breeding sites to many wildlife species. They can also serve as valuable travel corridors that allow animals to move between habitats. For farmers, the advantages of these agricultural features and the wildlife they support include pollination, reduced soil erosion and natural agricultural pest control. In 2011, windbreaks or shelterbelts were reported on 29.7% of all farms, down from 36.9% in 2006.

Tillage

Crop residue are materials, such as straw, stalks and stubble, that are left on a field or orchard after a crop has been harvested. The amount of crop residue that remains on the surface after harvesting depends on the type of tillage used to prepare the soil for the next crop.

Conventional tillage incorporates most of the crop residue into the soil, whereas conservation tillage and no-till retain most of the crop residue on the surface. Several wildlife species find refuge, feed and nest in crop residue, therefore these species benefit from no-till and properly timed conservation tillage. From the perspective of the farmer, no-till and conservation tillage can reduce soil erosion, increase soil organic matter and help retain soil moisture. One of the negative aspects of no-till seeding is that farmers will typically rely more heavily on pesticides to control weeds and insects.

The total area of agricultural land prepared for seeding has remained relatively constant over the past two decades, rising slightly from 29.0 million hectares in 1991 to 29.6 million hectares in 2011. However, the methods used to till the soil have shifted. Conventional tillage is no longer the most common method used by Canadian farmers and, in 2011, it represented under 20% of all land prepared for seeding. It has been surpassed by conservation tillage (24.6%) and no-till seeding (56.4%) as the most common methods of tillage.

Grazing

Farms use both natural and tame pasture land for livestock grazing. Both types of pasture are also used by wildlife, although natural pasture is considered more valuable as both feeding and breeding habitat. Grasslands, in particular, provide habitat for a large diversity of wildlife, including many grassland birds that benefit from well-managed livestock grazing.

For pasture land in general, wildlife habitat and the quality of livestock forage can be improved by implementing rotational grazing. Rotational grazing involves alternating use of two or more pastures at regular intervals, or temporary fences within

pastures to prevent overgrazing. This allows pastures sufficient time to recover and improves soil and plant health. In 2011, 49.4% of all farms with cattle and pasture land reported practicing rotational grazing, down from 54.4% in 2006.

Buffer zones

Buffer zones are strips of land around water bodies including streams, rivers and wetlands. They prevent sediments and contaminants from entering water bodies, provide wildlife habitat, and act as travel corridors between habitats. This, in turn, improves water quality for livestock use and protects fish stocks for recreational use. In 2011, buffer zones were reported on 20.7% of all Canadian farms, up from 19.6% in 2006.

FINAL WORD

With important wildlife habitat representing 30% of all agricultural land reported in the Census of Agriculture, and wildlife providing invaluable ecosystem services, the relationship between agriculture and wildlife might be described as co-dependent.

Slips and Trips Safety Talk

WHAT'S AT STAKE?

Slips, trips and same-level falls result from some a kind of unintended or unexpected change in the contact between the feet and the ground or walking surface. This shows that good housekeeping, quality of walking surfaces, selection of proper footwear, and appropriate pace of walking are critical for preventing accidents.

WHAT’S THE DANGER?

COMMON SLIPS, TRIPS HAZARDS

Most slips and trips are caused by:

- poor lighting.
- trailing cables.
- unsuitable floor coverings.
- uneven or damaged floor surfaces.
- contaminated floor surfaces, for example liquid or grease.
- poor housekeeping, for example tripping or falling over something left in a walk way.

Slips

Slips happen where there is too little friction or traction between the footwear and the walking surface. Common causes of slips are:

- wet or oily surfaces
- occasional spills
- weather hazards
- loose, unanchored rugs or mats
- flooring or other walking surfaces that do not have same degree of traction in all areas

Trips

Trips happen when your foot collides (strikes, hits) an object causing you to lose the balance and, eventually fall. Common causes of tripping are:

- obstructed view
- poor lighting
- clutter in your way
- wrinkled carpeting
- uncovered cables
- bottom drawers not being closed
- uneven (steps, thresholds) walking surfaces

The “Downtime” Factor

How this hazard can affect your business

- Each year there are about 17,000 lost-time injuries due to falls in the workplace
- 65% of all fall-related injuries are from “same level”
- One in five lost-time injuries result from falls
- Every year about 20 people die in Ontario because of workplace falls
- 80 workers are injured every day because of a fall – that’s one every 20 minutes
- An average WSIB claim is $11,771; factor in other costs like lost productivity and staff replacement, and the cost can be as much as four times more – approximately $59,000 per injury
- with a profit margin of 5%, sales/services required to cover the total cost of one injury equals about $1.2 million

HOW TO PROTECT YOURSELF

Slips and trips are among the most common causes of injuries in the workplace, they are also among the most easily preventable. They need not occur with such staggering frequency. But they do because many managers, supervisors and workers are not mindful or aware of where incidents are likely to happen and cause injuries.

PREVENTION – GUIDELINES

1. **Create Good Housekeeping Practices**

Good housekeeping is critical. Safety and housekeeping go hand-in-hand. If your facility’s housekeeping habits are poor, the result may be a higher incidence of employee injuries, ever-increasing insurance costs and regulatory citations. If an organization’s facilities are noticeably clean and well organized, it is a good indication that its overall safety program is effective as well.

Proper housekeeping is a routine. It is an ongoing procedure that is simply done as a part of each worker’s daily performance. To

create an effective housekeeping program, there are three simple steps to get you started

- **Plan ahead**– Know what needs to be done, who's going to do it and what the particular work area should look like when you are done.
- **Assign responsibilities–** It may be necessary to assign a specific person or group of workers to clean up, although personal responsibility for cleaning up after himself/herself is preferred.
- **Implement a program–** Establish housekeeping procedures as a part of the daily routine.

2. **Reduce Wet or Slippery Surfaces**

Walking surfaces account for a significant portion of injuries reported by state agencies. The most frequently reported types of surfaces where these injuries occur include

- Parking lots
- Sidewalks (or lack of)
- Food preparation areas
- Shower stalls in residential dorms
- Floors in general

Traction on outdoor surfaces can change considerably when weather conditions change. Those conditions can then affect indoor surfaces as moisture is tracked in by pedestrian traffic. Traction control procedures should be constantly monitored for their effectiveness.

- Keep parking lots and sidewalks clean and in good repair condition.
- When snow and ice are present, remove or treat these elements. In some extreme cases, it may be necessary to suspend use of the area.
- Use adhesive striping material or anti-skid paint whenever possible.

Indoor control measures can help reduce the incidence of slips and falls.

- Use moisture-absorbent mats with beveled edges in entrance areas. Make sure they have backing material that will not slide on the floor.
- Display “Wet Floor” signs as needed.
- Use anti-skid adhesive tape in troublesome areas.
- Clean up spills immediately. Create a procedure for taking the appropriate action when someone causes or comes across a food or drink spill.
- Use proper area rugs or mats for food preparation

3. **Avoid Creating Obstacles in Aisles and Walkways**

Injuries can also result in from trips caused by obstacles, clutter, materials and equipment in aisles, corridors, entranceways and stairwells. Proper housekeeping in work and traffic areas is still the most effective control measure in avoiding the proliferation of these types of hazards. This means having policies or procedures in place and allowing time for cleaning the area, especially where scrap material or waste is a by-product of the work operation.

- Keep all work areas, passageways, storerooms and service areas clean and orderly.
- Avoid stringing cords, cables or air hoses across hallways or in any designated aisle.
- In office areas, avoid leaving boxes, files or briefcases in the aisles.
- Encourage safe work practices such as closing file cabinet drawers after use and picking up loose items from the floor.
- Conduct periodic inspections for slip and trip hazards.

4. **Create and Maintain Proper Lighting**

Poor lighting in the workplace is associated with an increase in accidents.

- Use proper illumination in walkways, staircases, ramps, hallways, basements, construction areas and dock areas.
- Keep work areas well lit and clean.
- Upon entering a darkened room, always turn on the light first.

- Keep poorly lit walkways clear of clutter and obstructions.
- Keep areas around light switches clear and accessible.
- Repair fixtures, switches and cords immediately if they malfunction.

5. **Wear Proper Shoes**

The shoes we wear can play a big part in preventing falls. The slickness of the soles and the type of heels worn need to be evaluated to avoid slips, trips and falls. Shoelaces need to be tied correctly. Whenever a fall-related injury is investigated, the footwear needs to be evaluated to see if it contributed to the incident. Employees are expected to wear footwear appropriate for the duties of their work task.

6. **Control Individual Behavior**

This condition is the toughest to control. It is human nature to let our guard down for two seconds and be distracted by random thoughts or doing multiple activities. Being in a hurry will result in walking too fast or running which increases the chances of a slip, trip or fall. Taking shortcuts, not watching where one is going, using a cell phone, carrying materials which obstructs the vision, wearing sunglasses in low-light areas, not using designated walkways and speed are common elements in many on-the-job injuries.

It’s ultimately up to each individual to plan, stay alert and pay attention.

What Employers Can Do for Safety’s Sake

- Have a company policy in place that clearly outlines the rules for housekeeping, lighting and inspections.
- Ensure that required personal protective equipment, and other equipment, is in good repair and used properly.
- Assist supervisors in meeting their obligation to ensure the rules are followed.
- Provide proper training to workers on how to clean up spills, the proper use of fall protection equipment, the use of proper guard rails and covers over holes, etc.

- Provide continuous follow-up to make sure that the rules are adequate and are being followed, and to identify what needs improvement.
- Investigate all incidents to determine how to eliminate the cause.
- Learn how to inspect, setup and safely use ladders – on and off the job.

What Employees Can Do for Safety's Sake

- taking your time and paying attention to where you are going.
- adjusting your stride to a pace that is suitable for the walking surface and the tasks you are doing.
- walking with the feet pointed slightly outward.
- making wide turns at corners.

Reduce the risk of tripping by:

- keeping walking areas clear from clutter or obstructions.
- keeping flooring in good condition.
- always using installed light sources that provide sufficient light for your tasks.
- using a flashlight if you enter a dark room where there is no light.
- making sure that things you are carrying or pushing do not prevent you from seeing any obstructions, spills, etc.

Slips, Trips Takeaway

There are three things that workplace managers, front-line supervisors and workers should do to eliminate, reduce and avoid totally preventable "incidents" by:

- **understand how accidents happen**
- **identify the trouble area**
- **eliminate or minimize**

FINAL WORD

Slips and trips are leading causes of injuries in any workplace. Injuries such as a rolled ankle usually aren’t very serious but can take away from productivity. Sometimes, slips or trips can lead to falls. Depending on the circumstances, these falls can prove to be fatal. Preventing slips and trips involve a small amount of effort.

Preparing Grain Bins for Harvest

Download Instructor-Led Material

	
Meeting Kit	**PowerPoint**

WHAT’S AT STAKE?

With harvest approaching, it’s time to prepare grain bins and harvesting equipment to help ensure that grain going into storage will remain in good condition. Don’t wait until the middle of harvest to discover that a bin foundation is severely cracked, or find even later that insects from grain that was left in the combine last fall have severely infested a bin of new grain. Proper bin and equipment preparation is a key to preserving stored grain quality.

WHAT’S THE DANGER?

GENERAL

The key to good grain storage is to put the highest quality grain into the bin, or bring it to the proper moisture condition as quickly as possible. Overall quality of stored grain always deteriorates, it is just a matter of how fast. Having a good marketing plan and selling as much as possible before the grain heats up next spring is the best way to have quality stored grain. It is never as good as the day it is put into the bin. Storing the grain longer than next spring requires much more vigilance in management.

What are Problems / Hazards in Grain storage

- Remove all traces of old grain from combines, truck beds, grain carts, augers, and any other equipment used for harvesting, transporting, and handling grain. Even small amounts of moldy or insect-infested grain left in equipment can contaminate a bin of new grain.
- Rodents and pest problems are big issues with left owner grain residue in bins and equipment / machinery.
- Inspect bins and foundations for structural problems. Uneven settlement of foundations can cause gaps between the foundation and bottom edge of the bin. This can result in grain spills and provide entry points for water, insects, and rodents.

Ensure Bins Are Clean

Remove any old grain with brooms and vacuum cleaners. Never put new grain on top of old. Also, clean bins not being used for storage this year to keep insects from migrating to other bins.

Apply Insecticides

If you think there is any chance you might hold grain in the bin into May or later, it would be prudent to apply residual insecticides to the empty bin after thoroughly cleaning it. You may also apply certain insecticides onto the grain as it is being

augured into the bin. A surface application is often recommended to prevent Indian meal moths from infesting the top surface of the grain.

Grain Take Away

Beware of spoiled grain.

Making sure that the bins are ready to be loaded with newly harvested grain reduces the risk of spoilage.

HOW TO PROTECT YOURSELF

Why do people have to work around grain bins and other storage and enclosed facilities?

- Maintenance on the equipment.
- Cleaning the equipment.
- Dealing with grain that has gone out of condition and is stuck in the bin.

