Van Kirk Bros. Contracting

Health, Safety, and Environmental Manual

Rev. 10/25/2024

Van Kirk Bros. Contracting

Mission Statement

1. MISSION STATEMENT

The HSE Department at Van Kirk Bros. Contracting develops and implements comprehensive environmental health and safety policies throughout the organization to support its mission and goals. Their focus is on protecting public health, preventing personal injury, and ensuring regulatory compliance in areas such as chemical, biological, and radiation safety, occupational health and safety, and environmental stewardship. HSE is committed to reducing injuries, accidents, and environmental impact through high-quality training, workplace evaluation, emergency response, hazardous materials management, and regulatory compliance.

1.1 Responsibilities

At Van Kirk Bros. Contracting, safety is everyone's responsibility, and all employees participate in ensuring a safe work environment. New Employee Orientation covers all Company safety policies and procedures, and the Safety Coordinator and Safety Committee lead the overall safety effort by providing necessary resources for accident prevention. The Safety Committee regularly reviews and updates HSE procedures through a quarterly review process to maintain the integrity of the Company safety management system. Supervisors are responsible for maintaining safe work conditions, and employees are responsible for following established safety procedures, reporting potential hazards promptly, and promoting a proactive culture of safe and responsible facility use. Maintaining a safe work environment is a top priority for Van Kirk Bros. Contracting and a personal goal for each employee.

Endorsed By: (Title)	Mike Newman, President		
Signature:	Mike Newman *Michael Newman*	Date:	10/25/2024

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Aerial Lifts (Elevated and Rotating Work Platforms) Program

1. Aerial Lifts (Elevated and Rotating Work Platforms) Program

1.2 Purpose and Scope

The purpose of this program is to provide minimum safe work practices for the operation of aerial lifts (elevated and rotating work platforms) to ensure the safety of employees.

This document applies to all Van Kirk Bros. Contracting employees working with or on aerial lifts.

1.3 References

Number	Title
29 CFR 1910 Subpart F	Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms - Vehicle Mounted Elevating and Rotating Work Platforms
29 CFR 1910 Subpart S	Electrical - Selection and Use of Work Practices
29 CFR 1926 Subpart L	Scaffolds - Aerial Lifts
29 CFR 1926 Subpart V	Electric Power Transmission and Distribution - Job Briefing
29 CFR 1926 Subpart O	Motor Vehicles, Mechanized Equipment, and Marine Operations - Motor Vehicles
29 CFR 1926 Subpart M	Fall Protection - Fall Protection Systems Criteria and Practices
Cal/OSHA T8 CCR Subchapter 7	General Industry Safety Order - Operating Instructions (Aerial Devices)
Cal/OSHA T8 CCR Subchapter 4	Construction Safety Orders - Warning Methods
Cal/OSHA T8 CCR Subchapter 5	Electrical Safety Orders - Warning Signs Required

1.4 Definitions

Acronym/Term	Definition
Aerial Lift	Any vehicle-mounted device used to elevate personnel, including extendable boom platforms, aerial ladders, articulating (jointed) boom platforms, vertical towers, and any combination of these.
Insulated Aerial Lifts	Offer protection from electric shock and electrocution by insulating from electrical ground.

1.5 Aerial Lifts (Elevated and Rotating Work Platforms) Program

Aerial lifts are commonly used in construction, inspection, maintenance, and repair services to lift employees to an elevated work position. Proper operation and use of aerial lifts can make the completion of tasks at elevation safer and more efficient. However, with unsafe use, work with aerial lifts can result in serious injury.

1.6 General

The brakes shall be set, and outriggers, when used, shall be positioned on pads or a solid surface. Wheel chocks shall be installed before using an aerial lift on an incline.

An aerial lift truck may not be moved when the boom is elevated in a working position with employees in the basket, except for equipment that is specifically designed for this type of operation.

Articulating boom and extensible boom platforms, primarily designed as personnel carriers, shall have both platform (upper) and lower controls. Lower-level controls shall not be operated unless permission has been obtained from the employee in the lift, except in case of emergency.

Before moving an aerial lift for travel, the boom(s) shall be inspected to see that it is properly cradled and outriggers are in stowed position.

Field modifications for use other than intended by the manufacturer are prohibited.

1.7 Training

Only trained persons shall operate an aerial lift.

Training shall include:

- Explanations of electrical, fall, and falling object hazards.
- Procedures for handling hazards.
- Recognizing and avoiding unsafe conditions.
- Instructions for correct operation of the lift, including maximum load and load capacity.
- Demonstrations of the skills and knowledge needed to operate an aerial lift prior to operation.
- When and how to perform inspections.
- Manufacturer’s requirements.

1.8 Qualifications

Anyone operating aerial lifts (JLG's, scissor lifts, genie lifts, spiders, lulls, zoon boom, etc.) must be competent and qualified as follows:

- Training and Certification: Aerial lift operators need to complete formal training and obtain certification from a recognized training organization. This training covers both theoretical knowledge and practical skills related to operating aerial lifts safely.
- Knowledge of Regulations: Operators must be familiar with relevant safety regulations and standards, such as those set by OSHA (Occupational Safety and Health Administration). This includes understanding load capacities, safe operating procedures, and inspection requirements.
- Technical Skills: Aerial lift operators must be skilled in operating the specific type of aerial lift they will be using. This includes knowledge of the lift's controls, functions, and safety features.
- Safety Procedures: Operators must have a strong understanding of safety procedures, including pre-operation inspections, proper use of personal protective equipment (PPE), and emergency protocols.
- Risk Assessment: Competent operators must assess job sites for potential hazards and make decisions to ensure safe operation. This includes identifying obstacles, unstable surfaces, overhead obstructions, and more.
- Communication Skills: Aerial lift operators must communicate with ground personnel or other operators. Effective communication is essential for coordinating movements and ensuring safety.
- Emergency Response: Operators must be trained in emergency response procedures, including how to safely evacuate the aerial lift in case of malfunction or other emergencies.
- Continuous Learning: Industries and equipment standards evolve over time. Aerial lift operators must be open to ongoing training and staying up-to-date with the latest safety regulations and best practices.

1.9 Testing and Inspection

A pre-start inspection shall be conducted to determine safe working conditions including the following:

- Manufacturer's recommendations,
- Vehicle components,
- Proper fluid level (oil, hydraulic, fuel, coolant, etc.),

- Leaks of fluids,
- Wheels and tires,
- Battery and charger,
- Lower-level controls,
- Horn, gauges, lights,
- Backup alarms,
- Steering and brakes,
- Lift components and controls,
- Operating and emergency controls,
- Personal protective devices,
- Hydraulic, air, pneumatic, fuel, and electrical systems,
- Fiberglass and other insulating components,
- Missing or unreadable placards, warnings, or operational, instructional, and control markings,
- Mechanical fasteners and locking pins,
- Cable and warning harnesses,
- Outriggers, stabilizers, and other structures,
- Loose or missing parts, and
- Guardrail systems.

Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition.

Defective aerial lifts shall be removed from service until repairs are made.

Work zone inspections shall be conducted, including the following:

- Drop-offs, holes, or unstable surfaces such as loose dirt,
- Inadequate ceiling heights,
- Slopes, ditches, or bumps,
- Debris and floor obstructions,
- Overhead electrical power lines and communication cables,
- Other overhead obstructions,
- Other hazardous locations and atmospheres,
- High wind and other severe weather conditions, and
- The presence of others near the work.

Corrective action shall be taken to eliminate any hazards found.

1.10 Load Limits

Boom and basket load limits specified by the manufacturer shall not be exceeded.

1.11 Ladder and Tower Trucks

Before ladder or tower trucks are moved for highway travel, aerial ladders shall be secured in the lower traveling position by the locking device above the truck cab and the manually operated device at the base of the ladder or by other equally effective means.

1.12 Spotter / Backup Alarm

Aerial lifts having an obstructed view shall not be moved backward unless the vehicle has a reverse signal alarm audible above the surrounding noise level and/or an observer signals it is safe to do so.

1.13 Overhead Power Lines

For overhead power lines rated 50 kV or below, minimum clearance between the lines and any part of the equipment or load shall be at least 10 feet.

If the aerial lift is insulated for the voltage involved, and if the work is performed by a qualified person, the clearance distance (between the uninsulated portion of the aerial lift and the power line) may be referenced to the distance provided in 1910.333(c)(3)(ii)(C) Table 5-5.

1.14 Fall Protection

A personal fall arrest or travel restraint system shall be worn and attached to the boom or basket when working from an aerial lift. Employees are prohibited from attaching to adjacent poles or structures.

1.15 Field Modifications

Aerial work platforms shall not be field modified for uses other than those intended by the manufacturer unless the modification has been certified in writing by the manufacturer or by any other equivalent entity, such as a nationally recognized testing laboratory, to be in compliance with the applicable ANSI standard and this rule, and to be at least as safe as the equipment was before modification.

2. Armed Aggressor Program

1.16 Purpose and Scope

The purpose of this program is to outline how to respond in an armed aggressor situation.

This program applies to all Van Kirk Bros. Contracting employees.

1.17 Resources

Number	Title
N/A	U.S. Department of Homeland Security
N/A	Site Personnel Roster

1.18 Armed Aggressor Policy

An armed aggressor is an individual actively engaged in killing or attempting to kill people in a confined and populated area; in most cases, armed aggressors use firearms(s) and there is no pattern or method to their selection of victims.

Armed aggressor situations are unpredictable and evolve quickly. Typically, the immediate deployment of law enforcement is required to stop the shooting and mitigate harm to victims.

Because armed aggressor situations are often over within 10 to 15 minutes, before law enforcement arrives on the scene, individuals must be prepared both mentally and physically to deal with an armed aggressor situation.

An active site personnel roster must be kept and made available in case of emergencies.

1.19 How to Respond

Quickly determine the most reasonable way to protect your own life. Remember that customers and clients are likely to follow the lead of employees and managers during an armed aggressor situation.

1.19.1 Evacuate (Run)

If there is an accessible escape path, attempt to evacuate the premises. Be sure to:

- Have an escape route and plan in mind
- Evacuate regardless of whether others agree to follow
- Leave your belongings behind
- Help others escape, if possible
- Prevent individuals from entering an area where the armed aggressor may be
- Keep your hands visible
- Follow the instructions of any police officers
- Do not attempt to move wounded people
- Call 911 when you are safe

1.19.2 Hide Out (Hide)

If evacuation is not possible, find a place to hide where the armed aggressor is less likely to find you.

Your hiding place should:

- Be out of the armed aggressor's view
- Provide protection if shots are fired in your direction (i.e., an office with a closed and locked door)
- Not trap you or restrict your options for movement

To prevent an armed aggressor from entering your hiding place:

- Lock the door
- Blockade the door with heavy furniture

If the armed aggressor is nearby:

- Lock the door
- Silence your cell phone
- Turn off any source of noise (i.e., radios, televisions)
- Hide behind large items (i.e., cabinets, desks)

- Remain quiet

If evacuation and hiding out are not possible:

- Remain calm
- Dial 911, if possible, to alert police to the armed aggressor's location
- If you cannot speak, leave the line open and allow the dispatcher to listen

1.19.3 Take Action Against the Armed Aggressor (Fight)

As a last resort, and only when your life is in imminent danger, attempt to disrupt and/or incapacitate the armed aggressor by:

- Acting as aggressively as possible against the armed aggressor
- Throwing items and improvising weapons
- Yelling
- Committing to your actions

1.20 How to Respond When Law Enforcement Arrives

Law enforcement's purpose is to stop the armed aggressor as soon as possible. Officers will proceed directly to the area in which the last shots were heard.

- Officers usually arrive in teams of four
- Officers may wear regular patrol uniforms or external bulletproof vests, Kevlar helmets, and other tactical equipment
- Officers may be armed with rifles, shotguns, handguns
- Officers may use pepper spray or tear gas to control the situation
- Officers may shout commands, and may push individuals to the ground for their safety

How to react when law enforcement arrives:

- Remain calm, and follow officers' instructions
- Put down any items in your hands (i.e., bags, jackets)
- Immediately raise hands and spread fingers
- Keep hands visible at all times
- Avoid making quick movements toward officers such as holding on to them for safety

- Avoid pointing, screaming, and/or yelling
- Do not stop to ask officers for help or direction when evacuating, just proceed in the direction from which officers are entering the premises

Information to provide to law enforcement or 911 operator:

- Location of the armed aggressor
- Number of shooters, if more than one
- Physical description of shooter/s
- Number and type of weapons held by the shooter/s
- Number of potential victims at the location

The first officers to arrive to the scene will not stop to help injured persons. Expect rescue teams comprised of additional officers and emergency medical personnel to follow the initial officers. These rescue teams will treat and remove any injured persons. They may also call upon able-bodied individuals to assist in removing the wounded from the premises.

Once you have reached a safe location or an assembly point, you will likely be held in that area by law enforcement until the situation is under control, and all witnesses have been identified and questioned. Do not leave until law enforcement authorities have instructed you to do so.

1.21 Specific Scenario Response

In an office or functioning facility:

- Stay inside if in an office or room; secure the door and turn off the lights
- Remain silent and out of sight
- Look for and use heavy furniture to barricade the door if the door has no lock and the door opens inward
- Cover any windows to include the door window
- Consider exiting through windows depending on the armed aggressor's location; have someone watch as you get as many people out through windows as calmly and as quietly as possible
- Move well away from the incident if it is safe to evacuate and find safe cover positions (not the parking lots) and wait for the police to arrive
- Do exactly what the police tell you to do when they arrive and keep your hands on your head

In hallways or corridors:

- Get in a room that is not already secured and secure it.
- Go to a secure room unless you are very close to an exit; do not run through a long hall to get to one, as you may encounter the armed aggressor

In large rooms:

- Move to an external exit and move toward any police unit if the armed aggressor is not present
- Move to a securable room or area if the armed aggressor is in the vicinity and escape is not a viable choice
- Drop all bags and keep your hands on your head
- Do what the police tell you to do

Open spaces or new construction sites:

- Stay alert and look for appropriate cover locations
- Seek hard cover, such as brick walls, large trees, retaining walls, parked vehicles, heavy equipment, and any other object that may stop bullets
- Try to get to a neighboring facility if you can safely and find a secure area to await instructions

1.22 Reactions of Managers During an Armed Aggressor Situation

Employees and customers are likely to follow the lead of managers during an emergency situation. During an emergency, managers should be prepared to:

- Take immediate action
- Remain calm
- Lock and barricade doors
- Evacuate staff and customers via a preplanned evacuation route to a safe area

1.23 Assisting Individuals with Special Needs and/or Disabilities

- Ensure that evacuation instructions and any other relevant information address the individuals with special needs and/or disabilities
- Ensure buildings are in compliance with ADA requirements

1.24 Training Exercises

Mock armed aggressor training exercises should be conducted to include:

- Recognizing the sound of gunshots
- Reacting quickly when gunshots are heard and/or when a shooting is witnessed:
  - Evacuating the area
  - Hiding out
  - Acting against the shooter as a last resort
- Calling 911
- Reacting when law enforcement arrives
- Adopting the survival mind set during times of crisis

Contact local law enforcement for assistance in designing training exercises.

1.25 Prepare for and Prevent an Armed Aggressor Situation

Preparedness

- Ensure facilities have at least two evacuation routes
- Post evacuation routes in conspicuous locations throughout the facility
- Include local law enforcement and first responders during training exercises
- Encourage law enforcement, emergency responders, SWAT teams, K-9 teams, and bomb squads to train for an armed aggressor scenario at the location

Prevention

- Foster a respectful workplace
- Be aware of indications of workplace violence and take remedial actions accordingly.

1.26 Recognizing Potential Workplace Violence

An armed aggressor in your workplace may be a current or former employee, or an acquaintance of a current or former employee. Intuitive managers and coworkers may notice characteristics of potentially violent behavior in an employee. Alert your Human Resources Department if you believe an employee or coworker exhibits potentially violent behavior.

1.26.1 Indicators of Potential Violence by an Employee

Employees typically do not just “snap,” but display indicators of potentially violent behavior over time. If these behaviors are recognized, they can often be managed and treated. Potentially violent behaviors by an employee may include one or more of the following (this list of behaviors is not comprehensive, nor is it intended as a mechanism for diagnosing violent tendencies):

- Increased use of alcohol and/or illegal drugs
- Unexplained increase in absenteeism; vague physical complaints
- Noticeable decrease in attention to appearance and hygiene
- Depression / withdrawal
- Resistance and overreaction to changes in policy and procedures
- Repeated violations of company policies
- Increased severe mood swings
- Noticeably unstable, emotional responses
- Explosive outbursts of anger or rage without provocation
- Suicidal; comments about “putting things in order”
- Behavior, which is suspect of paranoia, (“everybody is against me”)
- Increasingly talks of problems at home
- Escalation of domestic problems into the workplace; talk of severe financial problems
- Talk of previous incidents of violence
- Empathy with individuals committing violence
- Increase in unsolicited comments about firearms, other dangerous weapons, and violent crimes

1.27 Managing the Consequences of an Armed Aggressor Situation

After the armed aggressor has been incapacitated and is no longer a threat, human resources and/or management must engage in post-event assessments and activities, including:

- An accounting of all individuals at a designated assembly point to determine who, if anyone, is missing and potentially injured
- Determining a method for notifying families of individuals affected by the armed aggressor, including notification of any casualties
- Assessing the psychological state of individuals at the scene, and referring them to health care specialists accordingly
- Identifying and filling any critical personnel or operational gaps left in the organization as a result of the armed aggressor

3. Automated External Defibrillator (AED) Program

1.28 Purpose and Scope

The purpose of this program is to ensure that all Automated External Defibrillators (AED) installed comply with appropriate guidelines in, placement, maintenance, training, and supervision.

This program applies to all Van Kirk Bros. Contracting employees.

1.29 Roles and Responsibilities

The success of the AED Program depends on the effective collaboration of team members from across the company. Specific responsibilities of members are outlined as follows:

AED Program Administrator:

- Act as a liaison between AED owners, manufacturers, and health agencies to assist in unit maintenance and compliance.
- Develop and update AED program, forms, and resource information for users.
- Coordinate with AED requests to ensure that employees are informed on program responsibilities, purchasing requirements, maintenance, and training requirements.
- Coordinate installment of AED equipment locations.
- Maintain documentation of all AED units and locations.
- Conduct annual inspections to verify that AEDs are in compliance with the AED program and maintaining inspection records.
- Identify and communicate relevant federal and state laws and regulations.
- Conduct incident debriefing and complete follow-up reports for each use of an AED.
- Collect and maintain records associated with AED requests, user training documentation, and AED post - incident reports.

AED Program Coordinator:

Sites that acquire an AED are responsible for maintaining the device to the standards of its manufacturer, federal and state laws, the programmatic standards of the American Heart Association or the American Red Cross.

- Designate a person who is responsible for management of the AED.

- Complete the AED Registration.
- Ensure inspections and maintenance is conducted in a timely manner and in accordance with the written user and service manuals provided by the manufacturer.
- Provide or arrange for training and refresher training in CPR/AED certification such that:
  - Training is conducted in a timely manner and in accordance with the American Heart Association or the American Red Cross.
  - Training must be documented.
- Purchase and maintain all AED equipment and supplies according to the manufacturer's instructions (i.e., batteries, pads, or ancillary supplies).
- Notify the AED Program Administrator of any use of an AED.
- Maintain a copy of the manufacturer's user and service manuals for each type of AED in service.
- Maintain on-site records, inspections, training, and other supporting documentation.
- Report any abuse or vandalism of the AED.

Installation Administrator:

- Install building AED cabinets and signage in accordance with manufacturer's guidelines.

1.30 Required Equipment

In addition to the AED, other equipment and ancillary supplies are required for the installation and use of the AED.

This includes but not limited to:

- Alarmed wall-mounted AED cabinet (cabinet and location must be preapproved before ordering)
- AED wall signage (must be preapproved before ordering)
- One set of adult defibrillation electrode pads
- One set of child defibrillation electrode pads
- One prep and response kit at a minimal containing:
  - Two pairs of disposable nitrile gloves
  - One disposable razor

- One pair of trauma scissors
- One CPR pocket mask
- Antiseptic wipes

In special circumstances, an AED may be required for portability and are exempt from AED cabinet requirements.

1.31 Authorized Users

Anyone may, at their discretion, provide voluntary assistance to victims of medical emergencies to the extent appropriate to their training and experience. Untrained bystanders are protected from civil liability when using an AED in good faith unless the person was grossly negligent or intentionally engaged in wrongdoing when rendering the treatment. However, we encourage all persons to have proper prior training. Employees should be aware they are not required to use an AED. Except for trained medical professionals, all employees are considered volunteers when rendering assistance to any individual suffering a medical emergency.

1.32 CPR/AED Training

It is the responsibility of the AED coordinator to provide or arrange for training and refresher training in CPR/AED use for their employees. CPR and AED training is voluntary unless it is part of a written job description.

All training records must be maintained onsite, including a description of the training program. All employees identified for AED training must successfully complete an American Heart Association or American Red Cross CPR/AED course or a nationally acceptable equivalent certification which is valid for 2 years.

1.33 AED Placement

The AED Program Administrator and Coordinator must identify the most appropriate location in the requested area for proper placement.

The following guidelines should be considered:

- Placement of the unit for optimal response time should be a priority.
- Placement location should be visible and provide unobstructed public access. Consider placing the unit in a well-supervised area to prevent tampering or theft.
- Locations near large conference rooms, public use areas, and other high-traffic areas are often ideal locations.

- AED units in buildings should be identified with signage placed above the unit in a highly visible location.
- Security along with accessibility should be considered in AED placement with outdoor facilities which may not be supervised at all times.

All AEDs must be stored in a wall mounted storage cabinet per the manufacturer's guidelines. Each cabinet should have a local alarm (not connected to 911 or Emergency Services) which sounds when the cabinet door is opened. Emergency ancillary supplies for each AED should be included within the cabinet for use.

1.34 AED Maintenance and Inspection

The AED Area Coordinator is responsible for the routine inspection and maintenance of each AED according to the manufacturer's recommendations. The AED Area Coordinator is responsible for replacing the battery pack and electrode pads prior to their expiration dates. All AEDs and ancillary supplies shall be maintained in a constant state of readiness.

In general, AEDs do not require routine maintenance. AEDs perform an automatic self-test once a week and every time the unit is turned on. Should the automatic self-test detect a condition that requires attention, the status indicator will change, showing a fault, and an alarm will sound, giving notification.

The AED Area Coordinator is responsible for monthly inspection checks of each AED unit under their management. These inspections should consist of the following:

- Perform a visual check of the AED, the wall-mounted cabinet, and AED signage for signs of damage.
- Check the AED status indicator to ensure the green status light or the normal condition symbol is displayed depending on the manufacturer.
- Check the "Use By" date on the electrode packet (visible through the defibrillator lid) and all other electrode packets. If the date has passed, replace all affected electrode packets per manufacturer requirements.

The AED Area Coordinator should immediately contact the AED Program Administrator if an AED is damaged, missing or the status indicator light is not green or displays an abnormal condition. Should the AED unit be removed from service for any amount of time an "AED Temporarily Out of Service" notice must be attached over the AED storage cabinet until the AED unit is placed back to normal operating service.

After an AED is used for a medical emergency, all equipment shall be cleaned, decontaminated, serviced, and replenished as required and placed back into service as soon as possible after completing the following tasks:

- Clean and disinfect the AED using the manufacturer's guidelines.
- Check the electrode pads and replace used pads per manufacturer's guidelines.
- Check the battery and replace per manufacturer's guidelines.
- Check and replenish used ancillary supplies as appropriate.
- Return the AED to its designated location.

The AED Program Administrator will conduct an annual inspection of each AED on-site for missing or damaged units, examination of all batteries, pads, cables, and documentation, and confirm no issues have been detected by the AED's self-diagnostic check.

1.35 AED Response Plan Procedures

Trained personnel should follow their training in a cardiac emergency. Call 911 for emergency services to provide additional medical assistance.

It is important to note that the AED may be used by any person, trained or untrained in its use, who, in good faith, renders emergency care to the victim.

The following information should be given to the dispatcher:

- Caller's name
- Type of emergency (e.g., cardiac arrest)
- Exact location, building address, room number, if possible
- If CPR is in process
- If an AED is available
- Further information requested by the dispatcher

Designate a witness or nearby individual familiar with the location to meet with the responding EMS unit in order to facilitate the most direct route.

1.36 Unit Cleaning Procedures

Cleaning procedures should be followed by the AED manufacturer instructions. The following procedures are to be used as general guidelines:

- After each use, or any time the unit appears soiled, it should be cleaned and disinfected.
- Clean the carrying case using a soft cloth dampened in nonabrasive soap and water.
- Clean the unit using a soft cloth dampened in nonabrasive soap and water , or 70% isopropyl alcohol.
- Do not use any other chemicals to clean the unit unless specified by the manufacturer.
- Do not use abrasives on the display windows or any connection ports.
- Do not immerse the AED in fluids or attempt to sterilize the AED or any AED accessories with the use of an autoclave.
- Ensure that used or damaged AED accessories are disposed of and resupplied.

4. Back Injury Prevention Program

1.37 Purpose and Scope

The purpose of this program is to provide guidelines to eliminate back injuries while on the job.

This program applies to all Van Kirk Bros. Contracting employees.

1.38 Back Injury Prevention Program

The key to maintaining a good, healthy back is to practice proper lifting techniques and exercises.

If you are one of the 96% of people who have some type of back pain, and you know that you have some type of back-related problem, you need to get plenty of rest and proper exercise in order to properly manage the problem.

ONLY 4% of back pain is directly attributed to an injury.

The bulk of back related pain is usually comprised of conditions like the aging process, urinary tract infections, and non-injury related causes.

1.39 Lifting Techniques

Always lift in a proper stance with the back in an upright position, and the legs slightly bent. This is known as the figure "4" lifting position, in which the leg muscles bear the largest part of the lift.

Grasp the item to be lifted with both hands, and pull it close to the body, making sure it is held firmly.

NEVER attempt to twist at the waist when lifting or moving an object from one point to another. A twist at the back can possibly cause injury to the lower back.

NEVER attempt to lift objects that you know to be too heavy for one person to lift. Utilize lifting devices whenever possible and seek help when there are no lifting devices available.

It may be necessary to seek the help of more than one person if the load is bulky or too heavy for one or two people.

NEVER stand flat footed and arch your back as you attempt to pick an object up from the floor.

When driving a vehicle, always see that your knees are higher than your hips / buttocks. This permits your lower back to be in a properly aligned position that will lessen the chance for a lower back injury.

NEVER attempt to lower or raise an object overhead. This causes the lower back to arch and places undue strain on the lower back and can result in lower back injury.

1.40 Other Techniques

Whenever possible, workstations should be at or slightly above waist level which is the most comfortable lifting zone for the back.

Proper sitting techniques aid in reducing tired backs and in the prevention of back pain or injury. Keep the knees higher than the buttocks and the back straight.

Proper standing techniques should be utilized by employees who may be required to perform standing type jobs during most of the day.

One tip is to use a small stool that can support one foot for a time and then alternate to the other foot. This will help in keeping the back from tiring.

If there is no stool available, you can bend at the knees occasionally to keep the back from tiring.

Good sleeping posture is necessary for an employee to wake up feeling refreshed and with a rested back. This includes the proper selection of bedding, particularly the mattress. If the bedding sags, and the back is bent in an awkward position, the person will awaken with a tired and sore back.

One method of correcting a sagging bed is to place a sheet of plywood that has been cut to the size of the mattress under the mattress to firm up the sag.

1.41 Exercises for Maintaining a Healthy Back

Another key to maintaining a healthy back is to implement and use a good exercise program. Before attempting to do any back exercise, particularly if you have had any type of back pain, see your doctor. The exercises illustrated here are often recommended by doctors and have proven successful at helping people maintain a healthy back.

1.41.1 Warm up Exercises

A number of easy warm up exercises will permit you to loosen up your muscles and back. These exercises are simple and take very little time and space to perform.

A common warm up exercise is a brief brisk walk of about 3-4 minutes. This can be done at home or at work prior to attempting any normal job duties. This brisk walk can even be a walk-in place.

Knee lifts, arm rotations, and neck rotations can aid in limbering and warming up the muscles.

1.41.2 Exercises

The following exercises are an excellent means of maintaining a good healthy back and help to loosen a stiff back.

- Knee to Chest Raise: Aid to limbering up a stiff back. Lay flat on your back. Raise right knee to chest. Hold for a count to five. Repeat five times. Do not lift with arms or hands.
- Single Leg Raise: To limber up and stretch the hamstring. Lie flat on back and slowly raise the right leg as high as you comfortably can. Hold and count to five. Slowly return to starting position. Repeat five times. Keep mid and lower back flat on the floor.
- Half Sit-ups: To strengthen the abdominal and back muscles. Assume basic position (flat on back, knees arched, arms on chest.) Slowly return to starting position. Repeat five times. Keep mid and lower back flat on the floor.
- Pelvic Tilt: Arms folded behind head, knees arched and lower and mid back flat on the floor. Firmly tighten the buttock muscles. Hold count to five. Relax buttock muscles. Repeat five times.
- Nose to Knee Touch: Flat on back, arms extended down each side, with knees arched and back flat on the floor. Raise left knee slowly to chest. Pull left knee to chest with both hands. Raise head and touch nose to knee. Hold and count to five. Repeat five times and then do exercise with the right knee, repeating five times.

1.41.3 Advanced Exercises

Always check with your doctor before doing any advanced exercises.

- Scissors: Flat on back with arms folded behind head, legs slightly apart until balanced. Slowly scissor legs up and down 10 times. Slowly scissor back and forth (crossways) 10 times. Alternate left over right and right over left. Return knees to chest and then feet to the floor. Keep good balance and lower back on the floor.
- Hyper Extension: Lie on stomach with arms folded and face on arms, legs extended with the top of the foot flat on the floor. Hold left leg straight. Slowly raise leg from hip about 6 to 8 inches. Return leg to floor. Repeat five times. Repeat same steps with the right leg. Do not lift pelvis to raise leg; keep the leg straight.

5. Backhoe Safety Program

1.42 Purpose and Scope

The purpose of this program is to outline safe work practices for backhoe operations.

This program applies to all Van Kirk Bros. Contracting employees that operate or work near backhoes.

1.43 Backhoe Safety

Studies show that excavation work is one of the most hazardous types of work. Injuries from excavation work tend to be of a very serious nature and often result in fatalities.

The primary concern in excavation-related work is a cave-in. Cave-ins are much more likely to be fatal to the employees involved than other related accidents.

OSHA has emphasized the importance of excavation safety through outreach and inspection efforts based upon data which clearly establishes the significant risk to employees working in and around excavations. Furthermore, a high rate of injuries has continued to occur in and around excavations.

1.44 Pre-Shift Inspection

As with all heavy equipment, an operator using a backhoe must be aware of their surroundings at all times. They must also follow all safety precautions and protocols established for the site. This is essential for backhoe safety and remaining accident free on the work site.

Prior to starting the backhoe, a visual inspection should be performed as part of a backhoe safety program. This inspection should include testing the horn and audible reverse alarm. It should also include an inspection for loose or broken parts that should be fixed prior to use.

Some backhoes may have additional attachments used to perform specific tasks. The backhoe should be inspected by the operator prior to being used. The following list of items should be included in the pre-shift check.

- All safety devices: Horns, lights, guards and shields, fire extinguish, glass and wipers
- Engine and hydraulic fluid levels
- Boom, stick, and bucket
- Hydraulic leaks
- All controls for proper function

- A more thorough inspection should be conducted on a periodic basis typically; this is on a monthly basis but depending on the amount of time the machine is being used and under what conditions more or less frequent inspections may be necessary. The operator's manual should be consulted to identify any additional inspection requirements.

1.45 Cab

The operator's cab needs to be kept clean of dirt, grease and objects which could interfere with the safe operation of the machine. It is recommended that basic housekeeping items be kept on the machine to facilitate keeping it clean. The glass in the machine needs to be free of cracks that would impair the vision of the operator. Clean the glass regularly to increase visibility and to avoid reflection in sunlight. The windshield wipers need to work, and the blade should be replaced periodically to avoid streaking.

All controls need to be properly labeled with their function and direction of motion. Test each control before starting work to confirm they are in proper working order.

The cab should have a fire extinguisher that has a current inspection label.

1.46 Boom and Stick

Inspect the boom and stick for dents and bends. Significant dents need to be evaluated by a competent individual to determine if the structural strength has been compromised. This is especially critical when the backhoe is being used for lifting. All welded joints need to be inspected for cracks.

The hinge joints need to be greased regularly according to the manufacturer's recommendations.

After greasing, excessive grease should be wiped away with a rag. Keeping these components free of excessive grease will reduce the buildup of grit which can accelerate wear. Check the hydraulic hoses at the hinge points for wear.

1.47 Bucket Inspection and Maintenance

Inspect the bucket for cracked welds, particularly where the hinge gussets are attached.

Inspect bucket hinge pins and linkages for excessive wear, missing keeper pins and other damage.

Make sure the pins or bolts used to attach the teeth to the bucket are in place and not excessively worn.

Also, evaluate the wear on the teeth for planning the next change out.

The frequency of greasing the bucket hinge pins is dependent on weather conditions and the type of material being excavated. In sandy or powdery material, it may be necessary to grease these components two to three times a shift. The fine material will have a tendency to work their way into the hinges and accelerate wear.

Frequent greasing will keep pushing this material out. Buckets that will be digging below water need frequent greasing to keep it fresh. At the end of the shift where the machine will sit overnight, grease all these areas again to prevent corrosion. After greasing, exercise the bucket to distribute the grease.

1.48 Operator's Manual

The operator's manual is required to be on the machine or readily available to the operator.

The operator is also responsible for having read and understood the manual. The Company must ensure the operator has read the manual before allowing them to operate the machine.

The manual contains important information about the operation and maintenance of the backhoe. Though very similar, not all backhoes are the same, particularly with respect to maintenance. The manual will contain operating information and load capacity charts that must be used when the machine is utilized for lifting.

1.49 Seatbelts

Seatbelts are a safety device and as such must be kept in operating condition.

Worn or damage belts need to be replaced.

When moving the machine over rough terrain or on steep slopes, the seat belt will help keep the operator in the seat allowing them to maintain control of the machine.

Some manufactures recommend replacing the whole seat belt assembly every 3 years regardless of appearance.

1.50 Climbing On and Off the Machine

One of the prime causes of ankle and back injuries to operators is the improper method to climbing on and off the backhoe. The standard three-point method is recommended. This method is simply keeping two feet and a hand or two hands and foot in contact with the machine while moving the remaining hand or foot. Enter and exit the machine while facing it. This will allow the operator to use all the handrails provided. Avoid jumping from the machine.

Cleaning footwear of excessive mud or grease will help prevent slipping.

1.51 Operator Responsibilities

The operator of a backhoe is responsible for safe operation of the machine and the safety of those working in the vicinity of it.

Several factors can affect an operator's ability to stay focused on operating their machine.

- Fatigue and Hunger: Fatigue can result from working too many hours, lack of sleep, hunger, or monotonous, repetitive work. When an operator shows signs of fatigue, they should be relieved to get rest or exercise to refresh their alertness.
- Weather: Some backhoes are open to the elements. An operator needs to dress appropriately for the weather to prevent stress on their body.
- Emotional Level: Operators under emotional stress may not be able to stay focused. It may be necessary at times to remove such an operator from a machine until emotional equilibrium is restored.
- Physical Health: Operators suffering from health problems affecting their machine operating ability should not be allowed on a machine. Even workers taking cold medicine may have their alertness compromised.
- Working Conditions: Some worksites that have many activities occurring simultaneously can distract an operator. Operators must be able to block out such distractions while operating a machine.
- Other People: People should not attempt to talk to or in any way distract an operator who is operating a machine. Wait until they are finished with an operation before approaching or talking to the individual.

1.52 Operating Precautions

- Before starting and while operating a backhoe, look for people or obstructions in the vicinity of the backhoe.
- Employees working within an area where a backhoe is operating must wear flagging garments (i.e., orange vests) and at least, a hard hat, steel-toed boots, and long pants.
- Never carry passengers on a backhoe.
- Learn the locations of underground and overhead utility lines, ditches, stumps, boulders, and other hazards or obstructions in the work area.
- Extend the backhoe stabilizers prior to starting an excavation task.
- Never exceed the engine, excavator, or lift capacities of the backhoe.

- Swing the backhoe arm uphill when excavating on a hillside.
- When transporting material in a loader bucket, keep the loader bucket as low to the ground as possible to maintain backhoe stability.
- Only raise the loader bucket for the purpose of dumping material.
- Reduce speed when turning, crossing slopes, or driving on rough, slick, or muddy surfaces.
- Dismount (or mount) a backhoe when the engine is shut off.
- Never adjust or work on a backhoe unless the engine is shut off and hydraulic pressure has been deenergized.
- In order, backhoe shutdown procedures are: (1) turn off the engine; (2) lower the loader bucket and backhoe arm; (3) and set the parking brake.

1.53 Danger Area

Before work begins, access to the worksite by unauthorized persons needs to be controlled. Barriers of cones, barrels, or other structures can establish the work area perimeter. Caution tape, barricade safety fencing, or other well-marked material should be placed between the vertical barriers to prevent people from accidentally entering the work area.

1.54 Power Line Contact

When the backhoe comes in contact with a live power line, the whole machine becomes electrified. Due to the different current paths that the electricity can follow, parts of the machine could be at different voltages. If the operator touches different parts of the machine, their body could create a current path which could result in electrocution.

The ground around the backhoe can also become electrified. The voltage in the soil nearest the machine will be greater than that further away from it. When moving away from the backhoe, individuals should shuffle to avoid creating a current path from one foot to the other.

The operator should remain with the backhoe if at all possible until the power company indicates it is safe to leave the machine. This is because the backhoe components could be at different voltages and touching parts of the machine could result in being electrocuted.

No one should be allowed to approach the backhoe or to touch it. If the operator is unconscious, no attempt should be made to rescue them until the power Company indicates it is safe to do so.

If the operator must leave the backhoe due to fire, they should move slowly to the edge of the cab without touching it and carefully jump to the ground. Once on the ground, they should shuffle away from the machine.

1.55 Excavating

Before starting to excavate, assess the situation.

Before beginning work, the operator and those working with the operator should take a moment to assess the site to plan how the work will progress. An assessment of soil conditions is important to ensure that the backhoe will be stable throughout the project. When excavating a large site, taking time to plan out the excavation process can save time and money. Things to consider are:

- Will the spoil be placed along the excavation or need to be removed?
- If material is to be moved away from the excavation by truck, what type will be used and how will they access the site for loading?
- To check the depth and grade of an excavation, will the grade checker be required to enter the excavation, and can it be done safety?