Tips – while working in and around these structures

1. Decide if the task is necessary now while there is still grain in the structure. Can the maintenance be done later when the structure is empty?
2. If the work is needed now, plan how to safely go about carrying out the tasks.
3. Let everyone on the farm know that there will be people working around the grain storage structures and that no one is to start any equipment at the site.
4. Assemble a team that will work on these tasks and assign each person their duties. Working in these structures is at minimum a two- to three-person job. At least one person needs to be outside the bin and to be able to hear the individual inside the bin. Station one individual on top of the bin who can always see the person in the bin. This individual can react quickly if something goes wrong. If a third person is on the ground, that person can call 911 and get help. They can direct emergency

personnel when they get to the location and give them a rundown of what has taken place. The person on top of the bin stays there, watching the person and communicating with the person in the bin.
5. Prior to entering the enclosure, run the aeration system and open the top of the bin for at least an hour to help remove any toxic gas levels.
6. Before entering, take a gas reading to make sure the gas levels are safe.
7. When the team is ready to go to work, tag out and lock out all grain handling equipment. This helps prevent accidental operation of this equipment while working inside.
8. The person entering the enclosure needs to be in a safety harness that is secured to the outside of the bin.

Safety Precautions on Entering A Grain Bin

If you must enter the bin, as a farm owner/operator you should:

- Break up crusted grain from the outside of the bin with a long pole. When using a pole, check to see that it doesn’t come into contact with electric lines.
- Wear a harness attached to a properly secured rope together with proper respiratory personal protective equipment.
- Stay near the outer wall of the bin and keep walking if the grain should start to flow. Get to the bin ladder or safety rope as quickly as possible.
- Have another person, preferably two people, outside the bin who can help if you become entrapped. These people should be trained in rescue procedures and should know and follow safety procedures for entering the confined space.
- Grain fines and dust may cause difficulty in breathing. Anyone working in a grain bin, especially for the purpose of cleaning the bin, should wear an appropriate dust filter or filter respirator.
- Stay out of grain bins, wagons and grain trucks when unloading equipment is running.
- If it is necessary to enter the bin, remember to shut off the power to augers and fans. It is a good idea to lock out

any unloading equipment before you enter a bin to prevent someone from unintentionally starting the equipment while you are in the bin.

- Children should not be allowed to play in or around grain bins, wagons or truck beds.
- Where possible, ladders should be installed inside grain bins to for an emergency exit. Ladders are easier to locate inside a dusty bin if there are brightly painted stripes just above or behind the ladder.

Final Protective Steps in Bin safety

Inspect the bin roof and sides, inside and out, for leaks, loose or sheared bolts, rust or other corrosion, etc. Check the roof vents and access hatch, and caulk any cracks at the roofline. Be sure the access ladder is complete and securely fastened to the bin. Repair or replace any deteriorated components.

Wiring for fans and other electrical components should be inspected for corrosion and cracked, frayed, or broken insulation. Exposed wiring should be run through waterproof, dust-tight conduit. Avoid kinking the conduit, and make sure all connections are secure.

Check fans, heaters, transitions, and ducts for corrosion and damage. Remove any accumulated dust and dirt that will reduce the operating efficiency. Be sure that all connections are tight.

FINAL WORD

Preparing grain bins for harvest should be done to maintain the quality of grain and to make sure the areas around bins are ready for the busy season ahead. It is also a good time to inspect any mechanical components and clean up around the bin. Simple maintenance and safety rules will make sure we don’t experience any difficulties in the season ahead.

Working in Extreme Heat

WHAT'S AT STAKE?

HEAT RELATED ILLNESS

Outdoor workers who are exposed to hot and humid conditions are at risk of heat-related illness. The risk of heat-related illness becomes greater as the weather gets hotter and more humid. This situation is particularly serious when hot weather arrives suddenly early in the season, before workers have had a chance to adapt to warm weather.

Heat Index

For people working outdoors in hot weather, both air temperature and humidity affect how hot they feel. The **"heat index"** is a single value that takes both temperature and humidity into account. The higher the heat index, the hotter the weather feels, since sweat does not readily evaporate and cool the skin. The heat index is a better measure than air temperature alone for estimating the risk to workers from environmental heat sources.

WHAT'S THE DANGER?

HEAT – RELATED ILLNESS

OSHA does not have a specific standard that covers working in hot environments. Nonetheless, under the OSH Act, employers have a duty to protect workers from recognized serious hazards in the workplace, including heat-related hazards. Workers performing strenuous activity, workers using heavy or non-breathable protective clothing, and workers who are new to an outdoor job need additional precautions beyond those warranted by heat index alone.

Outdoor Work

Workers new to outdoor jobs are generally most at risk for heat-related illnesses. For example, Cal/OSHA investigated 25 incidents of heat-related illness in 2005. In almost half of the cases, the worker involved was on their first day of work and in 80% of the cases the worker involved had only been on the job for four or fewer days. That's why it's important to gradually increase the workload or allow more frequent breaks to help new workers and those returning to a job after time away build up a tolerance for hot conditions. Make sure that workers understand the risks and are "acclimatized".

Outdoor workers include any workers who spend a substantial portion of the shift outdoors. Examples include construction workers, agricultural workers, baggage handlers, electrical power transmission and control workers, and landscaping and yard maintenance workers. These workers are at risk of heat-related illness when the heat index is high. **Additional risk factors are listed below. These must be taken into consideration even when the heat index is lower.**

- Work in direct sunlight – adds up to 15 degrees to the heat index.
- Perform prolonged or strenuous work
- Wear heavy protective clothing or impermeable suits

Workers at greater risk of heat stress include those who are 65 years of age or older, are overweight, have heart disease or high blood pressure, or take medications that may be affected by extreme heat.

Overview

Working when it's hot puts stress on your body's cooling system. When ignored, it can lead to heat-related illness, disability and even death.

Heat stress can get worse when combined with:

- physical work

- loss of fluids
- fatigue
- a pre-existing medical condition

Causes of Heat Stress

Factors that can cause heat stress include:

- working in direct sunlight in the summer months.
- humidity in the workplace (more than 50% relative humidity).
- working in certain workplaces such as foundries, smelters, chemical plants, bakeries and commercial kitchens.
- working in mines, especially deep mines with geothermal gradients.
- working in mines with equipment that radiates heat.

Workers who are exposed to extreme heat or work in hot environments may be at risk of heat stress. Exposure to extreme heat can result in occupational illnesses and injuries. Heat stress can result in heat stroke, heat exhaustion, heat cramps, or heat rashes. Heat can also increase the risk of injuries in workers as it may result in sweaty palms, fogged-up safety glasses, and dizziness. Burns may also occur as a result of accidental contact with hot surfaces or steam.

Workers at risk of heat stress include outdoor workers and workers in hot environments such as firefighters, bakery workers, farmers, construction workers, miners, boiler room workers, factory workers, and others.

HOW TO PROTECT YOURSELF

MANAGING HEAT STRESS/ILLNESS AT WORK

Ways to manage heat stress in the workplace

Under the *Occupational Health and Safety Act*, employers must take every reasonable precaution in the circumstances for the protection of a worker. This includes protecting your workers from heat stress in the following ways:

1. Design your workplace to reduce heat stress

If possible, start with engineering controls. For example:

- use machines (for example, hoists and lift-tables) to reduce the physical demands of work.
- control the heat at its source by using insulating and reflective barriers (for example, insulate furnace walls).
- exhaust hot air and steam produced by operations.
- use air conditioners to reduce the temperature and humidity.
- use fans if the temperature is below 35°C (if fans are used when the temperature is above 35°C they may recirculate the hot air, which can prevent cooling).
- provide:
    - cool, shaded **work** areas
    - air-conditioned **rest** areas

2. Plan ahead to reduce heat stress

Your workplace policies and procedures, schedule and training can help reduce the risk of heat stress. Administrative and work practice controls can include:

- assessing the demands of all jobs and putting a plan in place for hot days and workplaces.
- increasing the frequency and length of rest breaks.
- scheduling strenuous jobs to cooler times of the day such as in the early morning, late afternoon or night.
- providing cool drinking water near workers.
- reminding workers to drink a cup of water at least every 15 to 20 minutes to stay hydrated.
- cautioning workers to avoid direct sunlight.
- assigning more workers or slowing down the pace of work.
- making sure workers have time to acclimatize to a modified intensity of work.
- training workers to recognize the signs and symptoms of heat stress.
- starting a “buddy system” because people are not likely to notice their own symptoms.
- investigating any heat-related incidents reported by

workers.
- making sure workers trained in First Aid are available and on-site
- creating an emergency response plan to respond to heat-related illnesses.
- advising workers who are pregnant or have a medical condition to consult their physician about working in the heat and make appropriate accommodations.

3. Help workers adjust to hot environments

The more time a worker has to acclimatize to a hot environment, the better their body handles the heat.

If workers have health problems or are not in good physical shape, they may need more time to adjust to hot environments.

For workers **with no experience** in hot conditions, there are two ways to help them tolerate the heat:

1. gradually increase the activity level over one to two weeks
2. gradually increase the amount of time spent in hot working conditions

For workers **with experience** in hot conditions, but who may have been ill or away from work for 9 or more days, the worker will need to gradually readjust to the heat.

4. Encourage workers to wear suitable protective clothing

Workers should:

- wear light and breathable summer clothing (if applicable).
- cover their head to prevent exposure to direct sunlight.
- wear reflective clothing in a high radiant-heat situation.
- consider air, water or ice-cooled insulated clothing for very hot environments.
- avoid clothing that isn’t breathable, such as chemical protective clothing. If the workers must wear it, they should pay close attention to symptoms that suggest they may be ill due to heat

FINAL TAKEAWAYS FOR WORKING IN EXTREME HEAT

Here are **Six** things to keep in mind as you prepare for a hot summer:

1. **“Water. Rest. Shade.”** Ideally, workers should drink about 1 cup of water every 15-20 minutes but they may need sports beverages containing balanced electrolytes if they are sweating for several hours at a time. Employers should make sure workers can access shaded or air-conditioned rest areas for cooling down as needed.
2. **New and temporary workers are most at risk**. The body needs time to build a tolerance to heat, which is why more than 70% of outdoor heat fatalities occur during a worker’s first week of working in warm or hot environments. The process of building tolerance is called “heat acclimatization.” Learn how to create a heat illness prevention plan and be sure to supervise new employees until they are fully acclimatized.
3. **Indoor workers also can suffer from heat illness.** Kitchens, laundries, warehouses, foundries, boiler rooms and many other work environments can become dangerously hot.
4. **Use engineering controls or modify work practices to protect employees.** For example, try increasing ventilation, using cooling fans, scheduling work at a cooler time of the day, and rotating job functions among workers to minimize heat exposure.
5. **Familiarize everyone at your workplace with the signs and symptoms of heat illness and make sure everyone knows what to do in an emergency.**
    - Common heat exhaustion signs are dizziness, headaches, cramps, sweaty skin, nausea and vomiting, weakness and a fast heartbeat. Heatstroke symptoms may include red, hot, dry skin; convulsions; fainting; very high temperature and confusion.
    - Pair workers with a buddy to observe each other for early signs and symptoms of heat intolerance.
    - Employees should call a supervisor for help if they believe someone is ill – and 911 if a supervisor is not available, or if someone shows signs of

heatstroke.

6. **Download the OSHA-NIOSH Heat Safety App on your iPhone or Android device** to help calculate the heat index at your worksite. The app provides specific recommendations for planning work activities and preventing heat illness based on the estimated risk level where you are working.

FINAL WORD

A healthy human body temperature is 37°C. A change of body temperature exceeding 1°C can be an indication of illness or environmental conditions beyond the body's ability to cope. Working in very hot temperatures can be dangerous to your health, causing heat stroke, heat exhaustion or fainting.

Risk Assessment Safety Talk

Download Instructor-Led Material

	
Meeting Kit	**PowerPoint**

WHAT'S AT STAKE?

Risk assessment is a process that identifies possible hazards to people, product and property—and what to do about it. There are four main areas where hazards exist:

- **People:** improper training, poor supervision, not paying attention, not working safely, etc.
- **Equipment:** poorly maintained, no guards, using the wrong equipment for the task.
- **Materials:** flammable or dangerous substances, handling hazards, special storage, etc.
- **Environment:** wet floor, poor lighting, loud noise, inclement weather, etc.

For every task that you do a risk assessment on, think about how it is usually done and how a hazard may be caused by people, the equipment, materials and the environment.

WHAT'S THE DANGER?

RATIONALE

A business impact analysis or risk assessment!!! Take your pick. Either mean substantially the same. Both determine the potential impacts resulting from the interruption of time sensitive or business processes. In other words, identify hazards and analyze what could happen if a hazard occurs.

ASSETS AT RISK FROM HAZARDS

First and foremost, injuries to people should be the first consideration of the risk assessment. Hazard scenarios that could cause significant injuries should be highlighted to ensure that appropriate emergency plans are in place. Many other physical assets may be at risk. **These include buildings, information technology, utility systems, machinery, raw materials and finished goods**. The potential for environmental impact should also be considered. Consider the impact an incident could have on your relationships with customers, the surrounding community and other stakeholders. Consider situations that would cause customers to lose confidence in your organization and its products or services.

VULNERABILITIES OF ASSETS

In conducting a risk assessment, canvas for

vulnerabilities/weaknesses that would make an asset more susceptible to damage from a hazard. **Vulnerabilities include deficiencies in building construction, process systems, security, protection systems and loss prevention programs**. They contribute to the severity of damage when an incident occurs. For example, a building without a fire sprinkler system could burn to the ground while a building with a properly designed, installed and maintained fire sprinkler system would suffer limited fire damage.