If the backhoe will be used for lifting, the type and size of the lift load needs to be considered to ensure the backhoe is adequate:

- Is the work site on a slope?
- What other work will be taking place in the area of the excavation?
- If compaction is required, how will it be done?
- Will the backhoe be required to place objects in the excavation?

1.55.1 Call Before You Dig

Excavating in an area where utilities are present is always a challenge and can be deadly. Before starting an excavation of any type, it is important to determine if there are any underground utilities in the area. Planning the site work will allow time for the utility providers to send out representatives to locate and mark their underground utility.

Most areas have a One-Call number which will contact local utilities companies of your location. Representatives from these companies will come to your work site and mark the location of these utilities.

1.55.2 Avoid Undercutting

When excavating, the operator must always be alert to where the machine is in relationship to the edge of the excavation.

Even if no undercut is made, the edge of the excavation may not be strong enough to support the weight of the machine.

1.56 General Trench Precautions

Material excavated from a trench should be placed a minimum of 2 feet from the edge of the trench. This distance may need to be greater depending on soil type. The slope of the spoil pile should be flat enough to prevent material from sliding into the trench.

1.57 Operator Training

Operators having previous experience operating the backhoe need only demonstrate the competency skills listed below in order to complete evaluation.

The operator must demonstrate, at a minimum, knowledge of the following operations:

- Demonstrate the safe operation of equipment including observation of surroundings.
- Perform pre-start checks, start-up/shutdown procedures, and monitor performance of the equipment.
- Perform daily maintenance tasks.

Perform basic moves with equipment including:

- Move forward, stop, back up, stop (flat elevation).
- Apply parking brake, lock out transmission.
- Shift transmission.
- Raise and lower boom (making sure to observe for wires).
- Extend and retract stick.
- Curl and dump bucket.
- Swing left and right.
- Lower bucket to the ground for lockout procedures.
- Identify that you must call before you dig (Check for underground utilities).

- Excavate simple trench 10 foot long by 2 feet deep. Keep trench straight. Place materials from dig no less than 2 feet from edge of dig area.
- Backfill trench using the materials taken from the excavated site.
- Use bucket to flatten and compress the dig site.

6. Barricading Program

1.58 Purpose and Scope

The purpose of this program is to ensure the safety of our employees and to comply with health, safety, and environmental regulations set out by the clients.

This program applies to all Van Kirk Bros. Contracting employees.

1.59 Training

Training will be provided for employees whose job activities involve the use of barricading.

1.60 General

Areas of normal pedestrian traffic, such as the process units, having an excavation greater than 1 foot, shall have a rigid barricade (2-inch x 4-inch lumber or equivalent), 42 inch high, placed at least 2 feet in front of the edge of the opening. Whenever possible this barricade shall be painted or striped with safety "YELLOW" paint. If it is not possible to obtain the 2-foot clearance, flagging or barricade tape shall be placed entirely around the opening.

Ground openings less than1 foot deep need only be flagged off with barricade tape. Barricade tape must be at least 2 feet in front of the edge of the opening.

In remote areas subject to little or no pedestrian traffic, all open sides shall be flagged off at least 5 feet from the edge of the opening.

Battery powered flashers shall be placed in roadways on all sides subject to vehicular traffic.

When the ground opening is closed, and the hazard no longer exists, the barricading material must be removed.

Manholes may be barricaded with standard manhole handrails during daylight hours. Manholes remaining open over night or in areas that are poorly illuminated shall have battery powered flashers around the barricaded area.

1.61 Overhead Work

Whenever overhead work is being performed, barricade tape shall be used to flag the area.

Signs and flagging must be removed when the hazard no longer exists.

Should an overhead hazard remain at the close of the work period, the shift supervisor shall be notified of the hazard and the flagging and/or barricade tape must remain in place.

During overhead work, approval must be obtained to drive equipment into area from member of crew erecting barricade or appointed flagger / ground watch.

1.62 Air Contaminants

When work or conditions allow or may allow the release of potentially hazardous air contaminants, such as asbestos, silica, hydrogen sulfide, sulfur dioxide, ammonia, chlorine, etc., the affected area shall be barricaded with the appropriate warning signs and/or barricade tape.

The barricade material must be removed when the hazard is no longer present.

1.63 Radiation Hazards

When a portable radioactive source, such as for radiography, is used or when a fixed radioactive source is exposed, the area shall be barricaded off with yellow and magenta barricade tape and standard "CAUTION RADIATION AREA" signs be displayed. The radiation symbol, the Universal Propeller, shall be on the signs.

The barricade shall be placed so that the radiation level at any point beyond the barricaded area is not greater than 2 milliroentgen/hour (2mr/hr).

The barricading material must be removed when the hazard is no longer present.

1.64 Miscellaneous Hazards

Temporary hazards may exist in an area, such as exposed energized electrical contact, high pressure testing, or other such conditions, these areas shall be barricaded off with the appropriate worded barricade tape.

If barricade tape that reads "CAUTION" only is used, a caution sign denoting the specific hazard shall be posted along with the barricade tape.

The barricade material must be removed when the hazard is no longer present.

1.65 Heavy Equipment

Properly worded barricade tape shall be used to prevent personnel access to areas within the swing radius of the rear of the rotating counterweights of cranes.

Steps should be taken to avoid lifting loads over personnel.

1.66 Summary of Requirements

The hazard must be barricaded at all access points. When the hazard is not written on the barricade tape, signs denoting the hazard shall accompany the barricade tape. Barricading material must be removed as soon as the hazard no longer exists.

7. BLOODBORNE PATHOGENS PROGRAM

1.67 Purpose and Scope

The purpose of this section is to provide general principles to be followed when working with potentially infectious material.

This procedure applies to all Van Kirk Bros. Contracting employees with the potential for exposure to infectious materials.

1.68 References

Number	Title
29 CFR1910 Subpart Z	Toxic and Hazardous Substances - Blood Borne Pathogens
29 CFR 1910 Subpart Z	Toxic and Hazardous Substances - Access to Employee Exposure and Medical Records Standard
29 CFR 1910 Subpart I	Personal Protective Equipment - Eye and face protection
Cal/OSHA T8 CCR Subchapter 7	General Industry Safety Order – Control of Hazardous Substances
CMS-FM-0013	Hepatitis B Vaccination Consent Form
CMS-FM-0014	Hepatitis B Vaccination Declination Form
CMS-FM-0015	Employee Report of Occupational Exposure
CMS-FM-0016	Bloodborne Pathogens Exposure Control Plan

1.69 Definitions

Acronym/Term	Definition
Bloodborne Pathogens	Pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV).
Contaminated Laundry	Laundry that has been soiled with blood or other potentially infectious materials or that may contain sharps.
Contaminated Sharps	Any contaminated object that can penetrate the skin including but not limited to needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.
Decontamination	The use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

Acronym/Term	Definition
Exposure Incident	A specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious material that results from the performance of an employee's duties.
Infectious Waste	Also called biomedical waste, this includes human waste, animal waste, and objects and materials contaminated with blood and body fluids containing disease-causing micro-organisms or viruses.
Occupational Exposure	Reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.
Other Potentially Infectious Materials	Semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids. Any unfixed tissue or organ (other than intact skin) from a human (living or dead). Also, HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions, and blood, organs, or other tissues from experimental animals infected with HIV or HBV.
Parenteral	Piercing mucous membranes or the skin barrier through such events as needle sticks, human bites, cuts, and abrasions.
Sharp	Medical slang for a needle or similar pointed object.
Source Individual	Any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee.
Sterilization	The use of a physical or chemical procedure to destroy all microbial life, including highly resistant bacterial endospores.
Universal Precautions	An approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, or other bloodborne pathogens.
Work Practice Controls	Controls that reduce the likelihood of exposure by altering the way a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

1.70 Bloodborne Pathogens Program

Approximately 5.6 million American employees are at risk of developing various types of illnesses due to their exposure to bloodborne pathogens such as the human immunodeficiency (HIV) and hepatitis B (HBV) viruses and other potentially infectious materials in the workplace. In recent years there has been a significant increase in the number of cases reported. This poses a serious problem for exposed employees and their employer.

The Exposure Control Plan must be readily available to employees and employees must be informed of its location.

1.71 General

Good general principles shall be followed when working with potentially infectious material. For example:

- It is prudent to minimize all exposure to bloodborne pathogens / potentially infectious material.
- Risk of exposure to bloodborne pathogens should never be underestimated.
- Institute as many work practices and engineering controls as possible to eliminate or minimize employee exposure to bloodborne pathogens / potentially infectious materials.
- Any site working with potentially infectious materials shall have an Exposure Control Plan that meets the letter and intent of the local regulatory Pathogens Standard. The plan shall be easily accessible to all employees and they shall be informed of where to find it. The objective of this Plan is twofold:
    - To protect employees from the health hazards associated with bloodborne pathogens by eliminating or minimizing employee exposure.
    - To provide appropriate treatment and counseling should an employee be exposed to bloodborne pathogens / potentially infectious materials.

It is important to keep the Exposure Control Plan up to date. To ensure currency, the Plan shall be revised and updated as follows:

- Bi-annually.
- Whenever new or modified tasks and procedures are implemented that affect occupational exposure of employees.
- Whenever employees' jobs are revised such that new instances of occupational exposure may occur.
- Whenever new functional positions are established that may include exposure to bloodborne pathogens.

1.72 Exposure Determination

The Exposure Control Plan shall identify job classifications in which employees have regular exposure, some exposure, or no occupational exposure to bloodborne pathogens and shall identify tasks and procedures in which occupational exposure to bloodborne pathogens occur.

The exposure determination shall be made without regard to the use of personal protective equipment (PPE).

1.73 Methods of Compliance

Universal precautions shall be observed by personnel to prevent contact with blood or other potentially infectious materials. In accordance with the concept of universal precautions, personnel shall treat blood and other potentially infectious materials as though potentially infected with HBV, HIV, or other bloodborne pathogens, particularly when differentiation between body fluid types is difficult or impossible. Proper PPE must be utilized.

1.74 Engineering and Work Practice Controls

Engineering and work practice controls shall be used to minimize employee exposure. These controls and a copy of the site-specific exposure control plan shall be provided to employees in a reasonable time, place, and manner.

The Exposure Control Plan must include the various types of bodily fluids that the effected employees can reasonably be exposed to in the workplace to include, but is not limited to blood, mucus, and saliva.

Where occupational exposure remains after institution of these controls, PPE shall also be used. Engineering controls may include installation of mechanical pipe-fitting devices, biosafety cabinets, and safety equipment for centrifuges; suitable facilities and mechanisms for quick drenching or flushing of the eyes and mucous membranes shall be provided in the work area for immediate emergency use; and handwashing facilities shall have hot and cold running water.

Engineering controls shall be examined and maintained or replaced on a regular schedule to ensure their effectiveness.

Training and monitoring of proper work practices shall be provided with employees instructed in performing all tasks in the use of appropriate precautions, engineering and work practice controls, and PPE.

1.74.1 Handwashing

Handwashing facilities shall be readily accessible to employees (e.g., no further than what would be considered reasonable for location of restrooms).

When provision of handwashing facilities is not feasible, an appropriate antiseptic hand cleanser in conjunction with clean cloth / paper towels or antiseptic towelettes shall be provided to employees.

When antiseptic hand cleansers or towelettes are used, hands shall be washed with soap and running water as soon as feasible following exposure incidents whether or not exposure is apparent.

Employees shall wash their hands immediately, or as soon as feasible, after removal of gloves or other PPE. Employees shall wash hands and any other skin with soap or germicidal agents and water, or flush mucous membranes with water, immediately or as soon as feasible following contact of such body areas with blood or other potentially infectious materials, whether or not contact is apparent.

1.74.2 Skin Surfaces

Eating, drinking, smoking, applying cosmetics or lip balm, handling contact lenses, and touching skin surfaces with contaminated hands is prohibited in work areas where there is the reasonable likelihood of occupational exposure to bloodborne pathogens and other potentially infectious materials. Personnel shall thoroughly wash hands with soap and running water prior to engaging in these types of activities.

Food and drink shall not be kept in refrigerators, freezers, shelves, or cabinets or on countertops or benchtops where blood or other potentially infectious materials are present.

1.75 Personal Protective Equipment (PPE)

Where there is potential for occupational exposure, the Company shall provide, at no cost to the employee, appropriate PPE such as, but not limited to, gloves, gowns, replaceable coveralls, laboratory coats, face shields or masks, eye protection, mouthpieces, resuscitation bags, pocket masks, or other ventilation devices.

PPE will be considered appropriate only if it does not permit blood or other potentially infectious materials to pass through to or reach the employee's work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time that the protective equipment will be used.

The Company shall ensure that employees use appropriate PPE unless it can be shown that an employee temporarily and briefly declined to use PPE when, under rare and extraordinary

circumstances, it was the employee's professional judgment that in the specific instance its use would have prevented the delivery of healthcare or public safety services or would have posed an increased hazard to the safety of the employee or coworker. When the employee makes this judgment, the circumstances shall be investigated and documented to determine whether changes can be instituted to prevent such occurrences in the future.

Training and instruction on the proper use and limitations of PPE shall be provided with proper use enforced.

Appropriate PPE in the proper sizes shall be readily accessible at the worksite, on response vehicles, or issued to employees, and shall be maintained to ensure and promote its use. Employees shall know where to obtain protective equipment.

Hypoallergenic gloves, glove liners, powderless gloves, or other similar alternatives shall be readily accessible to those employees who are allergic to the gloves normally provided.

1.75.1 Cleaning, Repair, and Replacement

The cleaning, laundering, and disposal of PPE shall be provided in accordance with this procedure at no cost to the employee.

The repair or replacement of PPE shall be provided as needed to maintain its effectiveness at no cost to the employee.

Personnel shall be responsible for notifying their supervisor of the need to repair or replace PPE or clothing.

1.75.2 Contaminated PPE

If a garment(s) is penetrated by blood or other potentially infectious materials, the garment(s) shall be removed immediately or as soon as feasible. In such cases where there is reasonable expectation that an employee's garments may become contaminated by blood or other potentially infectious materials during the performance of duties, the employee shall take steps to ensure that clean garments are available.

Clothing, disposable PPE, and other items visibly contaminated with blood and not known to be contaminated with blood shall be treated as biohazardous waste regardless of the amount of blood present and shall be subject to regulated waste handling requirements. Contaminated items shall be placed in red bags or containers that meet the requirements of this procedure and shall be transported to a designated central collection point for biohazardous waste. Biohazardous waste shall be handled in accordance with local, state, and federal regulations.

1.75.3 Gloves

Disposable (single use) gloves, such as surgical or examination gloves, shall be replaced as soon as practical when contaminated, or as soon as feasible, if they are torn, punctured, or when their ability to function as a barrier is compromised.

Disposable (single use) gloves shall not be washed or decontaminated for re-use but shall be placed in an appropriately designated area or container for disposal in accordance with this procedure.

Utility gloves may be decontaminated for re-use if the integrity of the glove is not compromised. However, they shall be discarded if they are cracked, peeling, torn, punctured, or exhibit other signs of deterioration or when their ability to function as a barrier is compromised.

Disposable (single use) gloves, such as surgical or examination gloves, shall be worn under utility gloves to protect against penetration of fluids.

Gloves visibly contaminated with blood shall be considered infectious waste and shall be disposed of in red biohazard waste containers in the work area.

1.75.4 Eye and Face Protection

Masks in combination with eye protection devices, such as goggles / glasses with solid side shields or chin length face shields, shall be worn whenever splashes, spray, spatter, or droplets of blood or other potentially infectious materials may be generated and eye, nose, or mouth contamination can be reasonably anticipated.

Eye protection and face shields issued for the exclusive use of one employee shall be cleaned and disinfected after each day's use, or more often if necessary and following contamination. Those used by more than one employee shall be thoroughly cleaned and disinfected after each use.

Personal protective clothing shall be considered the same as PPE and shall be treated as such for the purposes of this procedure.

1.76 Housekeeping

Work areas shall be maintained in a clean and sanitary condition. Appropriate written schedules for cleaning and methods of decontamination based upon the location within the facility, type of surface to be cleaned, type of soil present, and tasks or procedures being performed in the area shall be developed and implemented.

All equipment and environmental and working surfaces shall be cleaned and decontaminated after contact with blood or other potentially infectious materials using any sterilization or

disinfection procedures or sterilizing agent or high-level disinfectant that will kill viruses if used as directed.

All personnel covered under this procedure shall observe universal precautions in the performance of housekeeping duties and shall adhere to the requirements of this procedure for use of PPE to protect themselves and their fellow employees against unnecessary exposure.

1.77 Regulated Waste

Contaminated sharps shall be discarded immediately or as soon as feasible in containers that are:

- Closable.
- Puncture resistant.
- Constructed to contain all contents and prevent leakage of fluids during handling, storage, transport, or shipping.
- Labeled or color-coded (in accordance with this procedure). During use, containers for contaminated sharps shall be:
    - Easily accessible to personnel and located as close as feasible to the immediate area where sharps are to be used or can be reasonably anticipated to be found.
    - Maintained upright throughout use.
    - Replaced routinely and not be allowed to overfill.

When moving containers of contaminated sharps from the area of use, the container shall be:

- Closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.
- Placed in a secondary container if outside contamination of the regulated waste container occurs or leakage is possible. The secondary container shall meet the criteria of this procedure.

Regulated waste shall be placed in containers that meet the criteria identified for contaminated sharps in this procedure.

Disposal of all regulated waste shall be handled in accordance with applicable Company procedures governing waste removal and regulations of the States and Territories.

Contaminated or potentially contaminated laundry shall be handled as little as possible with a minimum of agitation.

Contaminated or potentially contaminated laundry shall be bagged or containerized at the location where it was used and shall not be sorted or rinsed in the location of use.

Contaminated or potentially contaminated laundry shall be placed and transported in bags or containers labeled or color-coded in accordance with this procedure. However, when a facility utilizes universal precautions in the handling of all soiled laundry, alternative labeling or color-coding is sufficient if it permits all employees to recognize the containers as requiring compliance with universal precautions.

Whenever contaminated or potentially contaminated laundry is wet and presents a reasonable likelihood of soak-through or leakage of fluids from the bag or container, the laundry shall be placed and transported in bags or containers which prevent soak-through or leakage of fluids to the exterior.

Employees who have contact with contaminated or potentially contaminated laundry shall wear protective gloves and other appropriate PPE.

When a facility ships contaminated or potentially contaminated laundry offsite to a second facility that does not utilize universal precautions in the handling of all laundry, the facility generating the contaminated or potentially contaminated laundry shall place such laundry in bags or containers that are labeled or color-coded in accordance with this procedure.

1.78 Hepatitis B Virus (HBV) and Post-Exposure Evaluation and Follow Up

The Company shall make available the HBV vaccine, vaccination series, and post-exposure evaluation and follow up to all employees who have had an exposure incident.

All medical evaluations and procedures, including the HBV vaccine, vaccination series, and post-exposure evaluation and follow up shall be:

- Made available at no cost to the employee.
- Made available to the employee at a reasonable time and place.
- Performed by or under the supervision of a licensed physician or under the supervision of another licensed healthcare professional.
- Provided according to recommendations of the governing Public Health Service that are current at the time these evaluations and procedures take place, except as specified herein.

The Company shall ensure that employees covered under this procedure have been offered the Hepatitis B vaccination and have signed either consent or a declination form.

All laboratory tests shall be conducted by an accredited laboratory at no cost to the employee.

1.78.1 Hepatitis B Virus (HBV) Vaccination Unit

Persons at substantial risk for HBV who are demonstrated or judged likely to be susceptible should be vaccinated. The HBV vaccination is recommended for any previously unvaccinated healthcare worker who has a needle stick or other percutaneous accident with a sharp instrument or per mucosal (ocular or mucous membrane) exposure to blood.

An HBV vaccination shall be made available to employees after employees have received training required by local regulation and within 10 working days of initial assignment to tasks with occupational exposure, unless:

- The employee has previously received the complete HBV vaccination series.
- Antibody testing has revealed that the employee is immune.
- The vaccine is contraindicated for medical reasons.

Participation in a prescreening program shall not make a prerequisite for receiving the HBV vaccination.

If the employee initially declines the HBV vaccination, but at a later date while still covered under this procedure, decides to accept the vaccination, the HBV vaccination shall be made available to the employee at that time at no cost to the employee.

If a routine booster dose(s) of the HBV vaccine is recommended by the Public Health Service at a future date, such booster dose(s) shall be made available in accordance with local regulation and this procedure.

Copies of consent and declination forms shall be retained and shall be maintained in employee medical files in accordance with this procedure.

1.79 Reporting Occupational Exposure

Employees shall report all occurrences of occupational exposure as soon as feasible after the exposure. The Company will initiate the post-exposure evaluation and follow up process in response to reports of occupational exposure.

The following steps shall be taken in reporting occupational exposure to bloodborne pathogens or other potentially infectious materials:

- Employees shall notify their immediate supervisor as soon as feasible following an exposure incident.
- Employees shall complete an occupational exposure report.
- Employees shall sign the occupational exposure report and give the signed and completed form to the immediate supervisor for review and signoff.

- The supervisor shall immediately forward a copy of the report to management to initiate post-exposure evaluation and follow up.

Employees and supervisors may refer to the instructions contained in the Exposure Control Plan for reporting occupational exposure incidents to ensure that proper notifications and paperwork have been completed.

1.79.1 Post-Exposure Evaluation and Follow Up

Following a report of an exposure incident, the exposed employee shall immediately be offered confidential medical evaluation and testing.

Post-exposure evaluation and follow up shall consist of at least the following elements:

- Documentation of the route(s) of exposure.
- Identification, documentation, and testing of the source individual, unless it can be established that identification is infeasible or prohibited by state or local law.
- Collection and testing of blood for HBV and HIV serological status.
- Post-exposure prophylaxis as recommended by the Public Health Service when medically indicated.
- Counseling.
- Evaluation of reported illnesses.

If the employee consents to baseline blood collection but does not give consent at that time for HIV serological testing, the sample shall be preserved for at least 90 days. If, within 90 days of the exposure incident, the employee elects to have the baseline sample tested, such testing shall be done as soon as feasible.

After obtaining the exposed employee's consent for follow up testing, a sample of blood shall be collected and tested for HBV and/or HIV as soon as feasible following the exposure incident. The sample shall be collected and tested within 30 days of the exposure incident.

Post-exposure evaluation and follow up shall also include:

- Counseling.
- Evaluation of reported illnesses.

Following post-exposure evaluation and follow up, the exposed employee shall be provided with a copy of the evaluating healthcare professional's written opinion.

1.79.2 Post-Exposure Testing of the Source Individual

A good faith effort shall be made to both identify and obtain consent for HBV and HIV testing of the source individual.

The source individual's blood shall be collected and tested as soon as feasible and after consent is obtained to determine HBV and HIV infectivity.

If consent is not obtained, the Company shall establish that legally required consent cannot be obtained, and the source individual shall not be tested.

When the source individual's consent is not required by law, the source individual's blood, if available, shall be collected, tested, and the results documented. The condition, "if available," applies to blood samples that have been drawn from the source individual for other testing.

When the source individual is already known to be infected with HBV or HIV, testing for the source individual's known HBV or HIV status need not be repeated.

Results of the source individual's testing shall be made available to the exposed employee, and the exposed employee shall be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.

1.79.3 Post-Exposure Evaluation and Follow Up Results

Healthcare professionals who are responsible for evaluating employees following exposure incidents shall receive and review:

- A copy of the regulation.
- A description of the exposed employee's duties as they related to the exposure incident.
- Documentation of the route(s) of exposure and circumstances under which exposure occurred.
- Results of the source individual's blood testing, if available.

Maintenance of all medical records relevant to the treatment of the exposed employee, including vaccination status, is the responsibility of the Company.

Following evaluation of the exposed employee and testing of the source individual (if testing is done), the exposed employee shall be provided with a report, at minimum, containing:

- Documentation of the route(s) of exposure and the circumstances under which the exposure incident occurred.
- Identification and documentation of the source individual unless it can be established that identification is infeasible or prohibited by state or local law.

The exposed employee shall be provided with a copy of the evaluating healthcare professional's written opinion within 15 days of the completion of the evaluation.

The healthcare professional's written opinion for an HBV vaccination shall be limited to whether an HBV vaccination is indicated for an employee and whether the employee has received such vaccination.

The healthcare professional's written opinion for post-exposure evaluation and follow up shall be limited to:

- A statement that the employee has been informed of the results of the evaluation.
- A statement that the employee has been told about medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment.

The healthcare professional's other findings or diagnoses shall remain confidential and shall not be included in the written report.

Following all evaluations and testing, an evaluation shall be made of the “failures of control” at the time of the incident using the data compiled to identify and make recommendations for correction of problems in order to prevent recurrence of similar incidents.

1.80 Communications of Hazards to Employees

Warning labels shall be affixed to warn employees of items containing blood or other potentially infectious material:

- Containers of regulated waste, refrigerators, and freezers containing blood or other potentially infectious materials which require further evaluation or treatment.
- Other containers used to store, transport, or ship blood or other potentially infectious materials, except where red bags or red containers have been substituted for labels.
- Labels required by this section shall include a picture of the biohazard symbol shown in the Exposure Control Plan.
- Labels shall be fluorescent orange, orange-red, or predominantly so, with lettering or the symbols in a contrasting color.
- Labels required by this section shall be affixed as close as feasible to the container by adhesive, string, wire, or other method that prevents their loss or unintentional removal.
- Red bags or red containers may be substituted for labels.

- Individual containers of blood or other potentially infectious materials that are placed in a labeled container during storage, transport, shipment, or disposal are exempted from the labeling requirement.
- Contaminated equipment shall be labeled in accordance with this procedure and shall also state those portions of the equipment that remain contaminated.

1.81 Information and Training

Employees who have the potential to be exposed to bodily fluids must be trained on the subject of bloodborne pathogens upon initial hire and annually thereafter. The training must be documented and retained for a minimum of 3 years.

Communicating hazards to employees and providing training and information are paramount in the implementation of this procedure since protective measures such as PPE and proper work practices will not be effective unless employees are instructed in their correct use. Training is also an important factor in risk reduction because not all employees are aware of the risks they may face in the workplace. Information programs can increase employee acceptance of the HBV vaccine and employee compliance with policies regarding PPE.

The Company shall be responsible for ensuring that employees covered under this procedure participate in the Bloodborne Pathogens Awareness Training Program, which shall be provided during working hours at no cost to the employee.

Employees that are exposed to bloodborne pathogens must undergo training applicable in accordance with local jurisdiction.

Training shall be provided:

- At the time of initial assignment.
- At least annually thereafter.

Annual training for all employees shall be provided within one year of their previous training.

Additional training shall be provided when changes such as modification of tasks or procedures or institution of new tasks or procedures affect the employee's occupational exposure. The additional training may be limited to addressing the new exposures created.

Material appropriate in content and vocabulary to educational level, literacy, and language of employees shall be used.

The training program shall contain at a minimum the following elements:

- An accessible copy of the regulatory text and an explanation of its contents.

- A general explanation of the epidemiology, symptoms, and modes of transmission of bloodborne pathogens and diseases.
- An explanation of an Exposure Control Plan and how the employee can obtain a copy of the written plan.
- An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
- An explanation of the use and limitations of methods that will prevent or reduce exposure, including appropriate engineering controls, work practices, PPE, and clothing.
- Information on the types, proper use, location, removal, handling, decontamination, and disposal of PPE and clothing.
- An explanation of the basis for selection of PPE and clothing.
- Information on the HBV vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.
- Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials.
- An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow up that will be made available.
- Information on the post-evaluation and follow up that the Company is required to provide for the employee following an exposure incident.
- An explanation of the signs, labels, and color-coding system being utilized by the Company as defined in this procedure.
- An opportunity for interactive questions and answers with the trainer.

The person conducting the training shall be knowledgeable in the subject matter covered by the elements contained in the training program as it relates to the workplace that the training will address.

The person conducting the training shall be required to ensure that the training program and training records meet the requirements of and are maintained in accordance with regulation and this procedure.

1.82 Recordkeeping

1.82.1 Medical Records

Accurate medical records for each employee with occupational exposure shall be maintained for at least the duration of employment plus 30 years. These records shall be kept by the Company. The medical provider shall not be relied upon to keep the records for this timeframe.

The employee record shall include:

- The name and social security number of the employee.
- A copy of the employee's vaccination status including the date of all vaccinations and any medical records relative to the employee's ability to receive the vaccination as defined in this procedure.
- A copy of all results of examinations, medical testing, and follow up procedures as defined in this procedure.
- A copy of the healthcare professional's written report as required by this procedure.
- A copy of the information provided to the healthcare professional.

Employee medical records shall be kept confidential and not disclosed or reported without the employee's express written consent to any person within or outside the workplace, except as required by this procedure or as may be required by law.

All records required to be maintained by this procedure shall be made available upon request for examination and copying, to the subject employee or anyone having written consent of the subject employee, to the responsible party. Records shall be made available in accordance with the regulatory requirements.

Access to personal information shall be controlled in accordance with applicable legal, regulatory, and Company requirements (e.g., FFD Rule, Privacy Act, 29 CFR1910.1020).

1.82.2 Training Records

Training records shall include:

- The dates of the training sessions.
- The contents or a summary of the training sessions.
- The names and qualifications of the person(s) conducting the training.
- The names and job titles of all persons attending the training sessions.

Training records shall be maintained for 3 years from the date on which the training occurred in the Company designated electronic learning management system.

1.83 Regulatory Reporting Requirements

As a basic requirement, all work-related needle stick injuries and cuts from sharp objects that are contaminated with another person's blood or other potentially infectious material shall be recorded. The case shall be entered on the OSHA 300 Log as an injury. To protect the employee's privacy, the employee's name shall not be entered on the OSHA 300 Log.

- If the date of the event or exposure is known, the original injury shall be recorded with the date of the event or exposure.
- If there are multiple events or exposures, the most recent injury shall be recorded with the date that seroconversion is determined.

8. Bulldozer Safety Program

1.84 Purpose and Scope

The purpose of this program is to prioritize the safe operation, maintenance, and management of bulldozers, with the aim of safeguarding operators, workers, and surrounding personnel from potential hazards, minimizing the risk of accidents, injuries, and property damage.

This program applies to all Van Kirk Bros. Contracting employees that operate or work near bulldozers.

1.85 Bulldozer (Dozer) Safety

Bulldozers are one of the strongest and heaviest pieces of equipment used at surface mines. Bulldozers can be used effectively for clearing operations, pushing material, grading work, compacting loose material, etc. The most common uses are for clearing and pushing operations.

Accidents involving bulldozers often result in disabling injuries or fatalities, due to the massive weight of the bulldozer. Crushing type injuries involving bulldozers most often result in fatalities. Most of these occur when operators are run over by their own machine. Many other hazards exist, requiring the bulldozer operator to remain alert at all times.

1.86 General Operating Guidelines

- Safety must always be the operator's most important concern. The operator must refuse to operate when they know it's unsafe and consult the supervisor when safety is in doubt.
- Bulldozer equipment shall be inspected at the beginning of each shift prior to its use. Supervisors must act on the deficiencies noted to ensure repairs are made.
- Seat belts shall be worn and properly adjusted at all times while operating bulldozer equipment.
- Only the operator shall be permitted to ride equipment with the exception for training or maintenance purposes only, provided the trainer or observer is secured with a seat belt or safety harness and lanyard of appropriate length.
- The operator shall completely walk around the equipment and clear the area of personnel and obstructions before operating bulldozers equipment.
- Engines shall not be started unless gears are in neutral or park and the master clutch disengaged if so equipped.

- Mount and dismount equipment correctly. Do not jump off bulldozer equipment. Face equipment when mounting or dismounting. Maintain three points of contact at all times. Hands shall be free of materials.
- Before an operator dismounts from heavy mobile equipment, the brakes must be set, gears placed in position to prevent equipment movement, all attachments lowered to the ground, and the engine shut off.
- The special instructions available in the operator's manual on shutdown and safety consideration shall be followed on diesel equipment.
- All equipment left unattended at night, adjacent to public roadways in normal use, or adjacent to areas where work is in progress, shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors to identify the location of the equipment.
- When parked on a grade, the wheels or tracks of bulldozer equipment shall be either chocked or turned into a bank.
- Bulldozer equipment, traveling on bi-directional roads, carrying loads that project beyond its sides, or 4 feet beyond the rear shall have warning flags at the ends of projection. Under conditions of limited visibility these loads shall have a warning light at the end of the projection. Flags or lights shall be attached to the end of the projection or be carried by persons walking beside or behind the projection.
- The maximum speed of travel shall depend upon the load being carried, current road, weather, and traffic conditions.
    - Limit speed to maintain complete control over the machine.
    - Equipment operators shall not exceed the posted speed limit
- Headlights shall be turned on at all times when operated at night, inclement weather, or inside any of the storage buildings. Operators should keep eyes forward and the load should not block view of path. If load is blocking the view, the operator should back up with load.
- No person shall work or pass under elevated loads, blades, or buckets unless properly blocked.
- Buckets, forks, or attachments shall be kept as low as possible when traveling.
- No modifications shall be made to equipment that affects the safe operations of the piece of equipment without the manufacturers or distributors written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction

plates, tags, or decals shall be changed accordingly. In no case shall the original safety factor be reduced.

- Equipment and attachments shall be operated according to the manufacturer's operating manual.
- Operator's cab shall be clean and free of loose items such as tools, spare parts, or personal items that may damage or jam control levers. Cab floor, all windows, controls, steps, and handrails should be maintained free of dirt, grease, or oils.
- Ensure all safety guards are in their proper position and all safety warning graphics and decals are in place and readable.
- The engine shall be shut off and parking brake set during refueling. Smoking is not allowed in the refueling area. This does not apply to diesel powered equipment.
- Bulldozers shall be provided with falling object protective structures if used in an area where falling objects could create a hazard to the operator.
- Bulldozers must be equipped with at least one portable fire extinguisher.

1.87 Heavy Equipment Operations Near Power Sources

Operators shall be alert for buried electrical lines and electrical line indicators in the form of flags or red concrete when performing any type of excavation.

When bulldozers are operated under, over, by, or near power lines, they shall maintain a minimum clearance of 10 feet from any part of the machine except where the power lines have been de-energized and visibly grounded at the point of work.

If bulldozer should come in contact with the energized wires, the following shall be done:

- The operator shall stay on the machine until contact is cleared or the current is shut off.
- Keep everyone on the ground away from the machine and keep any personnel from coming in contact with load.

If it is absolutely necessary to leave the machine, the operator shall leap away from, not step off the machine.

1.88 Safe Operating Practices

- Hardhat and high-visibility clothing to be worn when not inside the cab.
- Safety boots in good condition, properly laced, must be worn at all times. Worn-out soles and heels could lead to slips and falls.
- Eye protection will be worn where there is danger of falling or flying debris from equipment or loads, especially in windy conditions.
- Hand protection will be worn when handling cable or any other material where there is danger of cuts or puncture injury.
- Hearing protection will be worn when exposed to noise levels exceeding 85dBA.

1.88.1 Mounting and Dismounting

Three-point contact will be used to mount and dismount equipment.

1.88.2 Inspection and Repairs

Bulldozers will be inspected prior to use to ensure good mechanical condition. When working under or around bulldozers, for inspections or repairs, the bulldozer must be locked and tagged out, and immobilized and secured against inadvertent movement.

1.88.3 Housekeeping

Cabs, steps, and mirrors must be kept clean at all times. All debris should be removed.

1.88.4 Parking

The bulldozer must be parked on level ground, clear of hazards, to allow ease of access.

1.88.5 Travelling

Proper gear selection must be used to maintain control. Drive according to terrain conditions.

1.88.6 Danger Zone

Danger zone is defined as the area around operating machines or working personnel, in which there is potential for being struck by moving equipment or objects. The danger zone may vary according to the machine or work being performed. Operators must make sure that all persons, vehicles, and equipment are clear of the danger zone before the vehicle, or its components are moved.

1.88.7 Lockout

Lockout procedures must be followed during mechanical service, repairs, or inspection for the protection of employees and equipment. When operators are assisting mechanics to repair machines, clear communications must be established prior to starting the tasks. The operator must have a clear understanding of what is to be done and follow the specific lockout instructions and instructions given by the mechanic responsible for performing the job. The operator and the mechanic must each know who will be responsible for:

- Starting or moving a machine
- Ensuring that anyone involved is in a clear and safe position
- Directing the movement of the machine
- Ensuring that it is safe to resume working and that all guards are in place

1.88.8 Fueling

Shut off the engine while fueling. No smoking. Be aware of slip and trip hazards. Beware of spills and splash-back. Return hose to its proper storage position when fueling is completed.

1.88.9 Hazardous Materials

Read the label. Refer to SDS if further information is needed. Use protective equipment and follow safe handling instructions as outlined. If an incident occurs, follow first aid instructions. Use proper storage procedures.

1.88.10 Bulldozing

While operating on travelled roads, keep right, especially on corners and hills.

When pushing out a road, avoid pushing debris (e.g., stumps, trees, rocks, and dirt) into standing timber.

Roads will be made to proper width, with sufficient turnarounds and turnouts.

Road will be kept free of hazards (e.g., stumps, rocks, and debris).

1.88.11 Winching

Prior to winching, ensure the cable is in safe condition and the hook-up is secure.

Brakes will be applied, and the blade will be lowered onto the ground during winching.

Winch only at the proper speed that the machine being winched is able to move. Winch in a straight line, not on angle.

1.88.12 Moving Trailers

Prior to hooking or unhooking any trailer, ensure the trailer is properly blocked (chocked).

Operators will be assisted in hooking up trailers.

While hooking or unhooking a trailer, ensure all personnel are clear of the area between the trailer and the bulldozer. While being assisted, ensure communications and directions are clear and understood before moving the machine.

Travel at proper speeds when pulling trailers.

Ensure that bulldozer is capable of controlling the equipment/trailer being moved.

If moving a fuel trailer, ensure that it is hooked to a drawbar rather than on a winch.

1.89 Starting and Testing

Exhaust fumes are dangerous. Only run bulldozer in well ventilated areas.

Fasten seat belt and adjust the seat prior to starting. Controls should be in neutral, and the parking brake set before starting engine.

Start the engine only from the operator's seat.

Warn personnel in the area that the engine is starting.

Check all gauges, light, instruments, and warning devices to assure that they are functioning properly, and the readings are within normal range.

Test steering right and left.

Test brakes against ground speed to be certain there is no malfunction.

Ensure all implement controls are operating properly.

9. Burn Prevention and First Aid Program

1.90 Purpose and Scope

The purpose of this program is to provide information on preventing burns and first aid procedures for when they do happen.