MITIGATION

This process reduces the impacts from the hazards.

Once you have established the priorities, the organization can decide on ways to control each specific hazard. Hazard control methods are often grouped into the following categories:

- Elimination (including substitution).
- Engineering controls.
- Administrative controls.
- Personal protective equipment.

HAZARDS

Natural Hazards

- **Meteorological**-Flooding, Dam/Levee Failure, Severe Thunderstorm (Wind, Rain, Lightning, Hail), Tornado, Windstorm, Hurricanes and Tropical Storms, Winter Storm (Snow/Ice)
- **Geological**-Earthquake, Tsunami, Landslide, Subsidence/Sinkhole, Volcano
- **Biological**-Pandemic Disease, Foodborne Illnesses

Human-Caused Hazards

- **Accidents**-Workplace Accidents, Entrapment/Rescue (Machinery, Water, Confined Space, High Angle), Transportation Accidents (Motor Vehicle, Rail, Water, Air, Pipeline), Structural Failure/Collapse, Mechanical Breakdown
- **Intentional Acts**– Labor Strike, Demonstrations, Civil

Disturbance (Riot), Bomb Threat, Lost/Separated Person, Child Abduction, Kidnapping/Extortion, Hostage Incident, Workplace Violence, Robbery , Sniper Incident, Terrorism (Chemical, Biological, Radiological, Nuclear, Explosives), Arson, Cyber/Information Technology (Malware Attack, Hacking, Fraud, Denial of Service, etc.)

Technological Hazards

- **Information Technology**– Loss of Connectivity, Hardware Failure, Lost/Corrupted Data, Application Failure
- **Utility Outage**– Communications, Electrical Power, Water, Gas, Steam, Heating/Ventilation/Air Conditioning, Pollution Control System, Sewage System
- **Fire/Explosion**– Fire (Structure, Wildland), Explosion (Chemical, Gas, or Process failure)
- **Hazardous Materials**-Hazardous Material spill/release, Radiological Accident, Hazmat Incident off-site, Transportation Accidents, Nuclear Power Plant Incident, Natural Gas Leak Supply
- **Chain Interruption**– Supplier Failure, Transportation Interruption

HOW TO PROTECT YOURSELF

DEFINITIONS/TERMINOLOGY

Risk is the likelihood and severity of a harmful incident.

Hazard is a source or circumstance that can cause a severe accident.

Safety refers to a condition where prohibited risks are at an acceptable level.

Risk assessment is a process in which one evaluates the risk to the worker’s health and safety as a result of a dangerous situation at the workplace.

Risk analysis is part of the risk assessment. In the risk analysis

the marginal values for the object is stipulated, the risks are identified and the extent of the risk is evaluated.

Risk management

Risk management is an overall view to approach hazards and measures to reduce and eliminate injuries. Before an effective risk assessment is possible the hazards needs to be identified and estimated. The estimation of the likelihood and severity of harm as well as choosing and accomplishing sufficient safety measures are also part of the risk management process.

QUESTIONS

Fundamental questions must be posed to understand risk assessment.

When Should a Risk Assessment be Conducted?

- Before new processes or activities are introduced.
- Before changes are introduced to existing processes or activities, including when products, machinery, tools, equipment change or new information concerning harm becomes available.
- When hazards are identified.

How to Plan for Risk Assessment

- What the scope of your risk assessment will be (e.g., be specific about what you are assessing such as the lifetime of the product, the physical area where the work activity takes place, or the types of hazards).
- The resources needed (e.g., train a team of individuals to carry out the assessment, the types of information sources, etc.).
- What type of risk analysis measures will be used (e.g., how exact the scale or parameters need to be in order to provide the most relevant evaluation).
- Who are the stakeholders involved (e.g., manager, supervisors, workers, worker representatives, suppliers, etc.).
- What relevant laws, regulations, codes, or standards may

apply in your jurisdiction, as well as organizational policies and procedures.

How to Conduct A Risk Assessment

The five steps to risk assessment

Step 1: Identify hazards, i.e. anything that may cause harm.

Employers have a duty to assess the health and safety risks faced by their workers. Your employer must systematically check for possible physical, mental, chemical and biological hazards.

This is one common classification of hazards:

- Physical: e.g. lifting, awkward postures, slips and trips, noise, dust, machinery, computer equipment, etc.
- Mental: e.g. excess workload, long hours, working with high-need clients, bullying, etc. These are also called 'psychosocial' hazards, affecting mental health and occurring within working relationships.
- Chemical: e.g. asbestos, cleaning fluids, aerosols, etc.
- Biological: including tuberculosis, hepatitis and other infectious diseases faced by healthcare workers, home care staff and other healthcare professionals.

Step 2: Decide who may be harmed, and how.

Identifying who is at risk starts with your organization's own full- and part-time employees. Employers must also assess risks faced by agency and contract staff, visitors, clients and other members of the public on their premises.

Employers must review work routines in all the different locations and situations where their staff are employed. For example:

- Home care supervisors must take due account of their client's personal safety in the home, and ensure safe working and lifting arrangements for their own home care staff.
- In a supermarket, hazards are found in the repetitive tasks at the checkout, in lifting loads, and in slips and trips

from spillages and obstacles in the shop and storerooms. Staff face the risk of violence from customers and intruders, especially in the evenings.
- In call centres, workstation equipment (i.e. desk, screen, keyboard and chair) must be adjusted to suit each employee.

Employers have special duties towards the health and safety of young workers, disabled employees, night workers, shift workers, and pregnant or breastfeeding women.

Step 3: Assess the risks and take action.

This means employers must consider how likely it is that each hazard could cause harm. This will determine whether or not your employer should reduce the level of risk. Even after all precautions have been taken, some risk usually remains. Employers must decide for each remaining hazard whether the risk remains high, medium or low.

Step 4: Make a record of the findings.

Employers with five or more staff are required to record in writing the main findings of the risk assessment. This record should include details of any hazards noted in the risk assessment, and action taken to reduce or eliminate risk.

This record provides proof that the assessment was carried out, and is used as the basis for a later review of working practices. The risk assessment is a working document. You should be able to read it. It should not be locked away in a cupboard.

Step 5: Review the risk assessment.

A risk assessment must be kept under review in order to:

- ensure that agreed safe working practices continue to be applied (e.g. that management’s safety instructions are respected by supervisors and line managers); and
- take account of any new working practices, new machinery or more demanding work targets.

FINAL WORD

For every task or job you undertake to do risk assessment, think how it is usually done and how a hazard maybe caused by people, the equipment, materials, and the environment.

Use of Personal Protective Equipment (PPE)

WHAT'S AT STAKE?

Hazards exist in every workplace. Controlling a hazard at its source should be the first choice of protection because this method will eliminate it from the workplace altogether. When elimination is not possible, try substitution of the material with non-hazardous ones, isolation of hazards, addition of safety features to existing equipment, redesign of the work processes, or purchase new equipment. When the hazard cannot be removed or controlled adequately, personal protective equipment is the last line of defense if the work process is to continue.

WHAT'S THE DANGER?

HAZARD RESIDUE

Even where engineering controls and safe systems of work have been applied, some **hazards** might remain. These include injuries to:

- The lungs, ie. from breathing in contaminated air.
- The head and feet, ie. from falling materials.
- The eyes, ie. from flying particles or splashes of corrosive liquids.

- The skin, ie. from contact with corrosive materials.
- The body, ie. from extremes of heat or cold.

What to do?

- Only use PPE as a last resort.
- If PPE is still needed after implementing other controls (and there will be circumstances when it is, eg head protection on most construction sites), you must provide this for your employees free of charge.
- You must choose the equipment carefully and ensure employees are trained to use it properly, and know how to detect and report any faults.

Ask These Questions:

- Who is exposed and to what?
- How long are they exposed for?
- How much are they exposed to?

When selecting and using PPE:

- Choose products which are CE marked in accordance with the Personal Protective Equipment (Enforcement) Regulations 2018.
- Choose equipment that suits the user – consider the size, fit and weight of the PPE. If the users help choose it, they will be more likely to use it.
- If more than one item of PPE is worn at the same time, make sure they can be used together, ie. wearing safety glasses may disturb the seal of a respirator, causing air leaks.
- Instruct and train people how to use it, eg train people to remove gloves without contaminating their skin. Tell them why it is needed, when to use it and what its limitations are.

Dangers of employee refusal to wear PPE

An employee’s refusal to wear PPE may be cause for discipline, particularly if the refusal creates a risk of infection for other employees at the workplace. However, each case should be

considered on its own facts and with a view to the individual employee's situation.

What if an employee would like to provide their own PPE?

If an employee wishes to provide their own PPE, employers must ensure that the employee can adhere to PPE protocols, including measures for donning, doffing, and disposing of PPE. Some issues that may arise are:

- Can the employer ensure the self-provided PPE is being properly cleaned or disposed of?
- Is the self-provided PPE fit for its purpose?
- Are there any hazards associated with the re-use of self-provided PPE?

HOW TO PROTECT YOURSELF

LAST LINE OF DEFENSE

PPE does not remove or reduce workplace hazards and does not replace effective engineering or administrative control methods such as substitution or ventilation. PPE is the last line of defense when the hazard cannot be removed or controlled adequately. Proper selection, use and care of the equipment are vital to provide the proper level of protection.

Employer's obligation to provide PPE

Businesses resuming operations may have an obligation to provide PPE as part of their workplace occupational health and safety ("**OHS**") obligations, depending on the nature of the business and the services provided. PPE is more likely to be required in situations where it is not possible to maintain two-metre distancing.

Selecting, Using, and Maintaining PPE

Employers are responsible for selecting, providing and fitting of

appropriate PPE for the hazardous exposures in the workplace. Consult the Material Safety Data Sheet (MSDS) for advice. Consider how the materials will be used, the quantity used, and the types and duration of exposure. Ensure that there will be an adequate margin of protection in case of a spill or other emergency.

Ensure that the PPE provides a good fit. The PPE should not impair dexterity or flexibility or create safety issues such as entrapment.

Proper maintenance is essential. Follow the PPE manufacturer's recommended procedures for cleaning and storage.

Training

Employers must ensure that employees are trained to properly use, maintain and store PPE. Employees also must:

- **Have training with "hands on"** instruction in the fit, use and maintenance of assigned PPE.
- **Understand** the limitations of the PPE and know what to do in the event of exposure or device failure (e.g. how to use emergency showers, eyewash stations, and first aid).
- **Understand** when to discard/replace PPE (e.g. end of shift, every hour).
- **Report** any missing or defective devices to the supervisor.

Skin Protection

Many kinds of protective gloves and clothing are available, including aprons, full body suits and boots. Gloves and clothing may be manufactured from many different materials such as latex, rubber, Viton™ and Tychem®TK. No one material can protect from all chemical hazards. Contact the product manufacturer or supplier or a PPE supplier to find out which specific protective materials are best for the chemicals with which you are working.

Also consider issues such as temperature conditions or the need to protect against punctures, tears and abrasion.

SPECIFIC PPE PROTECTION

Eyes

Safety spectacles, goggles, face screens, face shields, visors.

Make sure the eye protection chosen has the right combination of impact / dust / splash / molten metal eye protection for the task and fits the user properly.

Head and neck

Impact from falling or flying objects, risk of head bumping, hair getting tangled in machinery, chemical drips or splash, climate or temperature.

Industrial safety helmets, bump caps, hairnets and firefighters' helmets

- Some safety helmets incorporate or can be fitted with specially-designed eye or hearing protection.
- Don't forget neck protection, eg scarves for use during welding.
- Replace head protection if it is damaged.

Ears

Noise – a combination of sound level and duration of exposure, very high-level sounds are a hazard even with short duration.

Earplugs, earmuffs, semi-insert/canal caps

- Provide the right hearing protectors for the type of work, and make sure workers know how to fit them.
- Choose protectors that reduce noise to an acceptable level, while allowing for safety and communication.

Hands and arms

Abrasion, temperature extremes, cuts and punctures, impact, chemicals, electric shock, radiation, biological agents and prolonged immersion in water.

Options

Gloves, gloves with a cuff, gauntlets and sleeving that covers part or all of the arm.

- Avoid gloves when operating machines such as bench drills where the gloves might get caught.
- Some materials are quickly penetrated by chemicals – take care in selection, see HSE's skin at work website.
- Barrier creams are unreliable and are no substitute for proper PPE.
- Wearing gloves for long periods can make the skin hot and sweaty, leading to skin problems. Using separate cotton inner gloves can help prevent this.

Feet and legs

· Hazards

Wet, hot and cold conditions, electrostatic build-up, slipping, cuts and punctures, falling objects, heavy loads, metal and chemical splash, vehicles.

· Options

Safety boots and shoes with protective toecaps and penetration-resistant, mid-sole wellington boots and specific footwear, eg foundry boots and chainsaw boots.

- Footwear can have a variety of sole patterns and materials to help prevent slips in different conditions, including oil – or chemical-resistant soles. It can also be anti-static, electrically conductive or thermally insulating.
- Appropriate footwear should be selected for the risks identified.

Respiratory protective equipment (RPE)

- Some respirators rely on filtering contaminants from workplace air. These include simple filtering facepieces and respirators and power-assisted
- Make sure it fits properly, eg for tight-fitting respirators

(filtering facepieces, half and full masks).

- There are also types of breathing apparatus which give an independent supply of breathable air, eg fresh-air hose, compressed airline and self-contained breathing apparatus.
- The right type of respirator filter must be used as each is effective for only a limited range of substances.
- Filters have only a limited life. Where there is a shortage of oxygen or any danger of losing consciousness due to exposure to high levels of harmful fumes, only use breathing apparatus – never use a filtering cartridge.
- You will need to use breathing apparatus in a confined space or if there is a chance of an oxygen deficiency in the work area.
- If you are using respiratory protective equipment, look at HSE's publication.

Whole body

Hazards

Heat, chemical or metal splash, spray from pressure leaks or spray guns, contaminated dust, impact or penetration, excessive wear or entanglement of own clothing

Options

Conventional or disposable overalls, boiler suits, aprons, chemical suits

- The choice of materials includes flame-retardant, anti-static, chain mail, chemically impermeable, and high-visibility.
- Don't forget other protection, like safety harnesses or life jackets.

CRUCIAL DONNING/DOFFING PROCEDURES

More than one **donning method** may be acceptable. Training and practice using your healthcare facility's procedure is critical. Below is one example of donning.

- **Identify and gather the proper PPE to don.** Ensure choice of

gown size is correct.

- **Perform hand hygiene using hand sanitizer.**
- **Put on isolation gown.** Tie all of the ties on the gown. Assistance may be needed by other healthcare personnel.
- **Put on NIOSH-approved N95 filtering facepiece respirator or higher (use a facemask if a respirator is not available).**If the respirator has a nosepiece, it should be fitted to the nose with both hands, not bent or tented. Do not pinch the nosepiece with one hand. Respirator/facemask should be extended under chin. Both your mouth and nose should be protected. Do not wear respirator/facemask under your chin or store in scrubs pocket between patients.
- **Respirator:** Respirator straps should be placed on crown of head (top strap) and base of neck (bottom strap). Perform a user seal check each time you put on the respirator.
- **Facemask:** Mask ties should be secured on crown of head (top tie) and base of neck (bottom tie). If mask has loops, hook them appropriately around your ears.
- **Put on face shield or goggles.** When wearing an N95 respirator or half facepiece elastomeric respirator, select the proper eye protection to ensure that the respirator does not interfere with the correct positioning of the eye protection, and the eye protection does not affect the fit or seal of the respirator. Face shields provide full face coverage. Goggles also provide excellent protection for eyes, but fogging is common.
- **Put on gloves.** Gloves should cover the cuff (wrist) of gown.
- **Healthcare personnel may now enter patient room.**

Take It Off (Doff) PPE Gear

More than one doffing method may be acceptable. Training and practice using your healthcare facility’s procedure is critical. One example of doffing.

- **Remove gloves.** Ensure glove removal does not cause additional contamination of hands. Gloves can be removed using more than one technique (e.g., glove-in-glove or bird beak).

- **Remove gown.** Untie all ties (or unsnap all buttons). Some gown ties can be broken rather than untied. Do so in gentle manner, avoiding a forceful movement. Reach up to the shoulders and carefully pull gown down and away from the body. Rolling the gown down is an acceptable approach. Dispose in trash receptacle.
- **Healthcare personnel may now exit patient room.**
- **Perform hand hygiene.**
- **Remove face shield or goggles.** Carefully remove face shield or goggles by grabbing the strap and pulling upwards and away from head. Do not touch the front of face shield or goggles.
- **Remove and discard respirator (or facemask if used instead of respirator).**Do not touch the front of the respirator or facemask.
- **Respirator:** Remove the bottom strap by touching only the strap and bring it carefully over the head. Grasp the top strap and bring it carefully over the head, and then pull the respirator away from the face without touching the front of the respirator.
- **Facemask:** Carefully untie (or unhook from the ears) and pull away from face without touching the front.
- **Perform hand hygiene after removing the respirator/facemask and before putting it on again if your workplace is practicing reuse.**

FINAL WORD

Personal protective equipment (PPE) is equipment or clothing worn to minimize exposure to hazards in the workplace. PPE does not remove or reduce workplace hazards, it only reduces the risk of exposure to the hazard. And most importantly, PPE only works if you use it!

Playing Safe on the Farm

Download Instructor-Led Material

	
Meeting Kit	**PowerPoint**

WHAT'S AT STAKE?

Children who live on farms are at greater risk of injury and death than their parents or other farm workers.

Young children in particular need a safe play area of their own where there are no major hazards, so fencing part of the yard close to the house for your child's use is important. Older children can be taught about farm safety, but still need to be supervised at all times. Most importantly, children learn by imitation. If you practice and value farm safety, so will your child.

WHAT'S THE DANGER?

GENERAL

Children under-15 age group is one of the most vulnerable to work-related farm accidents. Children visiting farms account for 25 per cent of all child deaths on farms.

Common hazards include drowning in dams, tanks and creeks, injury from guns or chemicals, accidents with tractors, quad bikes,

motorbikes, machinery, animals and falls from heights. The main risk factors are inexperience with equipment or animals, and attempting to perform a task that is beyond their abilities, farm chores and open bodies of water.

Children can get hurt because they don’t sense danger or know how to stay away from hazards. As children grow and develop, they get stronger and learn to think things through better. Your child should not do any activity that he or she is not physically and developmentally ready for, even if raised on a farm.

Key Points

- Children are not small adults and perceive things differently to adults.
- Children have less strength, co-ordination and understanding of situations than adults.
- Children want to explore, try new things, and push boundaries.
- It’s fun to play on a farm, but farms are not playgrounds.

THE MAIN RISKS FOR CHILDREN

- **Animals** can be unpredictable, especially if startled or protecting their young.
- Children lack the judgement to deal with animals safely and don’t have the size, speed and dexterity to get out of the way safely. Children can also get animal diseases like leptospirosis, ringworm and campylobacter.
- Children lack the judgement, body weight and strength to handle full-sized farm vehicles like **quad bikes**.
- Younger children need to understand that they can be injured when playing on or near **tractors**. Older children are likely to be injured as passengers or while carrying out farm tasks.
- Have a map of all the **water** hazards on the property – rivers, creeks, troughs, dips, tanks, dams and ponds. Water can also burn, especially in the dairy shed where hot water is used at scalding temperatures.
- All farm **machinery** has the potential to harm – even guards

could have holes small enough for children’s hands to get through.
- It is the adult’s responsibility to make sure dangerous **agri-chemicals** are stored safely and out of reach of children.

STATISTICS

Children and adolescents account for about 20 percent of all farm fatalities, comprising a higher proportion of the total number of nonfatal farm injuries (National Committee for Childhood Injury Prevention, 1996). It is estimated that 27,000 children under the age of 20 who live on farms and ranches are seriously injured each year. When children who visit or work on non-family farms are included, the total annual injury toll is estimated to be 100,000. (About 800,000 children live in the households of hired farm workers and may work on farms with parents.) In Pennsylvania, 210 farm-related fatalities occurred between 1990 and 1994. Approximately 50 percent of these fatalities were classified as occupational fatalities, mainly due to farm production work. The other deaths were not occupational (i.e., not directly caused by farm production work). Instead, these fatalities were due to the farm “lifestyle” (i.e., leisure-related drownings, deaths of children who were playing in barns, etc.) or related to agricultural services, forestry, fishing, hunting, or trapping.

HOW TO PROTECT YOURSELF

FARM EMERGENCY PLAN

The most important feature of child safety on the farm is in the **Plan**

Suggestions include:

- Ensure easy access to a suitable and well-stocked first aid kit.
- Make sure at least one person on the farm is trained in first aid.
- Keep emergency numbers and correct addresses next to the

telephone.
- Plan routes to the nearest hospital with an emergency department.
- Regularly talk through your emergency plan with your family and other workers.
- Make sure your children understand what to do in an emergency.

Farm Risk Assessment-Children

It is recommended that you walk through your farm and assess every area according to the age and ability of your child. Try to see things from your child's point of view. What may seem like a dull workspace to you might seem to your child like an ideal spot for play.

Educate your children about what the hazards are and find ways to child-proof these potentially dangerous areas, using fences and locks and removing keys to machinery and vehicles.

GENERAL FARM SAFETY SUGGESTIONS FOR CHILDREN

It is impossible to make your farm completely safe, but you can minimize the risks. General safety suggestions include:

- Fence off a safe play area close to the house.
- Fence off all water sources such as dams, ponds, septic tanks, sheep dips, pools and creeks.
- Make sure that hazardous areas are locked and inaccessible.
- Lock up chemicals and guns.
- Ensure electrical equipment and other dangerous materials are out of reach of children.
- Don't let your child ride on farm machinery, such as tractors and quad bikes.
- Ensure your child doesn't have access to any ladders and doesn't climb to heights (such as on hay stacks).
- Teach children about both the positive and dangerous aspects of livestock and farm animals.

FARM RULES FOR OLDER CHILDREN

Older children can help around the farm, but they still need to be supervised. Suggestions to encourage responsibility and caution in children include:

- Teach safety rules that apply to the different areas of the farm.
- Make sure your child understands that certain areas are out-of-bounds for them – for example silos, grain loading areas, farm machinery and animal pens.
- Be consistent, and if your child breaks the rules, firmly re-explain the hazards and consequences.

FARM SAFETY – LEAD BY EXAMPLE

- Children learn by imitation. A child is more likely to be safety conscious if you are. Make sure your child sees you performing tasks safely. Explain the potential for danger and how injury can be avoided. Lead by example:
- Don’t let your child, or any other person, ride on farm machinery that isn’t designed for passengers.
- Limit the use of motorbikes and quad bikes. Make sure your child has appropriate training if using these, and do not allow untrained visitors to use this equipment.
- Always use safety equipment, such as helmets, goggles and gloves, where necessary.
- Walk around operating machinery instead of stepping over it.
- Fit roll-over protection (ROPS) to your tractor.
- Switch off equipment before altering the settings.
- Refer to warning labels and follow directions.
- Let others know where you are going, what you’ll be doing and when you expect to return.
- Talk frequently to your child about the safety rules of the farm.
- Remove the keys from all farm vehicles when not in

CHORES ON THE FARM

Have your child do chores and activities that are appropriate for his or her age and stage of development. To prevent injury on a farm, make sure your child:

- is supervised
- is always in a safe place
- has the right training
- always wears the right safety gear
- does not operate farm machinery (e.g., tractors, ATVs) until 16 years old

If you show your child how to do a job, it is easier to learn. A responsible adult (who knows how to do the job) must always supervise until a child can do the job safely. You can reduce your supervision over time once a child can consistently do the task safely.

Before you ask your child to do chores on the farm, think about how old he or she is. North American Guidelines for Children's Agricultural Tasks (NAGCAT) has suggestions for the right chores for children (7 to 16). Remember, all children are different.

To prevent injuries, think about your child's size, strength, and endurance. Your child must not carry more than 10 to 15 percent of his or her body weight. Don't let your child do anything with repetitive reaching up. Never let your child work until he or she is exhausted. Before deciding on your child's chores, think about your child and these factors:

- attention span
- balance
- comfort with heights
- comfort with animals
- speed and reaction time
- side (peripheral) vision
- can use equipment
- allergies (e.g., insects)
- can be responsible
- can work independently
- hand/eye coordination
- takes risks (is impulsive)
- remembers details well
- is coordinated (can use both feet and both hands at the same time)

- knows about hazards and what to do
- Even a coordinated child or teen can be clumsy while having a growth

Conduct Effective Safety Audits

Another important way to promote safety with children is to conduct periodic safety audits of your farm and home. By targeting and correcting hazards, parents take a major step toward protecting their children from unnecessary tragedy. Farm safety inspection checklists and related information that can be used by parents and farm families for auditing purposes are available from county extension offices.

Children should be involved in the audit to increase their safety awareness and knowledge of injury prevention.

Think about past “close calls” or potential future situations that might cause injuries. Determine the factors that were or could be responsible for a near-miss and attempt to explain those factors to children who are mature enough to understand.

Practice good housekeeping. Be sure to safely store items that cause injuries, including tools, equipment, power cords, fence wire, and baler cord. Heavy objects such as tractor tires should not be propped against walls or fences because they could fall over and crush a child or adult. Always place the bottom rungs of fixed ladders out of reach of children or fit the ladders with barriers. Store portable ladders away from dangerous areas.

Don’t create new hazards when storing items. Haphazardly stacked lumber or poorly stacked cut logs can topple and kill a small child.

Pesticides and other toxic materials like dairy pipeline cleaner should be kept in a locked storage area. Also secure treated seed and fertilizer.

Place appropriate warning decals on tractors, machines, grain bins, silos, wagons, and any other potentially hazardous item. Explain the significance of these warning symbols to children.

Maintain safety zones around buildings and structures. Some structures are extremely dangerous places for children. Special fencing and barriers need to be placed around or over these structures so that children cannot enter them. **Dangerous areas** include:

Silos: These are particularly dangerous because of gases and running machinery during the filling and unloading of silage and grains.