This program applies to all Van Kirk Bros. Contracting employees.

1.91 Burn Prevention and First Aid

Some employees perform tasks and use chemicals that can put them at risk for burns.

Around 1.1 million burn injuries require medical attention each year.

There must be at least one employee trained to give first aid available on every shift.

1.92 Hazards

Burn hazards include hot metal, flammables, and exposed electrical circuits and wiring.

Certain work tasks increase the risk of getting burned, including:

- Using flammable and combustible gases, liquids, or vapors.
- Doing activities that could create static electricity.
- Using tools and electrical equipment.
- Doing hot work and electrical work.

1.93 Safe Work Practices

To reduce the chances of being burned:

- Wear fire resistant clothing (FRC) when required.
- Wear leather gloves to handle hot materials.
- Keep clothing and tools free of flammable materials.
- Wear cotton rather than nylon or polyester materials.
- Be aware of any welding or cutting operations that could pose a fire hazard.

Work cautiously to prevent burns:

- Wear appropriate personal protective equipment (PPE) and follow safe work practices.

- Give first aid to burned employees only by trained personnel.
- Call for immediate medical attention for serious burns.

1.94 Degrees of Burns

Employees can receive several different degrees of burns.

1.94.1 First Degree

First-degree burns involve the top layer of skin and can cause redness, pain, and mild swelling.

1.94.2 Second Degree

Second-degree burns involve the first two layers of skin and cause deep reddening of the skin, pain and blisters, glossy appearance from leaking fluid, and possible loss of skin.

1.94.3 Third Degree

Third-degree burns are the most serious type of burn. They involve all layers of the skin and can cause permanent tissue damage.

Signs of third-degree burns include:

- Loss of skin layers.
- Lack of pain caused by skin damage.
- Dry and leathery skin.
- Charred skin.
- Patches of white, brown, or black skin.

1.95 Categories of Burns

Burns are grouped into two categories: minor burns and major burns. You can have more than one type of burn at a time.

Minor burns – first-degree burns anywhere on the body and second-degree burns less than 2-3 inches wide.

Major burns – third-degree burns, second-degree burns more than 2-3 inches wide, and second-degree burns on the hands, feet, face, groin, buttocks, or major joints.

1.96 First Aid

To give first aid for a minor burn with unbroken skin:

- Remove the injured employee from the source of the burn.
- Loosen the clothing around the burn.
- Cool the burn immediately with clean, cool water for at least 5 minutes.
- Apply a clean, dry, sterile dressing.

Major burns require medical care to prevent scarring, disability, and deformity. Get medical attention as soon as possible and do not attempt to treat serious burns unless you are a trained health professional.

10. Chemical and Biological Hazards Program

1.97 Purpose and Scope

The purpose of this program is to reduce the risk of exposure to chemical and biological hazards.

This program applies to all Van Kirk Bros. Contracting employees exposed to chemical and biological hazards.

1.98 General

A written hazard communication program shall be developed, implemented, and maintained at each workplace. The safety department has full authority for the program implementation and execution. The program shall describe how the requirements for labels and other forms of warning, safety data sheets, and employee information and training will be met.

Examples of qualities which make a chemical "hazardous" include but are not limited to:

- Flammable, combustible, and/or explosive
- Corrosive (acids/caustics)
- Irritating/damaging to the eyes and/or skin on contact
- Poses health hazard through inhalation, ingestion, or body contact
- Any known or suspected carcinogen

1.99 Inventory of Hazardous Chemicals

An up-to-date working inventory of all chemicals in stock along with all chemicals sent to other destinations shall be compiled. The list may be compiled for the workplace as a whole or for individual work areas.

This inventory shall include:

- The full chemical name or identity that is referenced on the appropriate SDS
- CAS number
- Approximate amount of the chemical with suitable units of measurement
- Physical state
- Responsible party
- Location
- Expiration date if applicable

1.100 Safe Work Practices

All measures reasonably necessary in the circumstances shall be taken to protect workers from exposure to a hazardous biological or chemical agent because of the storage, handling, processing, or use of such agent in the workplace. The measures to be taken shall include the provision and use of:

- Substitution of the hazardous biological or chemical agent
- Engineering controls
- Administrative controls, including work practices
- Hygiene facilities and practices
- Personal protective equipment.

1.101 Training

Employees shall be trained on the dangers of the hazardous chemicals with which they work. This training shall be given when the employee starts work and when a new chemical is used in the workplace. This training shall cover types of hazards (e.g., flammability or carcinogenicity) or specific chemicals. Chemical-specific information shall always be available through labels and safety data sheets (SDS).

A worker who may be exposed to a biological, chemical, or physical agent that may endanger the worker's safety or health shall be trained:

- To use the precautions and procedures to be followed in the handling, use, and storage of the agent
- Labels and safety data sheets (SDS) and how to apply this information in the workplace
- In the proper use and care of required personal protective equipment
- In the proper use of emergency measures and procedures.

Training may be performed in-house or by a third party.

Documentation of safety and health training shall include:

- Employee name or another identifier
- Training dates
- Type(s) of training
- Training providers

This documentation shall be maintained for at least one year.

1.102 Personal Protective Equipment (PPE)

A worker exposed to the hazard of injury from contact of the worker's skin with a noxious liquid shall be protected by wearing apparel sufficient to protect the worker from injury.

1.103 Labeling

Each container of hazardous chemicals shall be labeled with information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under the hazard communication program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical. Labels shall not be removed or defaced on incoming containers of hazardous chemicals.

Container labels shall contain at least the following information:

- Product identifier
- Signal word
- Hazard statement(s)
- Pictogram(s)
- Precautionary statement(s)
- And name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Labels or other forms of warning shall be legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. If there are employees who speak other languages information in that language may be added to the material presented, as long as the information is presented in English as well.

1.104 Emergency Preparedness and Treatment

Where a worker is required to work with, or is likely to be exposed to, a hazardous biological or chemical agent that could cause injury to the eye or skin, the Company shall provide as many of the following as are needed for adequate emergency treatment:

- Eye wash facilities
- Emergency showers
- Antidotes
- Flushing fluids or washes

The emergency equipment or treatments previously described must be clearly marked with a sign or label; be located or installed in a conspicuous place near where the hazardous biological or chemical agent is kept or used; be readily accessible to workers; and have instructions for its use displayed on the equipment or treatment or as near to it as is practical.

11. Code of Safe Practices Program

1.105 Purpose and Scope

The purpose of this program is to outline a set of guidelines and standards for promoting a safe and healthy work environment.

This program applies to all Van Kirk Bros. Contracting employees.

1.106 General Safety

All persons shall follow these safe practice rules, render every possible aid to safe operations, and report all unsafe conditions or practices to the supervisor.

Supervisors shall insist on employees observing and obeying every applicable Local, State, or Federal regulation and order as is necessary to the safe conduct of the work and shall take such action as is necessary to obtain compliance.

All employees shall be given frequent safety meetings. Instructions shall be given at least every 10 working days.

Anyone known to be under the influence of drugs or intoxicating substance which impair the employee's ability to safely perform the assigned duties shall not be allowed on the job while in that condition.

Horseplay, scuffling, and other acts which tend to have an adverse influence on the safety or well-being of the employees is prohibited.

Work shall be well planned and supervised to prevent injuries in the handling of materials and in working with equipment.

No one shall knowingly be permitted or required to work while the employee's ability or alertness is so impaired by fatigue, illness, or other causes that they might unnecessarily expose the employee or others to injury.

Employees shall not enter confined spaces unless it has been determined that it is safe to enter. An entry permit shall be completed before entry into permit-required spaces.

Employees shall be instructed to ensure that all guards and other protective devices are in proper places and adjusted and shall report deficiencies promptly to the supervisor.

Crowding or pushing when boarding or leaving any vehicle or other conveyance shall be prohibited.

Workers shall not handle or tamper with any electrical equipment, machinery, or air or water lines in a manner not within the scope of their duties, unless they have received instructions from their superintendent.

All injuries shall be reported promptly to the supervisor so that arrangements can be made for medical or first aid treatment. All accidents shall be investigated, and the findings documented. Corrective measures to prevent future accidents shall be implemented.

When lifting heavy objects, the large muscles of the leg instead of the smaller muscles of the back shall be used.

Inappropriate footwear or shoes with thin or badly worn soles must not be worn.

Materials, tools, or other objects shall not be thrown from buildings or structures until proper precautions are taken to protect others from the falling objects.

Employees shall cleanse themselves thoroughly after handling hazardous substances and follow special instructions from authorized sources.

Any damage to scaffolds, falsework, or other supporting structures shall be immediately reported to the supervisor and repaired before use.

Work shall be so arranged that employees are able to face a ladder and use both hands while climbing.

Gasoline shall not be used for cleaning purposes.

No burning, welding, or other source of ignition shall be applied to any enclosed tank or vessel, even if there are openings, until it has first been determined that no possibility of explosion exists and authority for the work is obtained from the supervisor.

1.107 Tools and Equipment

All tools and equipment shall be maintained in good condition.

Damaged tools or equipment shall be removed from service and tagged “DEFECTIVE”.

Pipe or Stillson wrenches shall not be used as a substitute for other wrenches.

Only appropriate tools shall be used for a specific job.

Wrenches shall not be altered by the addition of handle-extensions or “cheaters”.

Files shall be equipped with handles and not used to punch or pry.

A screwdriver shall not be used as a chisel.

Wheelbarrows shall not be pushed with handles in an upright position.

Portable electric tools shall not be lifted or lowered by means of the power cord. Ropes shall be used.

Electric cords shall not be exposed to damage from vehicles.

In locations where the use of a portable power tool is difficult, the tool shall be supported by means of a rope or similar support of adequate strength.

1.108 Machinery and Vehicles

Only authorized persons shall operate machinery or equipment.

Loose or frayed clothing, long hair, dangling ties, finger rings, etc., shall not be worn around moving machinery or other areas where they may become entangled.

Machinery shall not be serviced, repaired, or adjusted while in operation, nor shall oiling of moving parts be attempted, except on equipment that is designed or fitted with safeguards to protect the person performing the work.

Where appropriate, lock-out procedures shall be used.

Employees shall not work under vehicles supported by jacks or chain hoists without protective blocking that will prevent injury if jacks or hoists should fail.

Air hoses shall not be disconnected at compressors until the hose line has been bled.

All excavations shall be visually inspected before backfilling to ensure that it is safe to backfill.

Excavating equipment shall not be operated near tops of cuts, banks, or cliffs if employees are working below.

Tractors, bulldozers, scrapers, and carryalls shall not operate where there is a possibility of overturning in dangerous areas like edges of deep fills, cut banks, and steep slopes.

When loading where there is a probability of dangerous slides or movement of material, the wheels or treads of loading equipment should be turned in the direction which will facilitate escape in case of danger, except in a situation where this position of the wheels or treads would cause a greater operational hazard.

12. Cold Weather Safety Program

1.109 Purpose and Scope

The purpose of this program is to provide information on cold weather safety and precautions for working in cold weather to prevent cold stress.

This program applies to all Van Kirk Bros. Contracting employees with the potential to work in cold weather.

1.110 Resources

Number	Title
30 CFR 56.11016	Snow and Ice on Walkways and Travelways

1.111 Cold Stress Prevention

Cold weather conditions can be hazardous to the health and safety of employees, endanger the stability of the body system, and cause problems such as hypothermia and frostbite. It is of vital importance that adequate precautions are taken to alleviate the effect of cold environments and to ensure that personnel can work safely and efficiently.

Before work in cold environments can begin, an assessment shall be conducted to assess jobs and tasks, wind chill and environmental conditions. Employees physical condition shall be monitored to assess risk of cold stress.

1.112 Wind Chill Index

- Air temperature alone is not sufficient to assess the cold hazard in certain environments. Therefore, the Wind Chill Index, along with the air temperature, shall be used. Heat loss from convection is the greatest and most deceptive factor in loss of body heat.
- The Wind Chill Index is the cooling effect of any combination of temperature and wind velocity or air movement.
- The Wind Chill Index considers the wind velocity. If there is no anemometer (to measure wind speed), the following is a suggested guide for estimating wind speed:
    - 5 mph: light flag moves
    - 10 mph: light flag fully extended
    - 15 mph: raises newspaper sheet

- 20 mph: causes blowing and drifting snow.

- The Wind Chill Index should be used to evaluate the cold hazard.
- The Wind Chill Index does not consider the body part(s) exposed to cold, the level of activity effect on the body's heat production, or the amount of clothing worn.

1.113 Control Measures

1.113.1 Engineering Controls

Cold stress can be reduced by the following controls:

- General or spot heating should be used to increase temperature.
- If work is being performed with bare hands for 10 or more minutes, special provisions shall be made to keep hands warm. Warm air jets, radiant heaters, or contact warm heaters shall be supplied.
- The work area shall be shielded if the air velocity is increased by the wind, draft, or ventilation equipment.
- At temperatures below 40 °F (4 °C), metal handles of tools and control bars shall be covered with thermal insulation. This can include insulation from gloves provided that the gloves are not wet.
- When necessary, equipment and processes shall be substituted, isolated, relocated, or redesigned to reduce the cold stress.
- Power tools, hoists, cranes, and lifting aids shall be used to reduce the metabolic workload.
- Heated warming shelters such as tents, cabins, automobiles, or trucks shall be made available if work is performed continuously in an equivalent chill temperature of 30 °F (-1 °C) or below. Employees shall be encouraged to use them.
- Regularly used walkways and travel ways shall be sanded, salted, or cleared of snow and ice as soon as practicable.
- Regular inspections on cold weather supplies (e.g., hand warmers, jackets, shovels, etc.) shall be carried out to ensure that supplies are always in stock.

1.113.2 Administrative Controls

These controls include the following work practices and rules designed to reduce total cold stress burden on the body. See the Appendix – Work / Warm-up Schedule for a 4-Hour Shift.

- Scheduling a work rest to reduce the peak of cold stress, enforcing scheduled work breaks out of the cold.
- Proper hydration must be made available to employees exposed to cold weather temperature extremes. Urging frequent intake of warm, sweet, caffeine-free, nonalcoholic drinks or soup provided at regular intervals.
- Consume warm, high calorie food to maintain energy reserves.
- Scheduling the coldest, heavy work for the warmest part of the day.
- Moving work to warmer areas whenever possible; pre-planning the activities prior to entering the cold environment.
- Assigning extra employees to highly demanding jobs.
- Allowing employees to pace themselves and take extra work breaks when needed to avoid fatigue.
- Providing relief employees for break times.
- Teaching employees the basic principles of preventing cold stress and emergency response to cold stress.
- Informing employees of the dangers associated with working around unstable snow buildup, sharp icicles, and ice dams and know how to prevent accidents caused by them.
- Maintaining protective supervision or a buddy system for those who work at 20 °F (-6 °C) or below.
- Allowing new employees time to adjust to conditions before they work fulltime in cold environments.
- Arranging work to minimize sitting still or standing for long periods at a time.
- Reorganizing work procedures to ensure as much of a job as possible is performed in a warm environment.
- Including the weight and bulkiness of clothing when estimating work performance criteria.

1.113.3 Personal Protective Equipment

It is the responsibility of the employee to dress in the clothing appropriate to the expected work conditions. The correct clothing shall be addressed in the following manner:

- It is important to preserve the air space between the body and the outer layer of clothing to retain body heat.
- It is most important to protect the feet, hands, head, and face. The hands and feet are the farthest from the heart and become cooled most easily. Keeping the head covered is important because as much as 40% of heat is lost when the head is exposed to the elements.
- All clothing and equipment shall be fitted properly and not interfere with circulation.
- Clothing should be loose fitting. Tight clothing of synthetic fabrics interferes with evaporation. At least three layers of clothing shall be worn.
    - Wear at least three layers of clothing. An inner layer of wool, silk or synthetic to wick moisture away from the body. A middle layer of wool or synthetic to provide insulation even when wet. An outer wind and rain protection layer that allows some ventilation to prevent overheating.
- A change of dry clothing should be kept in case clothes become wet.
- Do not underestimate the wetting effects of perspiration. Oftentimes wicking and venting of the body's sweat and heat are more important than protecting from rain or snow.
- Socks with high wool content are best. When two pairs are worn, the inside sock should be smaller, and made of cotton. If needed, wool socks can also double for mittens.
- Wool or thermal trousers are preferred. The best kind is either quilted or specially lined.
- Tight belts are not recommended because they cut off the circulation at the waist. Suspenders are encouraged where practical.
- Trousers should fit over the top of the boot to prevent snow and ice from entering.
- Boots should be felt-lined (insulated), rubber-bottomed, and leather-topped with a removable felt insole. Boots should be waterproofed and socks should be changed whenever the sock is sweat soaked.
- A wool sweater over a cotton shirt should be worn. Tops should be worn in a layering effect to ensure proper insulation.
- An anorak or snorkel coat or arctic parka should fit loosely and have a drawstring at the waist. The sleeves should fit snugly. A hood prevents the escape of warm air from the neck

and tunnels the warm air past the face to give a slightly warmer breathing air. A wool cap should also be worn under the hood.

- Flame Resistant (FR) outer layers shall be worn where required.
- When wearing a hard hat, liners should be worn.
- A face mask or scarf is vital when working in cold wind. A ski mask gives better visibility than a snorkel hood. Face protectors should be removed periodically to check for frostbite.
- Safety glasses with side shields should be worn when outside. Special safety goggles to protect against ultraviolet light and glare are required when there is snow coverage that could cause a potential eye exposure hazard.

1.114 Cold Disorder Symptoms

1.114.1 Frostnip

This occurs when the face or extremities are exposed to cold wind, causing the skin to turn white.

1.114.2 Frostbite

Frostbite occurs when the skin actually freezes and loses water. In severe cases, amputation of the frostbitten area may be required. While frostbite usually occurs when the temperatures are 30° F or lower, wind chill factors can allow frostbite to occur in above freezing temperatures. Frostbite typically affects the extremities, particularly the feet and hands. The affected body part will be cold, tingling, stinging, or aching followed by numbness. Skin color turns red, then purple, then white, and is cold to the touch. There may be blisters in severe cases.

1.114.3 Trenchfoot or Immersion Foot

Trench Foot or immersion foot is caused by having feet immersed in cold water at temperatures above freezing for long periods of time. It is similar to frostbite but considered less severe. Symptoms usually consist of tingling, itching, or burning sensation. Blisters may be present.

1.114.4 Hypothermia

Hypothermia occurs when body heat is lost faster than it can be replaced. When the core body temperature drops below the normal 98.6° F to around 95° F, the onset of symptoms normally begins. The person may begin to shiver and stomp their feet to generate heat. Employees may lose coordination, have slurred speech, and fumble with items in the hand. The skin will likely be pale and cold. Pain in extremities can be the first warning of overexposure. The symptoms include uncontrolled shivering fits, sense of cold, slow heartbeat, vague or slow speech, glassy stare, apathy, memory lapses, incoherence, drowsiness, cool skin, slow irregular breathing, sometimes irregular pulse, weakened pulse, apparent exhaustion, and fatigue after rest. In an industrial environment, decreased mental acuity due to hypothermia can present additional risk, as the affected worker(s) are not focused on the hazards of the job and may put themselves or other personnel at risk.

Because many of the symptoms are behavioral and are not often noticed by the affected person, personnel should always watch for these symptoms in their co-workers. It is especially important to watch out for employees who are not dressed appropriately for the weather conditions (e.g., fewer layers, no hat or gloves, wet clothing, or an outer layer which is inadequate for the conditions). Personnel are responsible for stopping the work if these symptoms are noticed so that the affected person can be brought into a warmer environment for evaluation.