Grain bins: The grain inside can turn into “quicksand,” especially during bottom unloading. Many children have drowned in bins being unloaded.

Farm ponds and manure pits: These are potential drowning sites with gasses and low oxygen hazards. Always make sure that ponds and pits are inaccessible to children!

Barn hay-drop openings: Fractured skulls and deaths have been caused by falls through a hay-drop opening during play.

Children should be able to reach feed and water containers from outside an animal’s pen or corral. Regularly make time for family safety briefings that include instructions for handling and reporting emergencies.

SIX SAFETY SUBJECTS

1. Safe Play

Make sure your child has a safe area to play in with protected boundaries (e.g., fence). Put up barriers to keep your child away from hazards (e.g., swamps, dugouts, septic tanks, wells, lakes, grain bins, sand pits). Make sure there is good air flow in root cellars to avoid suffocation hazards. Mark electric fences with a flag or sign and teach your child to stay away from these areas. Make sure your child doesn’t play on or near farm machinery.

2. Farm Equipment

Keep farm equipment safe and stored in a locked shed. When not in use, make sure machinery always has the parking brake on and take

the keys out of the ignition. When operating farm machinery, wear snug-fitting clothing, tie back long hair, and don't wear a scarf. Don't drink alcohol or use drugs when operating machinery. Keep your child out of grain wagons and grain storage areas. **Don't** carry passengers on farm equipment (even the back of a pick-up truck).

3. Firearms

The Canadian Pediatric Society states that firearms should not be kept in homes or environments where children and adolescents live or play. If you do keep firearms in your home, keep them in a locked storage case. Make sure they are not loaded and safety clips are on. Lock ammunition in a different storage case, away from firearms. Teach your child the dangers of firearms. **Don't** let your child handle firearms unless he or she is trained by a certified instructor.

4. Equestrian Safety

Have a regular routine to check and maintain horse riding equipment. When working with or riding a horse, make sure your child wears an approved equestrian helmet. While riding, make sure your child is **supervised** by an experienced rider.

5. Animal Safety

Stay with and supervise your child when he or she enters an animal pen.

Teach your child to treat livestock with respect and not to startle animals.

6. Fire Safety

If you burn anything in a rural area, use a fire-safe container with a grate on top. **Only** responsible adults should oversee a burning fire.

When refueling machinery outside, do it away from open flames or lit smoking materials (e.g., cigarette).

KEEP THE WORKPLACE SAFE

On the farm, make sure the:

- machinery works well
- machinery and farm vehicles have safety features (e.g., guards and shields, rollover bars, seat belts)
- tools are the right size for the child doing the job (e.g., ladders, cutting tools, brooms)
- hot water tank is set at 49 °C or 120 °F or lower
- You can also prevent injuries on the farm by making sure you have:
- nonslip surfaces
- good indoor air flow
- places to wash hands
- no electrical hazards
- a safe, secure climbing structure
- barriers between animals and your child
- Your child needs to wear safety gear including a fitted respirator, work boots, eye protection, ear protection, gloves, snug-fitting clothes (e.g., pants, long-sleeved shirts), a tie for long hair, a helmet, and sunscreen.

When working on the farm, your child must have a way to call for help (e.g., cell phone) if needed. You must also have an emergency plan with a planned escape route.

When your child works, make sure he or she takes breaks and drinks lots of fluids.

FINAL TIPS FOR CHILD SAFETY ON THE FARM

- Walk around the farm with children and identify hazards together.
- Adult supervision is vital – for young children it must be close and active.
- Lead by example, for example always wear an approved helmet on a quad bike.
- Think about having safety fences around play areas, animal pens, work areas and water spots.

- Keep doors shut or locked so children can’t get in where they shouldn’t.
- Use safety guards on all machinery.
- Store dangerous agri-chemicals safely out of children’s reach.
- Remove keys from doors and vehicles. Never leave vehicles unattended with the motor running.
- Make sure it is safe to reverse farm vehicles. Walk around the vehicle and check that children are a safe distance away before starting the engine.
- Children should not ride on tractors, quad bikes or on the back of utes.
- Road safety on private and public roads is vital. Have children in car seats and seat belts when in cars, utes and trucks.
- Make sure children wear high-visibility clothing when out and about on farm.
- Teach children to wash and dry their hands after touching animals.
- Cover tanks and wells with child restraint covers or fill in disused ones.
- Tie spare tractor wheels to walls or lie them flat so they can’t crush a child.
- Make sure children ride bikes that are appropriate for their age and height, and are in line with manufacturers’ specifications.
- If children are riding a smaller model farm bike, they need to wear an approved helmet and closed-in shoes. An adult should always supervise them.
- Teach children the dangers of speeding and uneven ground.
- Make sure children know what to do in an emergency: what to do, where to go and who to call. Teach children basic first aid.
- Make it a rule for older children to always say where they are going.
- Children do listen, understand, remember and apply rules over time. But things change so farm safety needs constant attention.

- The Health and Safety at Work (General Risk and Workplace Management) Regulations 2016 (the Regulations) require that a person conducting a business or undertaking (PCBU) must ensure, so far as is reasonably practicable, that no worker aged less than 15 years is present in an area of work, or carries out work of a type that is likely to cause harm to their health and safety.

SUPERVISION! SUPERVISION! SUPERVISION!

Although performing a thorough safety inspection and Job Safety Analysis are important steps to prevent injuries and fatalities, appropriate supervision is still the best preventive measure. Small children must always be supervised. It is not enough to tell them to "stay away." Young children want to be with their parents and often forget what they have been told when they see mom and dad working in the field or driving a tractor. Always remember that helping children learn is a slow process that requires patience and understanding—rules and instructions may have to be repeated each time a child performs a job or is in a potentially hazardous situation. Providing this kind of constant supervision and instruction is often difficult, though. Many farm parents hold jobs away from the farm, and there are times when parents must work to get the chores done. Accordingly, parents should anticipate the need for child care, determine how long that care will be needed, and make arrangements in advance.

As a child grows older, constant supervision becomes less necessary. However, providing supervision remains an important factor in encouraging smart, lasting, and safe work habits. Also, as children get older and are able to handle more substantial work, parents must be prepared to start them slowly, spending time to properly train and enforce safety rules.

FINAL WORD

Conclusion

Farming is not just an occupation but a way of life. A very high value is placed upon the traditions that farming families have

created and maintained throughout many generations. Perhaps someday farming will become a less dangerous occupation rather than being one of the most dangerous.

Farm parent want to continue the rural tradition with children and keep them safe.

- It is important to realize that not all children are the same. Children of the same age have differences in size, physical ability, cognitive ability, and communication abilities. This is why adequate supervision is a crucial.

Lifting Safely

WHAT'S AT STAKE?

Safe Lifting Techniques at Work

Safe lifting techniques should be stressed by all workplaces, but are commonly overlooked. Most people just want to finish the job quickly, even if that means moving heavy objects in unsafe ways.

In doing so, workers can become injured and have to miss work for extended periods of time.

WHAT'S THE DANGER?

According to 2014 data from the Bureau of Labor Statistics, overexertion in lifting or lowering caused an average of 12 days away from work (30 percent more than the overall average), and was the fifth highest rate of days missed, per 10,000 full-time workers.

The Bureau of Labor Statistics (BLS) also says that more than one million workers experience back injuries each year. One fourth of all workers compensation indemnity claims are a result of back injuries. Low back pain is one of the most common reason that people miss work, second only to the common cold. In America, we spend more than $100 billion annually in medical bills, disability and lost productivity at work from back injuries and illnesses. More importantly, this problem causes unnecessary discomfort and pain to workers which can have a devastating effect on their lifestyle and ability to work. A BLS survey shows that 75% of back injuries occurred while performing lifting tasks, which underscores the importance of reducing back injuries caused by lifting.

Lifting/handling

Lifting, handling, or carrying objects at work can result in musculoskeletal injuries (MSIs), including sprains and strains and other injuries. The risk of injury increases when bending, twisting, heavy loads, and awkward postures are involved. Effective ergonomic controls can reduce the risk and prevent injuries.

Risks/Dangers

Injuries from lifting and handling of loads can occur in many occupations. Workers are exposed to risk when they lift, lower, or carry objects. Risk factors include:

- The weight of the load
- How close the load is to the body. A load lifted far from the body imposes more stress on the back than the same load lifted close to the body
- The size and shape of the load
- The distance the load has to be carried
- The initial height of the load and the vertical distance lifted
- Lifting in combination with twisting
- How long the load has to be carried
- The number and frequency of lifts performed

HOW TO PROTECT YOURSELF

The big ticket item is to reduce the risks of injury.

HERE IS THE HOW

When choosing the appropriate risk controls, the employer must consult with the joint health and safety committee or the worker health and safety representative. Be sure to test the risk control before fully implementing to make it work within your organization. To help identify potential risk controls, consider the following questions:

Engineering controls

Making physical modifications to facilities, equipment and processes can reduce exposure. Some questions to consider:

- Can mechanical lifting ads such as hoists, pallet jacks, carts, or conveyors be used instead of manual material handling?
- Can the load be lifted within the range of knee to waist height?
- Can the vertical distance the load has to be lifted or lowered be shortened? Options include limiting shelf height, and raising the worker.
- Can stooped or twisted positions be avoided by providing unrestricted work space, or arranging the workspace differently?
- Can the size of the load be made smaller? Options include ordering smaller containers, or having workers make two trips with smaller loads rather than one trip with a heavy load.
- Can carrying distance be shortened by changing the workflow?

Changing work practices and work policies, and training workers in proper lifting and handling techniques, can limit risk of MSIs. Some questions to consider:

- Can the task design be changed? For example, changing a

carrying task to a pushing or pulling task.
- Can workers be given time to rest or recover when lifting or handling loads?
- Can work demands and work pace be balanced more effectively
- Can the tasks be varied?

TECHNIQUES OF SAFE LIFTING

Safe Lifting Techniques

Prevention and planning are perfect solutions for most hazard abatement in the workplace. With proper safety training and the use of these safe lifting techniques, your team should be able to greatly reduce the risk of back and lifting injures.

- Before lifting, assess what it is you are lifting and where it is going. Recognize how heavy the object is and determine if you can lift it by yourself. Never hesitate to ask for help if it is too heavy.
- Make sure to check the pathway you are taking to your final destination. There should not be any trip hazards or debris in your path.
- To safely lift the object, get as close to the object as possible. This will create more leverage for you and less strain on your muscles.
- Next, position your feet shoulder-width apart and angle one foot slightly forward for better balance.
- When you go to bend down for the object, keep your back straight and use your legs and hips to lower yourself to the object. Never bend at the waist because this will cause immediate strain on your lower back.
- As you bend down to pick up the object, use the hand of the leg that is angled forward and place it on the side of the object furthest from you.
- After you have a firm, comfortable grip, tighten your core and focus on keeping a straight back as you lift the object with your legs and hips. Looking forward will help keep your back straight and extend your legs. Always remember to keep the object close to your body.

AVOIDANCE

Just as important as following safe lifting techniques, avoiding unsafe behavior can help you to avoid injury and to advise others on how to do the same.

Avoid the following:

- Never hold your breath while you lift an object. Exhaling out when lifting an object is the proper technique to use.
- When carrying an object, do not bend or twist at the waist. If you need to turn, slowly turn with your feet.
- Don’t use a partial grip on an object. Always use two hands!
- Never obstruct your vision with an object you are carrying. Keep the object at mid-section level, from the mid-thigh to mid-chest. This is your “power zone.”
- Never forget to wear your personal protective equipment, such as gloves for grip or shoulder pads to cushion the load.

THE LIFT EXAMINED

Think before you lift

Plan the lift. Where is the load going to be placed? Will help be needed with the load? Is there equipment you could use, such as a hoist, that could help with the lift?

Remove obstructions, such as discarded wrapping materials. For long lifts, such as from floor to shoulder height, consider resting the load midway on a table or bench to change your grip on it.

Keep the load close to the waist

Keep the load close to the waist for as long as possible while lifting to reduce the amount of pressure on the back.

Keep the heaviest side of the load next to the body. If closely approaching the load is not possible, try to slide it towards the body before trying to lift it.

Adopt a stable position

Your feet should be apart with 1 leg slightly forward to maintain balance (alongside the load, if it’s on the ground).

Be prepared to move your feet during the lift to maintain a stable posture. Wearing over-tight clothing or unsuitable footwear, such as high heels or flip flops, may make this difficult.

Ensure a good hold on the load

Where possible, hug the load close to the body. This should help you make a stronger and more solid lift than gripping the load tightly with the hands only.

Do not bend your back when lifting

A slight bending of the back, hips and knees at the start of the lift is preferable to either fully flexing the back (stooping) or fully flexing the hips and knees – in other words, fully squatting.

Do not bend the back any further while lifting

This can happen if the legs begin to straighten before starting to raise the load.

Do not twist when you lift

Avoid twisting the back or leaning sideways, especially while the back is bent.

Keep your shoulders level and facing the same direction as the hips. Turning by moving your feet is better than twisting and lifting at the same time.

Look ahead

Keep your head up when handling the load. Look ahead, not down at the load, once it has been held securely.

Move smoothly

Do not jerk or snatch the load as this can make it harder to keep control and increases the risk of injury.

Know your limits

Do not lift or handle more than you can easily manage. There’s a difference between what people can lift and what they can safely lift. If you’re in doubt, seek advice or get help.

Lower down, then adjust

Put the load down and then adjust. If you need to position the load precisely, put it down first, then slide it into the desired position.

FINAL WORD

Back injuries and repetitive strain injuries are problems that all workers can do without. Good planning and safe work regimen can prevent these injuries throughout all white and blue collar workplaces.

Lighting and Marking Self-Propelled Equipment

Download Instructor-Led Material

	
Meeting Kit	**PowerPoint**

WHAT’S AT STAKE?

Everyone plays a vital role in helping to prevent roadway collisions by insuring that equipment is as visible as possible to other motorists. The more visible you are, the less likely you are to be involved in a collision. It is the difference between life and death.

WHAT’S THE DANGER?

According to the National Safety Council, approximately 15,000 farm vehicles are involved in highway crashes annually. Studies of collisions between slow moving vehicles and motor vehicles conclude that nearly 90 percent occur on dry roads during daylight hours and two thirds are rear-end collisions.

When a fatality occurs, the victim is usually the tractor operator.

Tractors, with or without trailed equipment, and self-propelled implements are large enough to be clearly visible on the highway, especially during daylight hours. But there are many accidents involving farm vehicles.

Many rural residents have no experience with farming, yet they share the roads with tractors and implements. Lack of familiarity with farm equipment may be responsible for their poor judgment when gauging distances and speeds of slow moving vehicles. Additionally, the recognition of “something different” on the roadway may not be apparent due to poor lighting and marking. Tractors generally travel at less than 20 miles per hour (mph), compared with cars cruising at 55+ mph. A typical driver does not instantly recognize this difference in speed and may apply the brakes too late to avoid a collision.

Scope

But there are other dangers from the Self-propelled Equipment apart from tractors with or without trailed equipment.

Self-propelled vehicles are those ***automobiles motorcycles***, aircraft, boats, snowmobiles, trucks, ***tractors*** jet skis, lawn mowers, golfcarts, etc., that convert their own energy supply into motive power used for propulsion. Batteries do so by converting electrochemical energy; ***engines*** do so by burning fuels to release their chemical energy. The majority of this equipment uses internal combustion engines such as a jet, diesel, or gasoline engines that consume flammable gases or liquids. Machinery may also employ engines to do other work such as turning crankshafts or generating electricity. External combustion engines include the steam engine which burns fuel to heat water, which on conversion to steam provides motive force.

HOW TO PROTECT YOURSELF

GENERAL

Motor vehicle drivers need to be able to identify slow moving vehicles in time to react safely. Protect yourself by installing the proper lighting and marking to your agricultural equipment. A small investment in materials and time can help to prevent common roadway collisions.

Lighting

Extremity lighting and reflective material marking combined can be a very effective guard against roadway collisions. Used together, other motorists can quickly and accurately identify that a large, slow moving piece of equipment is on the road. Without this type of effective protection farm equipment operators may be more at risk of injury or even death. It should be noted that when rearward facing work lamps or general service lamps are present, that they should be aimed downward and that they shall not be illuminated during highway travel. Motorists can be blinded and confused by the illumination of rearward facing white lights, thus becoming a detriment to safety.

Marking

Reflective marking material is a low cost effective tool to

identifying agricultural equipment. Properly placed reflective material helps the equipment stand out on the roadway. This conspicuous feature leads the naming of this material to be called “conspicuity material”. Ideally, agricultural equipment on the roadway should be conspicuous since other motorists will notice the equipment immediately and have sufficient time to avoid a collision.

Reflective Materials

Fluorescent material which is visible in both daytime and low-light conditions. The fluorescent orange material in the center of the new ASAE standard SMV emblems is visible at twice the distance as the former material. Fluorescent color materials are comprised of fluorescent dyes which are bright, but unfortunately decompose and lose their brilliance (fading) over time. Fluorescent materials, such as the center of SMV emblems, should be replaced when their brilliance fades thus reducing their effectiveness.

Retroreflective material is designed to redirect light directly back towards its’ source. In the case of an SMV sign, the triangular border is made of red retroreflective tape that reflects the light of motorists’ headlights directly back, creating a visible warning effect. The retroreflective border of the new SMV signs is over 10 times brighter than the design of the older SMV signs. Typically the older style SMV reflective tape was only visible from a few hundred feet where as the new retroreflective tape used on SMV emblems is visible for over a mile. Retroreflective tape can also be used as reflectors and conspicuity material to meet ASAE standard recommendations at the equipment extremities. This retroreflective material is very durable and generally more weather resistant than the fluorescent materials.

Responsibility Recap

- Inspect machinery for proper lights and reflective materials.
- Retrofit older equipment with new retroreflective tape, extremity lighting, and new SMV signs.

- Be certain that every slow moving vehicle and piece of trailed equipment has a properly placed slow moving vehicle emblem that is clean and not faded. Replace-worn, damaged, and faded emblems as soon as possible.
- Do not use SMV emblems for stationary markers, such as for a driveway or mailbox; it is illegal and can cause confusion and collisions. Extended misuse can cause the symbols to lose their effectiveness as a warning device.
- Anticipate problems that motorists might have because of their limited experience with slow moving vehicles and give them extra room on the roadway.

Tractor Lighting and Marking Recommendations

A Slow Moving Vehicle (SMV) emblem is required at all times.

The Ohio Revised Code requires tractors (non multi-wheeled) and other self-propelled equipment to display the following lighting sunset to sunrise or when there is insufficient light to render discernible persons, vehicles, and substantial objects at a distance of 1000 feet ahead.

One white headlight on the front of the vehicle, visible from at least 1,000 feet in front of the vehicle.

Two red lamps as wide apart as possible on the rear of the vehicle, visible from at least 1,000 feet behind the vehicle or one light and two red reflectors.

OVERVIEW/KEY ISSUES

Slow Moving Vehicle (SMV)

Emblems are triangular, bright-orange signs with red borders. These must be securely mounted at the centre or to the left-of-centre of all slow-moving farm vehicles and equipment. Be sure it is clean and visible. If it is faded or damaged, have it replaced.

Headlamps. Tractors and other self-propelled equipment must have at least two headlamps visible from the front.

Tail Lamps. Tractors and other self-propelled equipment should

have two red tail lamps visible from the rear of the machine, mounted symmetrically no more than 1.5 m (5 ft.) to the left and right of the machine centre and between 1 and 3 m (3.3 and 12 ft.) high.

Amber Flashing Warning Lamps. Tractors and self-propelled equipment must have at least two flashing amber warning lamps, visible from both the front and rear of the machine, and located at least 1 m (39 in.) high. On machines more than 3.7 m (12 ft.) wide, warning lamps must be mounted within 400 mm (16 in.) of the outside edges of the machine, including dual wheels, wide axles and headers. The amber flashing warning lamps are to be on when driving on public roads.

Turn Signals. When driving on public roads, always use turn signals. Proper turn signals have a two-part action. First, the amber flashing warning lamp opposite the direction of the turn becomes steady burning and then the rear-facing red tail lamp flashes in the direction of the turn. If your equipment does not allow other drivers to see your signals, then arrange for an escort vehicle(s).

Reflectors and Reflective Tape indicate to motorists the width of your load and help them judge their actions. Ensure all reflectors and reflective tape are in good condition and replace as needed.

- Red reflectors or reflective tape must be mounted to indicate the extreme left and right rear edges of all machines.
- On machines over 3.7 m (12 ft.) wide, yellow reflective tape, visible from the front and rear of the unit, must mark the extreme left and right projections of the machine.
- All tape and reflectors must be visible and capable of being seen at night from a distance of 305 m (1,000 ft.).
- When buying reflective tape and lights we only use the kind that meet the CSA and ANSI standards for reflective material.

Flood Lamps or general service lamps are designed to light up the machine or field work. Front-facing flood lamps must be aimed

downward during travel on public roads so as not to blind oncoming traffic. Rear facing service or flood lamps must be turned off.

FINAL WORD

Whether you are doing field work, transporting farm machinery, operating any machinery, the key to safety is to “see and be seen”. Every light and reflector on a tractor, self-propelled, or implement has a specific purpose. It is the operator’s responsibility to ensure the correct use of lighting and marking in each instance.

Locating Underground Utilities Before You Dig

WHAT’S AT STAKE?

Every year, underground infrastructures and utilities are unintentionally struck across Canada. Unsafe digging could result in serious injury or death, fines and repair costs, or interrupted services. Although many underground infrastructures and utilities are found in urban areas, rural areas also have a number of these services.

It is important to plan where to dig before starting any work. Whether it’s digging a trench or installing a fence, finding out where underground utilities are is essential.

Examples of activities that require a utility locate include:

- Ground levelling
- Sludge spreading
- Clearing / brushing

- Reducing or adding soil cover
- Deep tiling / sub-soiling
- Trenching
- Earth moving
- Drainage ditch clean out
- Controlled burning
- Drain tile installation
- Terracing
- Fencing and landscaping
- Excavation
- Augering
- Stockpiling / storage / parking
- Blasting activities
- Building construction

WHAT'S THE DANGER?

If you dig into the ground without first verifying the location of utility lines in that area, you may damage water, gas, electrical, communications or sewer lines. Digging blind is risky because it can cause utilities to be cut off, severe injury or expensive repairs. The good news is there are reliable utility locator services available with just a quick phone call.

Private utility locators are necessary to mark out electrical, gas, septic, water and drainage lines on private, residential, commercial, and municipal properties.

One point which isn't always clearly understood is the difference between public and private underground utility locators. Soft Dig wants to help clear up the confusion. Be safe – get informed before you dig!

What is 811 one-call?

You've probably heard the phrase, "call before you dig." All around the country, this campaign has been launched to inform people about the importance of locating underground utilities before digging. Whether you're putting in a pool, installing a fence or doing landscaping, you need to make sure the area is free

of utility lines.

You, or the company you've hired to do the work, should call 811. Call before excavating on any piece of commercial or residential land, including your own private property. It's a free service. Technicians will be sent to the site to locate public utilities using electromagnetic equipment. Then, they mark any that run from the street to the service meter. **This will help homeowners and professionals prevent damage to public water, sewage, power and natural gas lines.**

But this doesn't mean that the area is clear and you're free to proceed with the digging. One-call location crews only locate public utility lines.

When do you need a private utility locator?

You will probably need to make a second call before starting your excavating project. You may require a private utility locator to find and demarcate underground electrical lines, gas pipes, and more, on private, residential, commercial, and municipal land.

Private utilities are the lines that run beyond the service meter. For example, electrical cables that go from the meter to a house or building would be considered private. For safety and liability reasons, it's important to have these lines accurately and properly marked before starting to dig, even on your own property. To have these marked, you will need to call in a private underground utility locator.

Private locator crews don't rely on utility maps because they are often missing, outdated, inaccurate or incomplete. Instead, they perform a thorough investigation of the area using a range of specialized tools. These include electromagnetic equipment, ground penetrating radar (GPR) and electronic or radio frequency (RF) pipe and cable locating tools. In the end, a private locator is able to produce complete, high-quality utility maps of where current and abandoned lines run.

WHAT ARE PRIVATE UTILITY LINES?

Most properties have unmarked private utility lines, but they present a real danger for anyone digging. It’s important to have all lines located and marked. These are just a few examples of underground utilities that might be hidden on your property.

- Electricity for exterior lighting,
- Propane lines,
- Septic pipes,
- Sprinkler systems,
- Gas for heated pools,
- Power for a detached garage,
- Storm drains.

WHERE ARE PRIVATE UTILITY LINES?

Just to give you some examples, private utility locators often work on sites such as:

- Neighborhood communities,
- Apartment complexes,
- School grounds and college campuses,
- Medical facilities,
- Industrial areas,
- Commercial property including a parking lot,
- Government facility.
- The root cause category for damages in Figure 1 titled “Location Practices Not Sufficient” includes areas where no locating or marking of the utility was completed prior to excavation activities; areas where utility markings or locations were insufficient; the type of utility, its depth, or lack of records prevented locating the installation; and incorrect utility records and maps led to an incorrect location.
- Of the events that included utility damages and for which a locate request was made, the majority (68%) had visible but incorrect markings and 29% had markings that were not visible.
- The root cause category **“Excavation Practices Not Sufficient”** includes actions where clearances were not maintained while using power equipment; hand tools were not

used where required; markings became deteriorated and not maintained; test holes were not used to verify exact location of buried lines; exposed utility lines were unsupported; and improper materials or compaction were used in backfilling

HOW TO PROTECT YOURSELF

PREVENT DAMAGE TO UNDERGROUND UTILITIES

A Plan is Needed to Avoid Accidents

The possibilities of damaging underground utilities exist at every drilling site. Inadvertently severing an underground power line. Rupturing a natural gas line.

Doing damage to underground utilities can result in costly consequences—disrupting essential services, requiring repairs, downtime, and potentially serious injuries or death.

The number of incidents involving damage to underground utility lines submitted in 2014 reported in the D*amage Information Reporting Tool (DIRT)* was 273,599 for Canada and the United States.

To **prevent** such incidents, it is critical to first understand the possible causes and industry practices in place. The most common causes for incidents results in underground utility damages.