1.115 First Aid

All employees who are required to perform work in cold conditions must be trained on how to administer first aid treatment on cold induced injuries or illnesses.

1.115.1 Frostbite

- Never rub affected area. Rubbing may cause further damage to soft tissue.
- Warm area gently by soaking in water. The water should start out cold and be warmed up every five minutes by adding water that is 5 ºF (-15 ºC) warmer. Do not immerse affected part in water that is more than 105 ºF (40 ºC). If a thermometer is not available, test the water temperature with your hand. If the water temperature is uncomfortable, it is too hot.
- Keep the affected area under water until it looks red and feels warm.
- Loosely bandage the area with dry, sterile dressing. If fingers and toes are frostbitten, place cotton or gauze between them before applying the loose bandage.
- Do not break blisters.
- Get professional help immediately.

1.115.2 Hypothermia

- Remove any wet clothing and dry the injured person.
- Warm the body gradually by wrapping the injured person in blankets or putting on dry clothing and moving the individual to a warmer place. Do not warm body quickly by immersing the person in hot water. Rapid warming can cause dangerous heart problems. If available, apply heating pads or other heating source to the body. Keep a protective barrier, such as towel, blanket, or clothing between heat source and injured person to avoid burning the individual.
    - If the injured person is alert, give warm liquid to drink. Never give liquids to an individual who is unconscious or semi-conscious.
- Handle the patient gently.
- Get professional help immediately.

1.116 Training

Personnel shall be instructed in cold stress prevention. Training shall be conducted before initial exposure and annually thereafter.

Training shall include the following instructions:

- Environmental and workplace conditions that can lead to cold stress
- Proper re-warming procedures and appropriate first aid treatment specifically for cold induced injuries or illnesses.
- Proper clothing practice.
- Proper use of warming shelters.
- Recognition of signs and symptoms of impending cold conditions such as hypothermia or excessive cooling of the body (even when shivering does not occur), frostnip, or frostbite.
- Safe work procedures such as the buddy system, vehicle breakdown procedures, and proper eating and drinking habits for working in the cold.

Appendix 1 Work / Warm-Up Schedule for a 4-Hour Shift

Work/Warm-up Schedule for a 4-Hour Shift

Air Temperature--Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°C (approximate)	°F (approximate)	Maximum Work Period	Number of Breaks	Maximum Work Period	Number of Breaks	Maximum Work Period	Number of Breaks	Maximum Work Period	Number of Breaks	Maximum Work Period	Number of Breaks
-26 to -28	-15 to -19	(Normal Breaks) 1		(Normal Breaks) 1		75 min	2	55 min	3	40 min	4
-29 to -31	-20 to -24	(Normal Breaks) 1		75 min	2	55 min	3	40 min	4	30 min	5
-32 to -34	-25 to -29	75 min	2	55 min	3	40 min	4	30 min	5	Non-emergency work should cease	
-35 to -37	-30 to -34	55 min	3	40 min	4	30 min	5	Non-emergency work should cease			
-38 to -39	-35 to -39	40 min	4	30 min	5	Non-emergency work should cease					
-40 to -42	-40 to -44	30 min	5	Non-emergency work should cease							
-43 & below	-45 & below	Non-emergency work should cease									

Schedule applies to any 4-hour work period with moderate to heavy work activity; with warm-up periods of ten (10) minutes in a warm location and with an extended break (e.g. lunch) at the end of the 4-hour work period in a warm location.

Adapted from ACGIH 2012 TLVs

13. Concrete and Masonry Program

1.117 Purpose and Scope

The purpose of this program is to provide specific requirements and safety principles to ensure that concrete and masonry operations are conducted safely and effectively.

This program applies to all Van Kirk Bros. Contracting employees that work in concrete and masonry operations.

1.118 Resources

Number	Title
29 CFR 1926 Subpart Q	Concrete and Masonry Construction

1.119 Concrete and Masonry

This document sets forth requirements with which construction sites must comply to protect construction employees from accidents and injuries resulting from the premature removal of formwork, the failure to brace masonry walls, the failure to support precast panels, the inadvertent operation of equipment, and the failure to guard reinforcing steel.

1.120 Construction Loads

No construction loads shall be placed on a concrete structure or portion of a concrete structure unless it is determined, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.

1.121 Reinforcing Steel

All protruding reinforcing steel, onto and into which employees could fall, shall be guarded to eliminate the hazard of impalement.

1.122 Post-Tensioning Operations

No employee (except those essential to the post-tensioning operations) shall be permitted to be behind the jack during tensioning operations.

Signs and barriers shall be erected to limit employee access to the post-tensioning area during tensioning operations.

1.123 Concrete Buckets

No employee shall be permitted to ride concrete buckets.

Concrete buckets equipped with hydraulic or pneumatic gates shall have positive safety latches or similar safety devices installed to prevent premature or accidental dumping.

Concrete buckets shall be designed to prevent concrete from hanging up on top and the sides.

1.124 Working Under Loads

No employee shall be permitted to work under concrete buckets while buckets are being elevated or lowered into position.

To the extent practical, elevated concrete buckets shall be routed so that no employee, or the fewest number of employees, are exposed to the hazards associated with falling concrete buckets.

1.125 Personal Protective Equipment (PPE)

No employee shall be permitted to apply a cement, sand, and water mixture through a pneumatic hose unless the employee is wearing protective head and face equipment.

1.126 Requirements for Equipment and Tools

1.126.1 Bulk Cement Storage

Bulk storage bins, containers, and silos shall be equipped with the following:

- Conical or tapered bottoms
- Mechanical or pneumatic means of starting the flow of material.

No employee shall be permitted to enter storage facilities unless the ejection system has been shut down, locked out, and tagged to indicate that the ejection system is not to be operated.

1.126.2 Concrete Mixers

Concrete mixers with one cubic yard (-8 m3) or larger loading skips shall be equipped with the following:

- A mechanical device to clear the skip of materials.
- Guardrails installed on each side of the skip.

1.126.3 Power Concrete Trowels

Powered and rotating type concrete troweling machines that are manually guided shall be equipped with a control switch that will automatically shut off the power whenever the hands of the operator are removed from the equipment handles.

1.126.4 Concrete Buggies

Concrete buggy handles shall not extend beyond the wheels on either side of the buggy.

1.126.5 Concrete Pumping Systems

Concrete pumping systems using discharge pipes shall be provided with pipe supports designed for 100% overload.

Compressed air hoses used on concrete pumping system shall be provided with positive fail-safe joint connectors to prevent separation of sections when pressurized.

1.126.6 Tremies

Sections of tremies and similar concrete conveyances shall be secured with wire rope (or equivalent materials) in addition to the regular couplings or connections.

1.126.7 Bull Floats

Bull float handles used where they might contact energized electrical conductors, shall be constructed of nonconductive material, or insulated with a nonconductive sheath whose electrical and mechanical characteristics provide the equivalent protection of a handle constructed of nonconductive material.

1.126.8 Masonry Saws

Masonry saws shall be guarded with a semicircular enclosure over the blade.

A method for retaining blade fragments shall be incorporated in the design of the semicircular enclosure.

1.126.9 Lockout / Tagout Procedures

No employee shall be permitted to perform maintenance or repair activity on equipment (such as compressors mixers, screens, or pumps used for concrete and masonry construction activities) where the inadvertent operation of the equipment could occur and cause injury, unless all potentially hazardous energy sources have been locked out and tagged.

Tags shall read “Do Not Start” or similar language to indicate that the equipment is not to be operated.

1.127 Requirements for Cast-in-Place Concrete

1.127.1 General Requirements for Formwork

Formwork shall be designed, fabricated, erected, supported, braced, and maintained so that it will be capable of supporting without failure all vertical and lateral loads that may reasonably be anticipated to be applied to the formwork. Formwork, which is designed, fabricated, erected, supported, braced, and maintained in conformance with ANSI A10.9-1983 will be deemed to meet the requirements of this paragraph.

Drawings or plans, including all revisions, for the jack layout, formwork (including shoring equipment), working decks, and scaffolds, shall be available at the jobsite.

1.127.2 Shoring and Reshoring

All Shoring equipment (including equipment used in reshoring operations) shall be inspected prior to erection to determine that the equipment meets the requirements specified in the formwork drawings.

Shoring equipment found to be damaged such that its strength is reduced to less than that required shall not be used for shoring.

Erected shoring equipment shall be inspected immediately prior to, during, and immediately after concrete placement.

Shoring equipment that is found to be damaged or weakened after erection, such that its strength is reduced to less than that required, shall be immediately reinforced.

The sills for shoring shall be sound, rigid, and capable of carrying the maximum intended load.

All base plates, shore heads, extension devices, and adjustment screws shall be in firm contact, and secured when necessary, with the foundation and the form.

Eccentric loads on shore heads and similar members shall be prohibited unless these members have been designed for such loading.

Whenever single post shores are used one on top of another (tiered), the work shall comply with the following specific requirements in addition to the general requirements for formwork:

- The design of the shoring shall be prepared by a qualified designer and the erected shoring shall be inspected by an engineer qualified in structural design.
- The single post shores shall be vertically aligned.
- The single post shores shall be spliced to prevent misalignment.
- The single post shores shall be adequately braced in two mutually perpendicular directions at the splice level. Each tier shall also be diagonally braced in the same two directions.
- Adjustment of single post shores to raise formwork shall not be made after the placement of concrete.
- Reshoring shall be erected, as the original forms and shores are removed, whenever the concrete is required to support loads in excess of its capacity.

1.127.3 Vertical Slip Forms

The steel rods or pipes on which jacks climb or by which the forms are lifted shall be:

- Specifically designed for that purpose.
- Adequately braced where not encased in concrete.

Forms shall be designed to prevent excessive distortion of the structure during the jacking operation.

All vertical slip forms shall be provided with scaffolds or work platforms where employees are required to work or pass.

Jacks and vertical supports shall be positioned in such a manner that the loads do not exceed the rated capacity of the jacks.

The jacks or other lifting devices shall be provided with mechanical dogs or other automatic holding devices to support the slip forms whenever failure of the power supply or lifting mechanism occurs.

The form structure shall be maintained within all design tolerances specified for plumbness during the jacking operation.

The predetermined safe rate of lift shall not be exceeded.

1.127.4 Reinforcing Steel

Reinforcing steel for walls, piers, columns, and similar vertical structures shall be adequately supported to prevent overturning and to prevent collapse.

Measures shall be taken to prevent unrolled wire mesh from recoiling. Such measures may include, but are not limited to, securing each end of the roll, or turning over the roll.

1.127.5 Removal of Formwork

Forms and shores (except those used for slabs on grade and slip forms) shall not be removed until it is determined that the concrete has gained sufficient strength to support its weight and superimposed loads. Such determination shall be based on compliance with one of the following:

- The plans and specifications stipulate conditions for removal of forms and shores, and such conditions have been followed, or
- The concrete has been properly tested with an appropriate ASTM standard test method designed to indicate the concrete compressive strength, and the test results indicate that the concrete has gained sufficient strength to support its weight and superimposed loads.

Reshoring shall not be removed until the concrete being supported has attained adequate strength to support its weight and all loads in place upon it.

1.128 Requirements for Precast Concrete

Precast concrete wall units, structural framing, and tilt-up wall panels shall be adequately supported to prevent overturning and to prevent collapse until permanent connections are completed.

Lifting inserts which are embedded or otherwise attached to tilt-up precast concrete members shall be capable of supporting at least two times the maximum intended load applied or transmitted to them.

Lifting inserts which are embedded or otherwise attached to precast concrete members, other than the tilt-up members, shall be capable of supporting at least four times the maximum intended load applied or transmitted to them.

Lifting hardware shall be capable of supporting at least five times the maximum intended load applied transmitted to the lifting hardware.

No employee shall be permitted under precast concrete members being lifted or tilted into position except those employees required for the erection of those members.

1.129 Requirements for Lift-Slab Operations

Lift-slab operations shall be designed and planned by a registered professional engineer who has experience in lift-slab construction. Such plans and designs shall be implemented and shall include detailed instructions and sketches indicating the prescribed method of erection. These plans and designs shall also include provisions for ensuring lateral stability of the building / structure during construction.

Jacks / lifting units shall be marked to indicate their rated capacity as established by the manufacturer.

Jacks / lifting units shall not be loaded beyond their rated capacity as established by the manufacturer.

Jacking equipment shall be capable of supporting at least two and one-half times the load being lifted during jacking operations and the equipment shall not be overloaded. For the purpose of this provision, jacking equipment includes any load bearing component which is used to carry out the lifting operation(s). Such equipment includes, but is not limited, to the following: threaded rods, lifting attachments, lifting nuts, hook-up collars, T-caps, shear heads, columns, and footings.

Jacks / lifting units shall be designed and installed so that they will neither lift nor continue to lift when they are loaded in excess of their rated capacity.

Jacks / lifting units shall have a safety device installed which will cause the jacks / lifting units to support the load in any position in the event any jack lifting unit malfunctions or loses its lifting ability.

Jacking operations shall be synchronized in such a manner to ensure even and uniform lifting of the slab. During lifting, all points at which the slab is supported shall be kept within 1/2 inch of that needed to maintain the slab in a level position.

If leveling is automatically controlled, a device shall be installed that will stop the operation when the 1/2-inch tolerance set forth is exceeded or where there is a malfunction in the jacking (lifting) system.

If leveling is maintained by manual controls, such controls shall be located in a central location and attended by a competent person while lifting is in progress. The competent person must be experienced in the lifting operation and with the lifting equipment being used.

The maximum number of manually controlled jacks / lifting units on one slab shall be limited to a number that will permit the operator to maintain the slab level within specified tolerances, but in no case shall that number exceed 14.

No employee, except those essential to the jacking operation, shall be permitted in the building / structure while any jacking operation is taking place unless the building / structure has been reinforced sufficiently to ensure its integrity during erection. The phrase "reinforced sufficiently to ensure its integrity" used in this paragraph means that a registered professional engineer, independent of the engineer who designed and planned the lifting operation, has determined from the plans that if there is a loss of support at any jack location, that loss will be confined to that location, and the structure as a whole will remain stable.

Under no circumstances, shall any employee who is not essential to the jacking operation be permitted immediately beneath a slab while it is being lifted.

A jacking operation begins when a slab or group of slabs is lifted and ends when such slabs are secured (with either temporary connections or permanent connections).

When making temporary connections to support slabs, wedges shall be secured by tack welding, or an equivalent method of securing the wedges to prevent them from falling out of position. Lifting rods may not be released until the wedges at that column have been secured.

All welding on temporary and permanent connections shall be performed by a certified welder, familiar with the welding requirements specified in the plans and specifications for the lift-slab operation.

Load transfer from jacks / lifting units to building columns shall not be executed until the welds on the column shear plates (weld blocks) are cooled to air temperature.

Jacks / lifting units shall be positively secured to building columns so that they do not become dislodged or dislocated.

Equipment shall be designed and installed so that the lifting rods cannot slip out of position or the employer shall institute other measures, such as the use of locking or blocking devices, which will provide positive connection between the lifting rods and attachments and will prevent components from disengaging during lifting operations.

1.130 Requirements for Masonry Construction

A limited access zone shall be established whenever a masonry wall is being constructed. The limited access zone shall conform to the following:

- The limited access zone shall be established prior to the start of construction of the wall.
- The limited access zone shall be equal to the height of the wall to be constructed plus 4 feet and shall run the entire length of the wall.
- The limited access zone shall be established on the side of the wall which will be unscaffolded.

- The limited access zone shall be restricted to entry by employees actively engaged in constructing the wall. No other employees shall be permitted to enter the zone.
- The limited access zone shall remain in place until the wall is adequately supported to prevent overturning and to prevent collapse unless the height of wall is over 8 feet, in which case, the limited access zone shall remain in place until the following requirements have been met.

All masonry walls over 8 feet in height shall be adequately braced to prevent overturning and to prevent collapse unless the wall is adequately supported so that it will not overturn or collapse. The bracing shall remain in place until permanent supporting elements of the structure are in place.

14. Confined Space Safety Program

1.131 Purpose and Scope

The purpose of this program is to ensure a safe working environment when work is performed in a confined space and ensure that hazards of those confined spaces have been evaluated.

This program applies to all Van Kirk Bros. Contracting employees who work in confined spaces.

1.132 Resources

Number	Title
29 CFR 1910 Subpart J	General Environmental Controls - Permit Required Confined Spaces
Cal/OSHA T8 CCR Subchapter 7	General Industry Safety Orders - Permit Required Confined Spaces
29 CFR 1926 Subpart AA	Confined Spaces in Construction
CMS-FM-0017	Confined Space Entry Annual Review Log
CMS-FM-0018	Confined Space Entry Permit
CMS-FM-0019	Confined Space Entrant Log
CMS-FM-0020	Contractor Hazard Information Identification

1.133 Confined Spaces

A safe and successful confined space entry requires preplanning. Preplanning includes identifying anticipated hazards inside the confined spaces, selecting proper equipment to control the hazards, providing good documentation on the necessary controls via the written permit system, providing appropriate training for employees involved in the entry, and rapidly responding to emergency situations.

1.134 Confined Space

A confined space involves the following:

- Adequate size and configuration for an employee to enter and to perform assigned work.
- Limited means of entry or outlet.
- Not designed for continuous employee occupancy.

1.135 Permit-Required Confined Space

A permit-required confined space is a confined space that needs a permit to be entered. A permit is required if the confined space includes, or potentially includes the following:

- Atmospheric Hazard - Hazards related to atmospheric conditions, such as:
  - oxygen deficiency
  - flammable conditions
  - toxic conditions
- Engulfment Hazard - Contains a material like bulk grains, soil, liquid, or dry cement, which has the potential for engulfing an entrant.
- Entrapment Design - Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor, which slopes downward and tapers to a smaller cross-section; or makes escape or rescue difficult.
- Other recognized serious hazard, such as:
  - inadequate ventilation
  - burns from high temperatures
  - internal electrical or rotating equipment, lockout / tagout
  - emergencies or hazards outside the confined space
  - physical injury from slips and falls
  - high noise levels inside the confined space
  - energy hazards from steam or electrical equipment inside the confined space

If it is necessary to enter the permit space to eliminate hazards, such entry shall be performed as required by regulation. If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated. If hazards arise within a permit space that has been declassified to a non-permit space, each employee in the space shall exit the space. The space shall be re-evaluated to determine whether it must be reclassified as a permit space.

1.136 Non-Permit Confined Space

A non-permit confined space is any confined space that is known not to have contained any hazardous material. In addition, all hazards are controlled, and air monitoring indicates that the atmosphere is safe for entry. Entry into these areas for inspections or minor maintenance (i.e., adjustments, tightening of fittings, etc.) may be made without the use of retrieval systems or standby personnel.

1.137 Roles and Responsibilities

All affected employees shall understand the hazards of going into a confined space.

1.138 Authorized Entrants

Those persons who have completed the training and are authorized to enter permit spaces (authorized entrants) are assigned specific duties and responsibilities which they must perform when they work in the permit space. Their duties and responsibilities, which are covered in the training program, include:

- Know the hazards they may face during entry including mode, signs, symptoms of exposure, and understand the consequences of exposure to hazards.
- Understand the proper use of any needed equipment and compliance with the provisions on the entry form and or permit.
- Communicate with the attendant as necessary if the entry involves a hazardous atmosphere confined space entry.
- Communicate with the attendant to check in or ask for rescue.
- Alert attendant when a warning symptom or other hazardous condition exists, or a prohibited condition is detected.
- Exit as quickly as possible whenever ordered or alerted by an evacuation alarm, warning sign, a symptom of exposure is detected, or prohibited condition.
- Keep lifelines orderly and untangled within the confined space.