The Occupational Safety and Health Administration has specific requirements designed to protect employees and **prevent** accidental damage to underground installations. These include establishing the location of underground installations prior to beginning excavation activities.

According to the *DIRT Report* (CGA 2014), calling the national 811 call service before digging or drilling is the **most important precaution** professionals and homeowners can take. When an excavator or driller notifies a one-call center before digging—damage can be avoided more than 99% of the time!

Underground utilities can be located by many methods—owner records, other sources of information, and utility locating techniques.

White-Lining the Dig Site

White-lining is a best practice endorsed by the Common Ground Alliance (CGA 2015). Physical white-lining requires the excavator or drilling contractor to pre-mark the dig or drill site with white paint or an equivalent.

While this practice is known to reduce damages, it may add costs to a job. The product Virtual WhiteLine™ is a recent development allowing the landscape and boundaries of the dig area or drill site to be viewed remotely through high resolution aerial imagery (PAPA 2010).

Utility Locating Techniques

As was mentioned, underground utilities can be found by looking at existing utility owner records or, when needed, using a utility locating service. The source of information and methods used to locate underground utilities could impact the reliability and accuracy of identifying and locating underground lines.

In addition to power lines, there are phone lines, gas lines, water lines, and sewer lines running underground. Different detection techniques need to be used for different types of buried lines. For instance, detection of metal cables and pipes can be done using electromagnetic devices consisting of a transmitter and a receiver. Radiolocation devices use radio waves to find a location and are used for detecting non-ferrous lines (plastic or concrete).

Since there are different types of materials used in underground utilities, not all types can be detected using conventional methods. Non-conventional utility locating techniques include acoustic locating, ground penetrating radar (GPR), and magnetic locators or metal detectors.

GPR detection is an electromagnetic method often used to enhance other locating techniques. It can generate 3D underground images of pipes, power lines, sewer lines, and water mains.

Magnetic locators or metal detectors and magnetometers are often used to locate buried metal objects other than pipes. An acoustic locator most often detects and traces nonmetal water lines and can also be used in identifying the locations of plastic gas lines.

Current utility locating technology cannot assure 100% detection of every underground utility line and pipe. There are limitations with each utility locating technique, which must be considered.

Understanding Locating and Marking Practices

Operator markings of utilities include the appropriate color for the type of facility, their company identifier (name, initials, abbreviation) when other companies are using the same color, the number and width of their installations, and a description of the underground utility.

A combination of paint and flags are used to identify the operator’s installations at or near an excavation or drill site. Color code identifiers are summarized below:

Table1. Color Code Identifiers	
White	Proposed excavation
Pink	Temporary survey markings
Red	Electric power lines, cables, conduit and lighting cables
Yellow	Gas, oil, steam petroleum, or gaseous materials
Orange	Communication alarm or signal lines, cables, or conduits
Blue	Potable water
Purple	Reclaimed water, irrigation, and slurry lines
Green	Sewers and drain lines

Additional Warning Signs

When an excavator arrives at a jobsite after contacting the local one-call center to get the jobsite located, the first step is to look for signs of underground utilities. **These signs should be obvious—look for marking flags, paint, pedestals, fire hydrants, and other above-ground indicators.**

Even though these indicators may signal there are no underground utilities within the dig area or drill site, be alert to additional warning signs as you start the excavation. If you see any visual signs of a buried utility while excavating or drilling, stop immediately and hand dig until the utility is exposed. Contact the utility owner as necessary and do not proceed until the utility is fully exposed and identified.

Excavator Responsibilities

- If you damage a utility, inform the owner so they can inspect the damage and make appropriate repairs.
- If the damage results in flammable, toxic, or corrosive gas or liquid escaping and endangering life, health, property, or the environment, notify the appropriate authorities and the owner immediately.
- Take reasonable measures to protect workers and the general public as well as property and the environment.
- Until help arrives, remain on site to help remedy the situation.

Employer Responsibilities

Before an excavation begins:

- The employer excavating shall ensure that all gas, electrical, and other services in and near the area to be excavated are located and marked.
- The employer and worker locating and marking the services shall ensure that they are accurately located and marked.
- The service shall be shut off and disconnected if it could pose a hazard.
- If the service cannot be shut off and disconnected, the owner of the service shall be requested to supervise the uncovering of the service.

Overview of preventative steps

Excavators and drilling contractors should come up with a detailed work plan: Train employees on the proper procedures for determining the locations of underground utilities. Contact and coordinate with the local one-call agency and utility companies to establish locations of underground installations. Take necessary precautions to prevent damaging underground utility installations.

If an underground utility is damaged, you must notify the utility operator immediately. They are in the best position to determine the hazards associated with the damage and take appropriate countermeasures. If the damage results in the release of hazardous gases or liquids, both the utility operator and the appropriate emergency response officials should be notified immediately.

FINAL WORD

All the technology and expertise available in the world in dealing with underground utilities are rendered impotent if the phrase “ Call Before you Dig“ goes unheeded.

Lock-Out Tag-Out Safety Talk

WHAT’S AT STAKE?

WORK ACTIVITY

Lockout

There are many types of potentially hazardous energy including electrical, thermal, chemical, pneumatic, hydraulic, mechanical and gravitational energy. Lock-out is a way to make sure electricity or other energy is not turned on (or released) while someone is working on machinery. Turning off a power switch is not enough. You must de-energize to prevent equipment from starting or moving. Release stored energy, for example, bleed air from a pneumatic hose, and test to make sure the energy is off before doing installations, repairs or maintenance.

Tagout

Tag out is a labelling process that is always used when lockout is required. The process of tagging out a system involves attaching or using an information tag or indicator (usually a standardized label) that includes the following information:

- Why the lockout/tag out is required (repair, maintenance, etc.).
- Time of application of the lock/tag.

- The name of the authorized person who attached the tag and lock to the system.

Note: ONLY the authorized individual who placed the lock and tag onto the system is the one who is permitted to remove them. This procedure helps make sure the system cannot be started up without the authorized individual's knowledge.

WHAT'S THE DANGER?

Importance of Lockout/Tagout

Safety devices such as barrier guards or guarding devices are installed on systems to maintain worker safety while these systems are being operated. When non-routine activities such as maintenance, repair, or set-up; or the removal of jams, clogs or misaligned feeds are performed, these safety devices may be removed provided there are alternative methods in place to protect workers from the increased risk of injury of exposure to the unintended or inadvertent release of energy.

Inherent Dangers

Lockout / Tagout / is series of safety procedures designed to prevent accidents causing serious injuries including fatalities to employees on the unexpected startup of the equipment or energy while servicing.

Employees servicing or maintaining machines or equipment may be exposed to serious physical harm or death if hazardous energy is not properly controlled. Craft workers, machine operators, and laborers are among the 3 million workers who service equipment and face the greatest risk.

The four-page general industry standard (29 CFR 1910.147), published in September 1989, was designed to prevent the accidental start-up of machines or other equipment during maintenance and servicing. Under the rule, hazardous energy sources must be **"isolated and rendered inoperative"** before work can begin. **Hazardous energy sources include electrical,**

mechanical, hydraulic, pneumatic, chemical and thermal.

Anyone who operates, cleans, services, adjusts, and repairs machinery or equipment should be aware of the hazards associated with that machinery. Failure to lock out or tag power sources on equipment can result in electrocutions, amputations, and other serious-sometimes fatal-accidents.

Some of the causes of accidents:

- The machine or piece of equipment was not completely shut off before a maintenance or repair operation. Not only must the machine be turned off but also the power source that goes to it.
- The machine was turned on accidentally, either out of carelessness or because the person who turned it on did not realize that another worker was there and could get hurt.
- The machine was not working correctly but was not fixed, turned off, locked or tagged, and someone who did not know about the problem used it.
- Moving equipment was not blocked.
- Safety procedures were inadequate or had not been properly explained.

OVERVIEW

Why Lockout is Necessary

Often power sources are inadvertently turned on, or valves opened mistakenly before the work is completed, resulting in serious injuries and fatalities. Therefore, it is important not only to ensure that all energies are properly locked out, but also that they remain locked out until the work is completed.

HOW TO PROTECT YOURSELF

PREVENTION STEPS

Employer Responsibility

The lockout/tagout standard establishes the employer’s

responsibility to protect employees from hazardous energy sources on machines and equipment during service and maintenance.

This is generally done by affixing the appropriate lockout or tagout devices to energy-isolating devices and by deenergizing machines and equipment.

Employee Training

The training must cover at least three areas:

- aspects of the employer’s energy control program;
- elements of the energy control procedure relevant to the employee’s duties or assignment; and
- the various requirements of the OSHA standards related to lockout/tagout.

How Do Employers Protect Workers?

- Develop, implement, and enforce an **energy control program**.
- Use lockout devices for equipment that can be locked out. Tagout devices may be used in lieu of lockout devices only if the tagout program provides employee protection equivalent to that provided through a lockout program.
- Ensure that new or overhauled equipment is capable of being locked out.
- Develop, implement, and enforce an effective tagout program if machines or equipment are not capable of being locked out.
- Develop, document, implement, and enforce energy control procedures.
- Use only lockout/tagout devices authorized for the particular equipment or machinery and ensure that they are durable, standardized, and substantial.
- Ensure that lockout/tagout devices identify the individual users.
- Establish a policy that permits only the employee who applied a lockout/tagout device to remove it.
- Inspect energy control procedures at least annually.
- Provide effective training as mandated for all employees

covered by the standard.
- Comply with the additional energy control provisions in OSHA standards when machines or equipment must be tested or repositioned, when outside contractors work at the site, in group lockout situations, and during shift or personnel changes.

Six Ways to Improve Lockout/Tagout Procedures

1. Choose the Right Devices

Industrial machines, circuit breakers, plugs, switches, push buttons, and valves are just some of the items that often require lockout devices. There are two considerations that will help: necessity (knowing exactly what you need) and organization (using standardized devices and tools to help keep your devices organized).

First, determine exactly what you need. Create a list of all machines or electrical components that may need lockout devices.

Second, standardize and organize your lockout devices. Lockout Stations are one effective way to store and organize necessary devices.

2. Thoroughly Document Procedures

Lockout procedures need to be formally documented. This will keep workers and management on the same page and help to eliminate any potential confusion. Formal documentation is required by OSHA but, given the differences in workplaces and machines, not every procedure will be the same.

Procedures should thoroughly detail the steps needed to shut down and isolate hazardous energy. The procedures also should describe how to safely place and remove all relevant lockout/tagout devices.

Procedures should be posted near the relevant machine. Machine-specific photographs detailing each step are highly recommended.

3. Clearly Mark All Isolation Points

All energy control points should be clearly and permanently marked with standardized tags or labels.

Tags and labels should be easily visible. It is also very important to make sure all energy isolation points are consistent with the machine-specific procedures.

4. Develop a Rigorous Training Program

Effective training is an indispensable part of a successful lockout program.

First, it is important for each worker to know exactly what his role is. Tasks should be clearly defined and clearly assigned to the appropriate worker. There are three types of workers involved in lockout operation: authorized, affected, or other. An **authorized** employee is directly involved in locking out equipment or machinery. An **affected** employee means any employee whose work is affected by a lockout. Usually, this means an employee who is working on locked out equipment. An employee is classified as **other** if he or she does not work on the machine receiving maintenance or repair but still works in the same area.

Each worker needs to know what type of employee he is, and strong communication needs to be developed among all workers. **Authorized employees** must clearly alert all affected employees when a lockout device is placed or removed. In order to prevent unsafe removal of devices, only authorized employees can remove devices that they have placed. Lockout padlocks have room for workers to clearly write their names in permanent ink, which underscores the strong need for clear assignments and individual responsibility.

As with procedures and isolation points, **Documentation** is an important component of training. Recording exactly what types of training have occurred is helpful on several levels. **First**, it helps management make sure that all workers have been trained, as well as trained in the right tasks. Any gap in training can be easily found and corrected. **Second**, it documents when training took place. If you know when your last training session took place, it is easier to plan when the next one should take place.

Last, looking at documentation of lockout training can help one see one’s program from a new, more objective perspective. Suggestions can then be taken into account and improvements can be made.

OSHA requires that lockout/tagout training occur at least annually. Yearly training should be seen as a bare minimum rather than an ideal. In many cases, it would be helpful to revisit training exercises more frequently than yearly in order to ensure that critical repairs and maintenance are still being done safely. Also, repeat training helps workforces keep a “safety first” mentality.

5. Evaluate

Careful evaluation is an invaluable tool for improvement. Evaluation is necessary to make sure that the training exercises, procedures, and devices are working properly.

Inspections need to occur at least annually and should be performed by an **Authorized Employee** who is not involved in the procedure being inspected. Any and all deviations must be corrected and all roles must be thoroughly reviewed.

The date of inspection, procedures, the machines and equipment involved, and the names of all workers involved in the inspection must be recorded.

6. Evolve

A good lockout program should always be able to evolve; OSHA may introduce more requirements or more stringent guidelines.

FINAL WORD

Improper or failure to use lock-out / tag-out procedures may result in property damage, injury or death. Only authorized and trained employees may engage in tasks that require use of lock-out / tag-out procedures, however ALL employees must know what the lock-out / tagout program is and not to touch any machine, equipment or energy source that has been locked or tagged out.