1.139 Attendants

Attendants are individuals stationed outside a permit space who monitor authorized entrants. An attendant must be on duty outside of a confined space for the duration of the operation. Those persons who have completed the training and have been designated as permit space attendants are assigned specific duties and responsibilities, which they must perform in permit space job duties. Their duties and responsibilities, which are covered in the training program, include:

- Attendants must know the hazards of a confined space including information on the mode, signs, symptoms, and consequences of exposure.
- Keep lifelines orderly, untangled, and the end secured outside of the confined space.
- Know the possible behavioral effects of exposure, which include the following:

% of Oxygen in Air	Effects of Oxygen Deficiency
16 to 12%	Deep breathing, accelerated heartbeat, impaired attention, impaired thinking, impaired coordination.
14 to 10%	Very faulty judgement, very poor coordination, rapid fatigue from exertion that may cause permanent heart damage, intermittent breathing.
10% or below	Nausea, vomiting, inability to perform vigorous movement or loss of all movement, unconsciousness followed by death.
Less than 6%	Spasmodic breathing, convulsive movements, death in minutes.

- Check permits of authorized entrants.
- Prevent entry by those without a permit and take the following actions when unauthorized persons approach or enter a permit space while entry is underway:
    - Warn the unauthorized persons that they must stay away from the permit space.
    - Advise the unauthorized persons that they must exit immediately if they have entered the permit space.
    - Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.
- Maintain a continuous count of those in a confined space.

- Monitor activity in the confined space and alert entrants of the need to evacuate.
- Summon rescue and emergency services when entrants may need assistance to escape a permit space hazard.
- Perform non-entry rescues. The attendant may only enter a confined space for rescue if they are trained and part of a rescue team and are then relieved by another qualified and trained attendant.
- Perform no duties that may interfere with attendant's primary duty to monitor and protect authorized entrants.
- Remain outside the confined space until relieved by another attendant.

1.140 Entry Supervisors

Those persons who have completed the training and have been designated as permit space entry supervisors are assigned specific duties and responsibilities, which they must perform in permit space job duties. Their duties and responsibilities, which are covered in the training program include:

- Know the hazards they may face during entry including the mode, signs, and symptoms of exposure. Also, they must understand the consequences of exposure to hazards.
- Verify all tests specified by the permit have been conducted, all hazards have been identified and mitigated, and all procedures and equipment are in place before endorsing the permit and allowing work to begin. Also, all procedures and equipment specified in the permit shall be in place before endorsing the permit and allowing entry to begin. The supervisor must sign the entry permit to authorize entry.
- Terminate the entry and cancel the permit when necessary.
- Verify rescue services are available and a means of communication are in place and operable if needed.
- Remove unauthorized individuals who enter or attempt to enter the permit space during entry operations.
- Determine that entry operations remain consistent with terms of the entry permit whenever responsibility is transferred or at intervals dictated by the hazards or operations performed within the space.
- Post-Operations Procedures: The entry supervisor shall terminate the entry and cancel the permit upon job completion or if conditions change within the confined space. The permit will be reviewed, verification will occur that equipment is operational, and any employee

concerns addressed. Procedural revisions may be required if the entry supervisor identifies that an unauthorized entry occurred, a hazard was identified that was not covered by the permit, the occurrence of an injury or near miss, or there are employee complaints. Management shall be informed if these referenced items are identified.

1.141 Confined Space Classification

The Safety Coordinator shall be the qualified person in confined spaces. An evaluation shall be conducted to assess the hazards. This evaluation will provide on-site personnel with the information necessary to identify the existence and location of permit-required confined spaces that must be covered by the Permit-Required Confined Space Entry Program and the hazards associated with them. All confined spaces will either be classified as a permit-required confined space (PRCS) or non-permit confined space (NPCS). All confined spaces shall be treated as permit spaces until determined to be otherwise.

The Company will provide the following to its clients and exposed sub-contractors, if applicable, prior to job tasks involving confined spaces:

- A list of confined spaces to be entered on the project in question for review by the qualified person and the client's / sub-contractor's representative, if applicable. This will provide all parties the opportunity to review the hazards and any specific equipment and personnel needs.
- The names of employees or sub-contracted employees, if applicable, working on the specific project who may serve as the Entry Supervisor, the Authorized Attendant(s), and the Authorized Entrant(s). The qualified person will act as the Entry Supervisor. The Authorized Attendants and Authorized Entrants will be other craft members working on site who have been properly trained as Entrants and/or Attendants. The individuals involved in these roles will be identified and named on each Entry Permit.

1.142 General Requirements – Non-Permit Confined Spaces

A qualified person that has received documented training in confined spaces shall determine what condition and precautions must be in place to allow for safe entry and what would constitute a change in conditions, which would require a re-evaluation of the confined space. Please refer to the definition of permit-required confined spaces within this document as a guide to determine whether a space is a PRCS or NPCS.

1.143 General Requirements – Permit-Required Confined Spaces

The following requirements apply to entry into Permit-Required Confined Spaces:

- Any condition making it unsafe to remove a cover shall be eliminated before the cover is removed.
- Covers shall be removed and replaced using tools designed for that purpose. When entrance covers are removed, the entrance shall be properly guarded to prevent an accidental fall of employees from foreign objects entering the space.
- Atmospheric Testing
    - Before entry into a confined space, necessary testing shall be conducted for hazardous atmospheres by a qualified person. If there is no potential for a hazardous atmosphere, the atmospheric testing may be waived. A qualified person shall possess the knowledge and skill to understand the test instrument's use, calibration procedures, limitations, and have the ability to interpret results.
    - Before any employee enters the space, the internal atmosphere shall be tested with a calibrated, direct reading instrument for the following conditions in the following order:
        1. Oxygen content (between 19.5% and 23.5%)
        2. Flammable gases and vapors (not over 10% of the Lower Flammable Limit)
        3. Potential toxic air contaminants (not over Permissible Exposure Limit)
    - The atmosphere within the space shall be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee who enters the space, or that employee's authorized representative shall be provided with an opportunity to observe the periodic testing.
    - Reevaluate the permit space in the presence of any authorized entrant or that employee's authorized representative who requests that the employer conduct such reevaluation because the entrant or representative has reason to believe that the evaluation of that space may not have been adequate
    - Immediately provide each authorized entrant or that employee's authorized representative with the results of any testing conducted.
    - It is recommended on a vertical entry that remote probes be used to test at various levels of the confined space as vapors and gases have different density's and could accumulate at the bottom, middle, or top of a confined space.

  - Atmospheric testing for the confined space should be based on the configuration and design of the space, and physical, and chemical characteristics of suspected contaminants that may be encountered. Continuous monitoring should be considered in situations when an employee is present in a space where atmospheric conditions have the potential to change. Examples include broken or leaking pipe or vessels, disturbance of exiting materials, the potential for adjacent work activities that can create a hazardous environment or any space that is not capable of being isolated.
  - All tests must be completed, accurate, and documented before entry.
- The space must be free of any hazardous atmosphere whenever an employee is inside.
- Smoking and open flames shall not be permitted within 20 feet of the confined space opening unless air samples indicate an atmosphere safe for hot work. No welding or burning will be permitted unless a special hot work permit is obtained.
- All ladders shall be inspected prior to entry.
- Only approved low voltage light and extension cords, or electrical apparatus provided with a ground fault circuit interrupter shall be used in a confined space.
- When entering a permit required confined space, there shall always be an attendant present to ensure the authorized entrant is following procedures and to monitor activity in the confined space.
- Continuous air ventilation shall be used, as follows:
  - An employee shall not enter the space until the ventilation has eliminated the hazard.
  - The ventilation shall be directed as to ventilate the immediate areas when an employee is working and shall continue until the employee leaves that area.
  - The air supply for the forced air ventilation shall come from a clean source and may not increase the hazards in the space.
- If oxygen consuming equipment is going to be used or if an oxygen consuming evolution will take place, continuous oxygen monitoring is required no matter what the classification of the space or the ventilation required.

1.144 Permits

All entry to a permit-space is restricted to those with permits. The written permit controls entry into a confined space. The use of a written permit will ensure that the following controls are in place:

1. The current classification reflects existing conditions in the space.
2. The checklist of entry requirements is appropriate for that classification.
3. Recordkeeping requirements are met for each entry.

Permits shall be available to all employees requiring entry to a confined space that requires a permit (permit-space). The permit shall extend only for the duration of the task. All permits shall be retained for a year to facilitate review of the Confined Space Program.

Permits shall include the following:

- Identification of the space
- Purpose of entry
- Date
- Time of issue and expiration
- List of authorized entrants with method to determine which authorized entrants are inside the permit space (sign-in sheet)
- Names of current attendants and entry supervisor
- List of hazards in the permit-space
- List of measures to isolate the permit-space and eliminate or control hazards before entry
- The acceptable entry conditions
- Results of initial and periodic tests initialed by the persons performing test and the time tests were performed
- Rescue and emergency services including equipment and phone numbers
- Communication procedures for attendants and entrants to maintain contact during entry
- Required PPE (respirators, communications devices, alarm, and rescue equipment)
- Any other information which is necessary
- Any additional permits issued to authorized work in the permit space (such as for hot work under the Fire Safety Program).

1.145 Safe Permit Space Entry Procedures

When confined space entry becomes necessary, the person in charge of the work to be performed shall make the need for the entry known to their supervisor. The Qualified Person will serve as the Entry Supervisor responsible for authorizing entry and issuing entry permits for work in confined spaces.

The qualified person in charge of the entry will be responsible for ensuring compliance with the entry requirements specified on the checklist and will ensure the permit is properly filled out. Upon conclusion of the entry, the qualified person will review, close off the permit space, and cancel the permit. A copy shall be filed in the job folder. The permit shall be posted outside of the confined space while the authorized entrant is inside.

The duration of the permit may not exceed the time required to complete the identified assigned task on the permit and will never exceed 12 hours. One permit is required for each specific confined space. If circumstances cause an interruption in the work or a change in the alarm condition for which entry was approved, a new Confined Space Entry Permit shall be completed.

The permit expires when any of the following conditions are met:

- The entry operations covered by the permit have been completed.
- A change in work conditions introduces a new hazard.
- The time period of the permit has elapsed.
- When personnel (entrants, attendants, entry supervisor) who were not originally identified on the permit are assigned to the confined space work operation.
- Any other changes in the existing conditions occur that may cause a new hazard or casts doubt upon the ability to continue safely in the same fashion.

Permits shall be readily available to all employees before entering a confined space, and the permits shall remain at the work site as long as the work is being performed there.

The Permit Program and completed permit checklists shall be reviewed at least annually.

When atmospheric testing shows a dangerous air contamination, oxygen deficiency, or oxygen enrichment, the written permit form or record showing the results of the atmospheric testing shall be retained for a minimum of one year. Canceled entry permits shall be kept for one year to facilitate the review of problems encountered and the appropriate changes made during the review.

1.146 Preventing Unauthorized Entry

To provide a safe work environment and to prevent exposed employees from accidentally entering a permit space, procedures shall be implemented to inform all employees of the existence, location, and danger posed by permit spaces at work sites. To inform employees of the existence of a permit space, warning signs and/or verbal communication by the qualified person shall be used.

If the space is found to be a permit-required confined space, it shall be labeled by posting a sign reading:

"DANGER -- PERMIT REQUIRED CONFINED SPACE, DO NOT ENTER"

This sign shall be permanently posted at the potential entry or access point to the space. If the space will not be entered, effective measures shall be taken to see that entrances are adequately marked and blocked. To ensure that unauthorized employees do not enter and work in permit spaces, confined space entry is restricted to employees that have been specifically trained as authorized entrants. The qualified person shall have the overall on-site safety responsibility.

1.147 Pre-Entry Procedures

Measures such as barriers or barricades necessary to prevent unauthorized entry shall be implemented. Pedestrian, vehicle, and other barriers necessary to protect entrants from external hazards shall be provided and verified throughout the duration of the authorized entry.

Each authorized entrant shall have the opportunity to observe any pre-entry monitoring or testing.

To ensure the safety and health of our employees, before allowing authorized employees to enter a permit space, conditions shall be evaluated in that space to determine if the conditions are safe for entry. The following steps shall be taken before entry into a confined space is permitted:

1. Disconnection of lines – Lines that may convey flammable, explosive, toxic, or otherwise injurious or incapacitating substances into the space shall be disconnected, blinded, locked out, or blocked off by other positive means to prevent the development of dangerous air contamination, oxygen deficiency, or oxygen enrichment within the space. The disconnection or blind shall be so located or done in such a manner that inadvertent reconnection of the line or removal of the blind is effectively prevented. If the jobsite is a Process Safety Management site, additional instruction is needed before proceeding.
2. Calibration of testing and monitoring equipment – Air testing and monitoring equipment shall be maintained and calibrated according to manufacturers' instructions. This

equipment shall be periodically calibrated with an appropriate test gas to assure proper operation. Records of calibration shall be maintained for a minimum of one year.

a) Calibration Check – Multigas and Single gas detectors:

The calibration check is simple and should only take about one minute. Perform this calibration check before each day's use for each installed sensor. Daily calibration checks are performed to ensure the monitor and alarms are working correctly.

i. Turn ON the Multigas / Single gas detector in clean, fresh air.

ii. Verify that readings indicate no gas is present.

iii. Attach regulator (supplied with calibration kit) to the cylinder.

iv. Connect tubing (supplied with calibration kit) to the regulator.

v. Attach other end of tubing to the instrument.

vi. Open the valve on the regulator, if so supplied.

The reading of the Multigas / Single gas detector display should be within the limits stated on the calibration cylinder.

If readings are not within these limits, the Multigas / Single gas detector requires recalibration.

3. Air Monitoring – Prior to entry in a confined space, the space shall first be tested and ventilated. The atmosphere shall be tested using a three-gas (O_2, LEL, H_2S) or 4-gas (O_2, LEL, CO, H_2S) monitor. Ensure that the detector is fully charged, properly calibrated, and in operation for at least 10 minutes before the testing begins. For vertical entry confined spaces, the detector shall be lowered into the space to test each quarter section for 4 minutes in each position. The internal atmosphere shall be tested for the following conditions in the order given:

a) oxygen content,

b) flammable gas and vapors, and

c) potential toxic air contaminants.

All areas of the confined space shall be monitored to ensure the following conditions are met:

Oxygen: 19.5% to 23.5%

Combustibility: < 10% LEL

CO: < 35 PPM

H_2S: <5 PPM

Other Toxins: <= PEL/TLV

- If the monitor alarms at any time during testing, immediately remove the monitor and note the readings indicated (oxygen, combustible, CO, H_2S) to determine which reading(s) caused the alarm. Ventilation is now required to bring the readings within the acceptable parameters. At this point, the confined space shall remain, as a permit required confined space.
- If no alarms occur during the testing, proceed with purging. The space may be classified as a non-permit required confined space if all the hazards have been controlled and ventilation maintains a safe air environment.

Air monitoring shall continue during all entries. Record the findings on the Entry Permit. Do not enter the confined space at any time during the initial testing. Physical entry shall not be made into an unknown atmosphere.

4. Ventilation – Where the existence of dangerous air contamination, oxygen deficiency, or oxygen enrichment is demonstrated by air testing, existing ventilation shall be augmented by appropriate means. Purging shall be performed using an approved air blower. The minimum purge time shall be 10 minutes. When the blower is set up, the intake shall be kept away from any source of contamination (i.e., vehicle exhaust, traffic, etc.). When the blower hose is lowered into the manhole, it shall reach to the lower one-third of the manhole and shall be angled toward a wall to ensure complete ventilation.

   Once purging of the atmosphere has been completed, the atmosphere shall be re-tested using the following procedures:

   I. If no alarm occurs during the re-testing, then entry may be made in accordance with the entry procedures discussed in the next section of this program.

   II. If an alarm occurs during the re-testing, check for the following:

      a) Placement of blower intake - It may be necessary to hook a straight section of hose to intake in order to obtain an air supply away from any contaminants.

      b) Any vehicles or engines near the manhole that are running may be contaminating the manhole with exhaust. Shut the vehicles and/or engines off or move them away from the manhole.

      c) If applicable, check placement of blower hose into a manhole to ensure it reaches the lower one-third and is directed toward a wall.

d) If any of these factors (or others) are found to be potential sources of problems, then correct them and re-ventilate and recheck.

e) If, after re-ventilating, the detector does not alarm, then complete the Confined Space Entry Permit and proceed with entry operations.

f) If, after re-ventilating, the detector still alarms, call for a second detector and notify the qualified person. The second detector may be used to re-check the manhole. If the second detector does not alarm upon re-check, then inspect the first detector for low battery or possible malfunctions. If no malfunctions are found, then contact the Entry Supervisor before proceeding with entry. If the second detector alarms during recheck, no entry shall be made. Under no circumstances is entry to be made until the confined space has been established to be safe of atmospheric hazards.

5. Injurious or Corrosive Substances - Employees in confined spaces that have last contained injurious or corrosive substances to the eyes or body shall be provided with, and shall be required to wear, appropriate personal protective equipment. In addition, an eyewash and safety shower shall be provided within the work area outside of the confined space for immediate emergency use.
6. Ignition Sources – No sources of ignition shall be introduced into the space until implementation of appropriate provisions of this section has ensured that dangerous air contamination due to flammable or explosive substances does not exist.
7. Oxygen Consuming Equipment – Whenever oxygen-consuming equipment is to be used, measures shall be taken to ensure adequate combustion air and exhaust gas venting.
8. Oxygen Enrichment Condition – Whenever oxygen enrichment is possible due to conditions within the space, measures shall be taken to ensure that the oxygen level does not exceed 23% in the confined space. If tests indicate the oxygen levels to be higher than 23%, hot work is prohibited until the ventilating techniques have reduced the oxygen level to less than 23%.
9. Smoking – Smoking shall not be allowed in confined spaces or within 20 feet of a confined space opening.
10. Automatic Fire Protection Systems – Where there is no ready exit from spaces equipped with automatic fire suppression systems employing harmful design concentrations of toxic or oxygen displacing gases, or total foam flooding, such systems shall be deactivated.

1.148 Entry Safeguard Requirement

A confined space entry is defined as an action, which results in any part of an employee's body breaking the plane of any opening of a confined space. This section specifies the appropriate actions and equipment required to safely access the space in question.

Once the confined space atmosphere has been tested, purged, and re-tested, and determined to be safe, then entry may be made provided the following guidelines are followed:

- The person entering the confined space shall carry the gas detector with them and it shall remain in operation at all times while the occupant remains in the confined space. If, at any time, the gas detector alarms, the confined space shall be evacuated immediately. If it is found that the detector is alarming due to a low battery, entry may be made using another detector provided the atmosphere is re-tested before re-entry.
- Ventilation (natural or mechanical as applicable) shall continue while the authorized entrant is in the confined space. For entry into manholes, the ventilation supply hose may be temporarily removed from the opening to allow for entry, but the hose shall be reinserted immediately after occupant has entered manhole.
- A standby person (attendant) shall be stationed outside of the manhole or confined space and shall remain in visual, or voice contact with the occupant at all times.
    - The standby person shall be specially trained in Confined Space Entry.
    - The standby person shall have the authority to order immediate evacuation of the space if there is any sign of intoxication from an undetected hazardous atmosphere or any other danger that warrants immediate evacuation.
    - If injury occurs or occupant becomes unconscious while in confined space, refer to the section titled "Rescue and Retrieval".
    - At least one attendant shall be stationed outside a confined space for the duration of entry operations. If multiple spaces are to be monitored by a single attendant, they shall have the means to respond to an emergency in one space while continuing oversight of the others, or they shall be relieved by another individual.