Managing Grain Dust

WHAT'S AT STAKE?

GRAIN HANDLING FACILITIES

Grain handling facilities are facilities that may receive, handle, store, process and ship bulk raw agricultural commodities such as (but not limited to) corn, wheat, oats, barley, sunflower seeds, and soybeans. Grain handling facilities include grain elevators, feed mills, flour mills, rice mills, dust pelletizing plants, dry corn mills, facilities with soybean flaking operations, and facilities with dry grinding operations of soycake.

WHAT'S THE DANGER?

HAZARDS/DANGERS OF GRAIN HANDLING FACILITIES

General

The grain handling industry is a high hazard industry where workers can be exposed to numerous serious and life threatening hazards. These hazards include: fires and explosions from grain dust accumulation, suffocation from engulfment and entrapment in grain bins, falls from heights and crushing injuries and amputations from grain handling equipment.

More Suffocation

Suffocation is a leading cause of death in grain storage bins. Suffocation can occur when a worker becomes buried (engulfed) by grain as they walk on moving grain or attempt to clear grain built up on the inside of a bin. Moving grain acts like "quicksand" and can bury a worker in seconds. "Bridged" grain and vertical piles of stored grain can also collapse unexpectedly if a worker stands

on or near it. The behavior and weight of the grain make it extremely difficult for a worker to get out of it without assistance.

Grain Dust Explosion

Grain dust explosions are often severe, involving loss of life and substantial property damage. Grain dust is the main source of fuel for explosions in grain handling. Grain dust is highly combustible and can burn or explode if enough becomes airborne or accumulates on a surface and finds an ignition source (such as hot bearing, overheated motor, misaligned conveyor belt, welding, cutting, and brazing). OSHA standards require that both grain dust and ignition sources must be controlled in grain elevators to prevent these often deadly explosions.

Falls

Falls from height can occur from many walking/working surfaces throughout a grain handling facility. Examples of such surfaces include (but are not limited to) floors, machinery, structures, roofs, skylights, unguarded holes, wall and floor openings, ladders, unguarded catwalks, platforms and manlifts. Falls can also occur as workers move from the vertical exterior ladders on grain bins to the bin roof or through a bin entrance.

Mechanized Equipment

Mechanical equipment within grain storage structures, such as augers and conveyors, present serious entanglement and amputation hazards. Workers can easily get their limbs caught in improperly guarded moving parts of such mechanical equipment.

Storage Structures

Storage structures can also develop hazardous atmospheres due to gases given off from spoiling grain or fumigation. Workers may be exposed to unhealthy levels of airborne contaminants, including molds, chemical fumigants (toxic chemicals), and gases associated with decaying and fermenting silage. Fumigants are commonly used for insect control on stored grain and many have inadequate

warning properties. Exposure to fumigants may cause permanent central nervous system damage, heart and vascular disease, and lung edema as well as cancer. These gases may result in a worker passing out and falling into the grain, thus becoming engulfed and suffocating or otherwise injuring themselves.

GRAIN DUST PROBLEMS/HAZARDS

- During harvest and when moving grain from combines into grain trucks or wagons
- Moving grain from grain trucks or wagons into grain bins
- Moving grain around in grain bins
- Cleaning grain
- Feeding livestock milled grain
- Cleaning grain bins

HOW TO PROTECT YOURSELF

EMPLOYER RESPONSIBILITY

Employers must to do the following when employees enter storage bins

1. Turn off and lock out all powered equipment associated with the bin, including augers used to help move the grain, so that the grain is not being emptied or moving out or into the bin. Standing on moving grain is deadly; the grain can act like “quicksand” and bury a worker in seconds. Moving grain out of a bin while a worker is in the bin creates a suction that can pull the workers into the grain in seconds.
2. Prohibit walking down grain and similar practices where an employee walks on grain to make it flow.
3. Provide all employees a body harness with a lifeline, or a boatswains chair, and ensure that it is secured prior to the employee entering the bin.
4. Provide an observer stationed outside the bin or silo being entered by an employee. Ensure the observer is equipped to provide assistance and that their only task is to continuously track the employee in the bin. Prohibit workers

from entry into bins or silos underneath a bridging condition, or where a build-up of grain products on the sides could fall and bury them.

5. Train all workers for the specific hazardous work operations they are to perform when entering and working inside of grain bins.
6. Test the air within a bin or silo prior to entry for the presence of combustible and toxic gases, and to determine if there is sufficient oxygen.
7. If detected by testing, vent hazardous atmospheres to ensure that combustible and toxic gas levels are reduced to non-hazardous levels, and that sufficient oxygen levels are maintained.
8. Ensure a permit is issued for each instance a worker enters a bin or silo, certifying that the precautions listed above have been

Final Thoughts On Grain Dust Inhalation

- Be Aware. Understand what kind of tasks can expose your to grain dust.
- Use respiratory protective equipment (RPE) provided. If you are having problems with your respiratory protective equipment, please tell a supervisor.
- Make sure you are wearing the appropriate respiratory protective equipment for the job:
- Dust masks can help you avoid exposure to nuisance dust but does not protect you against organic vapors.
- Wear the N95 air-purifying disposable particulate respirator provided when working with grain.
- It’s employer responsibility to have your respirator properly fitted. It’s your responsibility to keep facial hair shaved (if applicable). Even a day’s worth of stubble can prevent a good seal. If you have gained or lost weight, please inform a supervisor to refit a RPE.
- It is also your responsibility to maintain your respiratory protective equipment. Keep them clean and dry and away from chemical storage areas.
- When working around grain dust, wear the other personal

protective equipment. Coveralls will prevent dust from settling on personal clothing and eye protection will prevent dust from affecting your eyes. Make sure you remove dust from personal or protective clothing before you take off your respiratory protective equipment.

FINAL WORD

Grain dust is produced when grain is harvested, dried, moved, stored and processed. The dust includes bacteria, fungi, insects, insect parts, animal droppings and possibly pesticide residues as well as dry plant particles.

Operating Portable Augers

WHAT'S AT STAKE?

GRAIN AUGER SAFETY AND PURPOSE

A grain auger is a tube containing a solid shaft in the center with flighting on it. Flighting is a spiral of flat steel that is welded onto the center shaft. As the center shaft turns in a clockwise direction, the flighting pulls the grain in and pushes it up the shaft.

Augers of various sizes, lengths and rotational speeds are used with a variety of farm implements. Several augers may be used to move harvested, threshed grain from the grain pans of the combine up and into the grain-holding tank. When the tank is full, an unloading auger with a spout may be used to move the grain from the tank into a grain cart for transport to a truck. The grain cart also has an unloading auger for unloading grain from the cart into the truck or, in some cases, the grain may be directly

unloaded from the combine into a truck.

An auger may be used to move seed grain into a grain drill, feed into a feed trough and many other applications on the farm. When the auger is placed on a frame that allows the tube to be elevated at an angle and the base end to remain on or close to the ground and wheels are added to make the whole apparatus mobile, it becomes a portable farm grain auger. Augers also move grain from trucks and grain carts into grain storage bins or move grain out of the grain bin.

WHAT'S THE DANGER?

MOST DANGEROUS MACHINES

On a per-hour-of-use basis, augers are one of the most dangerous machines farms use.

An auger in good condition is an essential tool when it comes time to move grain and feed around the farm. Per hour of use augers are one of the most hazardous machines on the farm, especially if they haven't been properly maintained.

Although Canadian Agricultural Injury Reporting statistics have identified runovers as the top cause of agriculture-related fatalities, the number of reported entanglements remain on that list and continue to be an area of concern.

Auger Accidents

Augers are among the most dangerous machines on the farmstead. Accidents resulting in injury can occur if augers are not used properly. According to a U.S. study by Schwab et al. (2000), an average of six to eight injuries related to augers occurred in Iowa each month. The Canadian Agricultural Injury Surveillance Program reported in 2003 that auger injuries rank second after tractor injuries. Between 1990 and 2000, 602 cases of auger injury accidents (more than one case per week) with 24 deaths were reported. Entanglement in the auger was cited as a major cause in almost 80 percent of the injuries requiring hospital treatment.

Many accidents occurred from contact with the auger flight, with the most common injuries to fingers, feet, arms and hands.

Causes of Auger Accidents

The majority of auger accidents are operator-caused. Auger-related injuries primarily result from one or more of the following types of incidents:

- Contact with or entanglement in the exposed screw at the intake.
- Entanglement in a drive belt.
- Being struck by an uncontrolled spinning crank used to raise or lower the auger.
- Entanglement in a PTO drive shaft.
- Electrocution while moving a raised grain auger around the farmstead and contact with an overhead electrical wire.
- Maintenance neglected or overlooked.
- Carelessness in auger handling.
- Operator’s unfamiliarity with auger safety and operation.
- Inexperienced youth labor.

Some auger-related accidents cause lacerations, fractures, amputations, electrocutions or even death. Fatal injuries result in large part from two types of accidents – electrocution and entanglement.

HOW TO PROTECT YOURSELF

TRAINING ON SAFE OPERATING PROCEDURES TO PREVENT INJURIES

Training on safe operating procedures is a must.

- New and returning workers require orientation and training on the safe operations of augers.
- If an auger hasn’t been used in a few months, take the time to review how to safely use the machine before starting it up.
- A new auger or a new-to-you auger also requires some pre-

operational learning.
- When purchasing an auger, ask for training.
- It’s better for both efficiency and safety to understand the intricacies of the machine.

MINIMIZE THE RISK OF AUGER ACCIDENTS

The Centers for Disease Control and Prevention says the following about grain augers:

1. Barriers (e.g., fences) should be used to prevent persons not involved in the operation of an auger from entering the area near the auger.
2. Children under 18 should not operate augers and should not enter the area near an auger.
3. Before starting an auger, the operator should ensure that all protective shields, as supplied by the manufacturer, are in place and in good condition. The federal Occupational Safety & Health Association standard for safety of farm equipment requires placement of guards on some augers.
4. Before service or repair, power should be shut off and the auger power source “locked-out” and “tagged.” (Locking out prevents power from being restored while maintenance is in progress, and tagging the switch indicates that power is disabled.)
5. To prevent entanglement, wearing loose clothing or jewelry or who have long, untied hair should not operate augers.
6. Workers should not step or jump on or over an auger while it is in operation.
7. Grain augers always should be lowered to a horizontal position before being moved from one location to another. Workers always should observe the presence and location of power lines before raising an auger into position.
8. Whenever possible, operators should ensure good footing while working around augers. Portable augers should be placed on dry, level ground or a gravel pad. Spilled grain should be removed between loads after the equipment has been turned off.
9. Operators should never use their hands or feet to redirect

the flow of grain or other materials into the auger.
10. All farm and auger operators should be educated about safe operating procedures and hazards associated with augers.
11. Augers should be clearly labeled as posing a hazard for entanglement and subsequent serious injury.
12. **NIOSH RECOMMENDATIONS**

NIOSH recommends that all farm owners/managers, farm/agricultural workers, and farm equipment manufacturers be made familiar with, and reinforce the following steps:

Hazard Awareness

A survey of the farm should be conducted to identify hazards posed by the locations of overhead electrical lines. When all such hazards are identified and documented for future reference, workers should be informed of their location and instructed in the steps necessary to safely move grain augers.

Safe Movement of Grain Augers and Other Equipment

Grain augers pose a life threatening hazard when moved in an elevated position if they contact overhead electrical lines or if they tip over. Therefore, it is essential that grain augers be lowered to a horizontal position before being moved from one location to another. In addition, all other equipment to be moved should be evaluated in order to determine the most appropriate method that will ensure worker safety during its transport. Manufacturers of grain augers are urged to consider design modifications that will prevent grain augers from being moved while in an elevated position.

Safety Signs

It is recommended that users and manufacturers of grain augers affix safety signs onto the equipment that warn the user of the potential hazards of moving the auger in its upright position. A safety sign to draw attention to avoiding electrical hazards when moving grain augers is provided with this Alert. This sign should be placed on the grain auger in a conspicuous location so that it will alert workers of life-threatening hazards.

FOUR BREAD AND BUTTER SAFETY TIPS

1. **For farmers who do not use grain augers as frequently**, it can be easy to overlook repairs or general maintenance between uses. But by performing routine maintenance, and taking the time to become reacquainted with an auger ahead use can help prevent close calls or even an injury.
2. **Before starting up the auger**, make sure to check that all guards are secured in place. Have a look at all the safety decals and get replacements for anything which is no longer legible or is missing. Some grain auger distributors make these available, free of charge.
3. **Inspect the winch system** for wear and tear, ensuring that there is enough cable to wrap around the winch drum at least three times when the auger is down. Check that the cable anchor, fasteners, belts and any chains are all sufficiently tight.
4. **Lubricate the machine** as directed in the owner's manual and top up oil levels in the gearbox. Several equipment manufacturers offer copies of grain auger owner's manuals online, for farmers who never received a paper copy or have misplaced it since the previous season.

FINAL WORD

Portable grain augers are used on our farm as a fast and simple way to move grain. However, using the auger improperly or without the guards can lead to serious injury. Common injuries with augers include amputations, lacerations, broken bones and electrocutions. Taking a few precautions can help prevent these injuries.