1.149 Rescue and Retrieval

Rescue and retrieval procedures shall be in place prior to entry for summoning rescue and emergency services shall be developed and implemented to perform rescue, to provide necessary emergency services to rescued employees, and to prevent unauthorized personnel from attempting a rescue.

Affected employees will be provided the necessary PPE to protect them from the hazards posed by performing rescue in a permit-required confined space, at no cost to those employees.

Employees shall not enter permit spaces to perform rescue operations. Employees shall use the provided retrieval systems to remove personnel in confined spaces. Affected employees shall be trained to perform assigned rescue duties. At least one employee on the rescue team shall maintain current certification in basic first aid and cardiopulmonary resuscitation (CPR) skills. They shall also practice making permit space rescues at least once every 12 months by means of simulated rescue operations in which they remove dummies, mannequins, or personnel through representative openings and portals whose size, configuration, and accessibility closely approximate those of the permit spaces on-site.

Local emergency services shall be contacted immediately to assist in confined space emergencies. Prior to confined space work operation commencing, the local responders shall be informed of the site work tasks, confined space configuration, and the specific hazards. Rescue service shall have access to all permit spaces from which rescue may be necessary so they can develop appropriate rescue plans and practice rescue operations. Rescue service shall be on-site for immediately dangerous to life and health (IDLH) conditions while work is being performed.

Local emergency rescue teams shall be trained to perform the assigned rescue functions and must have received the training required of authorized entrants. They shall also practice making permit space rescues at least once every 12 months by means of simulated rescue operations in which they remove dummies, mannequins, or personnel through representative openings and portals whose size, configuration, and accessibility closely approximate those of the permit spaces on-site. At least one member of the rescue team shall maintain current certification in basic first aid and cardiopulmonary resuscitation (CPR) skills.

To facilitate non-entry rescue, retrieval systems (body harness or wristlets, and lifelines) shall be used, at no cost to the employee, whenever an authorized entrant enters a confined space. Retrieval systems shall meet the following requirements.

1. Each entrant shall use a chest or full body harness, with a retrieval line attached at the center of the entrants back near shoulder level or above the entrant's head. Wristlets may be used when the use of a body harness would create an additional hazard or interfere with the retrieval through a small man way entrance.
2. The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the attendant becomes aware that rescue is necessary. A mechanical device shall be made available to retrieve personnel from a vertical entry permit space more than 5 feet in depth.
3. The use of retrieval lines that have a reasonable probability of becoming entangled with the retrieval lines used by other authorized entrants, or due to the internal configuration of the PRCS, are prohibited.

1.150 Multiple Employer Entry Procedures

All contractor or sub-contractor personnel acting under Company control shall comply with all applicable provisions of these procedures or show proof that their procedures and employee training are at least as effective as these procedures.

Contractors are responsible for the permit space entry of their own personnel. They shall be informed of the permit space hazards by giving them a copy of the form titled "Contractor Hazard Information Identification" for the permit space(s). Also, they shall be informed of Company safety procedures. They shall not be permitted to enter space(s) until the qualified person acting as the entry supervisor has determined that they have a permit space entry program and that the contractor's program does not endanger Company employees.

When a contractor's personnel and Company personnel perform permit space entry operations in the same permit space at the same time, both the contractor and Company shall provide an entry supervisor as a check and balance system. One or both parties may provide the attendant(s). The entry supervisors shall coordinate the work so neither crew endangers the other.

Entrants shall be instructed to comply with each other's evacuation orders and evacuation alarms. Attendants shall be instructed to immediately inform the other attendant if an evacuation order is issued or if an evacuation alarm is activated. This means the entrants of all employers shall evacuate the permit space if any attendant, any entry supervisor, or any entrant issues an evacuation order. If there is a dispute over the necessity to evacuate, all entrants shall evacuate and remain outside of the permit space until the dispute is settled.

When contractors perform work that involves permit space entry, then:

1. Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of the OSHA Standard. Supply the contractor with the form titled “Contractor Hazard Information Identification”.
2. Apprise the contractor of the hazards identified for the confined space.
3. Apprise the contractor of any precautions or procedures that the Company has implemented for the protection of employees in or near the permit spaces where contractor personnel will be working.
4. Coordinate entry operations with the contractor(s) when both Company personnel and contractor(s) personnel will be working in or near permit spaces.
5. The Company entry supervisor shall debrief the contractor at the conclusion of the entry operations regarding the procedures followed and regarding any hazards confronted.

1.151 Safety Equipment and Clothing

The entry permit shall include a list of necessary protective equipment to be used in the confined space as determined by the qualified person. The Company is responsible for the proper use of the safety equipment and the inspection and maintenance procedures performed on the safety equipment. The qualified person shall determine the type of protective equipment required.

- Eye and Face Protection - Employees shall use appropriate eye or face protection when exposed to hazards from: flying particles, molten metal, liquid chemicals, acids or caustic liquids, and potentially injurious radiation. Requirements for side protection, prescription lenses, filter lenses, and identification of the manufacturer of safety equipment shall be specified.
- Head Protection - Employees shall wear protective helmets when working in areas where there is a potential for a head injury from falling objects and protection from any other hazard identified by the qualified person. Employees who are near exposed electrical conductors shall wear protective helmets designed to reduce electrical shock hazards. Protective helmets purchased on or after July 5, 1994, shall comply with ANSI Z89.1-1986 or be equally effective.
- Foot Protection - Employees shall wear protective footwear when working in areas where there is a danger of foot injuries from falling or rolling objects, objects piercing the sole, or exposure of employees’ feet to electrical hazards. Protective footwear purchased on or after July 5, 1994, must comply with ANSI Z41-1991 or be equally effective.

- Hand Protection - Employees shall use the appropriate hand protection whenever employees' hands are exposed to hazards from skin absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns, and harmful temperature extremes.

  The Company will select appropriate hand protection based on an evaluation of:

  - The performance of the hand protection relative to the task to be performed,
  - The conditions present,
  - The duration of use; and
  - The actual and potential hazards identified.

- Hearing Protection - Employees shall wear hearing protection when engineering technology is insufficient to control the noise level and the ambient exposure limit exceeds those allowed in Table G-16 of 29 CFR 1910.95.
- Respiratory Protection - The need for respiratory protection shall be determined by a qualified person based upon conditions and test results of the confined space and the work activity to be performed. The respirators used shall be National Institute for Occupational Safety and Health (NIOSH) and or Mine Safety and Health Administration (MSHA) approved devices and shall be fitted and maintained in accordance with 29 CFR 1910.134.
- Body Protection - All employees entering a confined space shall wear full coverage work clothing as specified by the qualified person. Gloves and clothing made of impervious rubber or similar material are to be worn to protect against toxic or irritating materials. If the hazards of heat or cold stress exist in the confined space, clothing which has been tested to provide protection from over-exposure to these hazards shall be worn. Other body protection required in specific operations such as welding (flame resistant), riveting (heat resistant), and abrasive blasting (abrasion resistant) shall be provided to insure employee's safety

1.152 Training

Training shall be provided to all employees involved in confined space entry so that they acquire the understanding, knowledge, and skills necessary to perform their job safely. Training must establish proficiency in assigned duties in accordance with jurisdictional requirements. All training related materials, documents, and signed certificates shall be maintained.

The training programs shall consist of classroom (lecture and group activities), hands-on (equipment, monitors, PPE, entries), and audiovisuals. All new employees shall be trained to an awareness level as to the recognition of confined spaces.

Only specific employees shall be trained in confined spaces.

All employees shall be trained to be able to recognize hazardous conditions; properly use monitoring equipment; space preparation; entry and work procedures; the permit system; and emergency response actions.

Confined space entry training shall include:

- The written program and its requirements.
- The proper use of air monitoring equipment.
- The proper use and limitations of body harnesses, lifelines, retrieval systems, and other PPE.
- The proper use of all respiratory equipment.
- The typical hazards that may be encountered and the consequences of exposure to hazards.
- Recognizing the signs and symptoms of exposure to hazards.
- Understanding the duties specific to their role in confined space entry work as well as the duties of others who are involved as provided in this plan.
- Evaluating and preparing a confined space for entry.
- The proper use of the permit system.
- The importance and methods of maintaining communications between entrants and attendants.
- Conditions that require evacuation of the confined space.
- The importance and requirements for maintaining site control.
- The requirements for concluding an entry and terminating the permit.

- Proper confined space non-entry rescue procedures and assigned rescue duties.
- Welding, cutting, and brazing in a confined space.
- The proper use and calibration of monitoring equipment.

Certification of the training shall be documented and made available to employees and their authorized representatives.

1.153 Training Intervals

Training shall be provided to each affected employee:

- Prior to initial assignment.
- Prior to any changes in assigned duties.
- If a new hazard has been created or special deviations have occurred.
- Whenever there is reason to believe that there are deviations from entry procedures that could pose hazardous to employees.
- When inadequacies in the employee's knowledge or use of these procedures is found.
- At least every two years

1.154 Lockout / Tagout (LOTO)

Safety equipment required during this procedure shall be designated by the qualified person and dependent upon the potential hazards involved. A confined space shall be completely isolated from all other systems by physical disconnection, double block and bleed, or blanking off all lines. Blanks used to seal off lines shall be capable of withstanding the maximum working pressure or load of the line (with a minimum safety factor of four), be provided with a gasket on the pressure side to ensure a leak-proof seal and be made of chemically non-reactive material. Shutoff valves serving the confined space shall be locked in the closed position and tagged for identification. In addition to blanking, pumps and compressors serving these lines entering the confined space shall be locked out to prevent accidental activation.

If a drain line is located within the confined space, provision shall be made when necessary to tag it and leave it open. This shall also be recorded on the entry permit.

Additional procedures, which are necessary when the confined space is of a double wall construction, (e.g., water-jacketed) or similar type shall be determined by the qualified person and noted on the entry permit.

Electrical isolation of the confined space to prevent accidental activation of moving parts that would be hazardous to the employee shall be achieved by locking circuit breakers and/or disconnects in the open (off) position with a key-type padlock.

The only key is to remain with the person working inside the confined space. If more than one person is inside the confined space, each person shall place their own lock on the circuit breaker. In addition to the Lockout system, there shall be an accompanying tag that identifies the operation and prohibits use.

Disconnecting linkages or removing drive belts or chains can achieve mechanical isolation of moving parts. Equipment with moving mechanical parts shall also be blocked in such a manner that there can be no accidental rotation.

1.155 Review

Entry operations shall be reviewed when there is reason to believe that the measures taken under the permit space program may not protect employees. Circumstances requiring the review of the permit space program are as follows:

- Any unauthorized entry of a permit space.
- The detection of a permit space hazard not covered by the permit.
- The detection of a condition prohibited by the permit.
- The occurrence of an injury or near-miss during entry.
- A change in the use or configuration of a permit space.
- Employee complaints about effectiveness of the program.

The program shall be revised to correct deficiencies found to exist before subsequent entries are authorized.

This written program shall be reviewed annually. It shall be revised as necessary to protect employees from confined space hazards.

1.156 Recordkeeping

A written record of training shall be maintained including safety drills, inspections, tests, and maintenance. The records shall be retained for 3 years after the last date of training, inspection, test, or maintenance. In the event of separation of the employee, disposal of equipment or appliance, records may be disposed of after 1 year.

Where atmospheric testing indicates the presence of a toxic substance, records shall be maintained in accordance with the existing Federal regulation(s). These records shall include the dates and times of measurements, duties, and location of the employees within the confined space, samples taken, and PEL concentrations estimated from these samples. Records shall be available to the designated representatives of the Secretary of Health, Education, and Welfare, to the employer, and to the employee or former employee.

Van Kirk Bros. Contracting

Confined Space Safety Program

Appendix 2 Confined Space Entry Annual Review Log

Entry Location	Purpose of Entry	Permit Issued			Permit Canceled			Annual Review		
		Date	Time	Initials	Date	Time	Initials	Date	Time	Initials

VanKirk Bros.
Contracting
773-5250
SUTTON, NE

Van Kirk Bros. Contracting

Confined Space Safety Program

Appendix 3 **Confined Space Entry Permit**

General Information			
Unit:		Entry Date	
Entry Supervisor		Permit Expires:	
Location:		Job No.:	
Purpose of Entry:			
Attendant(s):			
Rescue Information			
Telephone Number(s):			

Hazard Control Checklist		
	Yes	**N/A**
1. Has the confined space been drained and purged?	☐	☐
2. Has the confined space been cleaned?	☐	☐
3. Has the confined space been ventilated?	☐	☐
4. Has the confined space been blinded or isolated?	☐	☐
5. Have all energy sources been locked out/tagged out and in a zero-energy state?	☐	☐
6. Have all radiation sources been locked into their shielded containers?	☐	☐
7. Do each open man way or entrance to the confined space have a posted notice?	☐	☐
8. Is rescue equipment required?	☐	☐
9. Will entry involve any of the following:	☐	☐
-Oxygen deficiency (less than 19.5%)?	☐	☐
-Flammable gases or vapors greater than 10% of the Lower Flammable Limit or greater than 23.5% oxygen?	☐	☐
-Toxic gases or vapors greater than the Permissible Exposure Limit?	☐	☐
-Configuration hazards?	☐	☐
-Electrical shock?	☐	☐
-Engulfment?	☐	☐
-Materials harmful to the skin?	☐	☐
-Mechanical hazards?	☐	☐
10. Have all employees on this permit been trained in confined spaces?	☐	☐

If **YES** to any of the items in #9 above, contact the Safety Department.

Van Kirk Bros. Contracting

Confined Space Safety Program

Required PPE		
☐ Communication Equipment	☐ Ventilation	☐ Respiratory Protection: HF/FF SCBA
☐ Electrical Equipment	☐ Safety Glasses, Goggles, Face shield	☐ Fall Protection
☐ Protective Clothing (FRC/Acid/Clicker)	☐ Gloves-Chemical/Thermal	☐ Foot Protection
☐ Rescue Equipment	☐ Hard Hat	☐ Other (Special Precautions/Restrictions)

Air Monitoring						
Air Monitoring Sampling Required	☐	Initial	☐	Periodic	☐	Continuous
Multigas Detector Calibration Date:	Month:		Day:		Year:	
Multigas Detector Calibration Daily Check	☐	Pass	☐	Fail-Recalibrate	☐	Recalibrated

Van Kirk Bros. Contracting

Confined Space Safety Program

Tests Required	Initial						Safe Limit	
1. Oxygen							Min 19.5%	Max 23.5%
2. Combustible Gases (%LEL)							Less than 10%	
3. Carbon Monoxide (CO)							25 ppm	
4. Hydrogen Sulfide (H_2S)							5ppm	
5. Sulfur Dioxide (SO_2)							2 ppm	
6. Total Hydrocarbons							300 ppm	
7. Benzene							1 ppm	
8. Other								

Calibration Unit Serial Number:	
Multigas Detector Serial Number:	

Authorization of Entry Supervisor

I, _____, attest that all entrants and attendants of this confined space have received training per the Confined Space Procedure.

Signature:		Date:	

Appendix 4 Confined Space Entrant Log

General Information			
Unit:		Entry Date	
Entry Supervisor		Permit Expires:	
Location:		Job No.:	
Purpose of Entry:			
Attendant(s):			

Rescue Information

Telephone Number(s):	

Entrant Log

Entrant Name	Time In	Time Out	Time In	Time Out	Time In	Time Out

Van Kirk Bros. Contracting

Confined Space Safety Program

Appendix 5 Contractor Hazard Information Identification

This is a list of permit spaces and the potential hazards of these spaces that the contractor will be working in or in close proximity to. The hazards of some spaces may change with use. Note this possibility as "change with use" in the Potential Hazards column then list the anticipated hazards.

NO WELDING OR BURNING PERMITTED UNLESS SPECIAL HOT WORK PERMIT IS OBTAINED

Permit Space	Potential Hazards

Signatures			
Contractor Employee Signature:		Date:	
Contractor Employee Signature:		Date:	
Contractor Employee Signature:		Date:	
Contractor Employee Signature:		Date:	

15. Contractor / Subcontractor Working Relations Program

1.157 Purpose and Scope

The purpose of this program is to establish expectations for contractors / subcontractors in the workplace.

This program applies to all Van Kirk Bros. Contracting employees and contractors / subcontractors.

1.158 Contractor / Subcontractor Working Relations Program

Good working relations with contractors / subcontractors is vital to success. Communication is key to this working relationship.

1.159 Roles and Responsibilities

Prior to the start of any work, clear roles and responsibilities of contractors / subcontractors and Company employees shall be defined.

All contractors / subcontractors are expected to be aware of and comply with all local, state, and federal safety standards and regulations.

Aligning the various interests and areas of responsibility requires good working relationships between the client and contractors / subcontractors. This is particularly true if the subcontractor activities are difficult to monitor (e.g., distributed work groups, remote locations, transportation).

The contractor / subcontractor shall ensure that their company safety program is in compliance with all of the existing health and safety requirements which may include hazard communication training, personal protective equipment (PPE) training, respiratory protection training, any required medical examination and clearances, etc.

The contractor / subcontractor is responsible for all employees working under their control.

1.160 Verification

A verification process shall be conducted to ensure that on site contractors / subcontractors are:

- Competent and capable of performing their assigned duties in a safe and environmentally sound manner.
- In compliance with appropriate licenses, registrations, insurance, etc. to complete their work.

1.161 Communication

Clear lines of communication shall be established, including an effective reporting relationship, prior to the start of work.

Facilitating the interface of contractor / subcontractor activities with those of the client and other contractors / subcontractors drives HSE performance improvement.

1.162 Contractor / Subcontractor Safety Rules

Medical Facilities – Contractors / Subcontractors shall furnish their own first aid supplies conspicuously located so they are immediately available to their employees.

Incident Reporting – All incidents and near misses shall be reported to the Company promptly. Contractors / subcontractors shall participate in all incident investigations for incidents involving their employees.

PPE – Contractors / subcontractors shall supply their own PPE as required by the specific tasks.

Housekeeping – Contractors / subcontractors are responsible for housekeeping conditions in their respective work areas. Trash shall not be allowed to accumulate in the work area. All requirements for handling and storage of hazardous materials shall be followed.

Site Security – Contractors / subcontractors are responsible for taking the necessary security measures to protect materials, including any furnished by the Company.

1.163 Emergency Action Plan

All contractors / subcontractors and Company employees shall communicate and understand the emergency response procedures and capabilities along with their roles in emergency response plans.

The contractor / subcontractor supervisor's contact information shall be communicated for emergencies.

1.164 Contractor / Subcontractor Performance

To verify contractor / subcontractor performance for the life of the contract, an appropriate level of oversight and monitoring shall be put in place at the start of the contract.

A periodic review of HSE performance shall be conducted to verify contractor / subcontractor compliance with regulatory and job specific requirements.

16. Cutting Tool Program

1.165 Purpose and Scope

The purpose of this program is to provide information on the alternatives to and expectations for using exposed open blades.

This program applies to all Van Kirk Bros. Contracting employees that use cutting tools.

1.166 Cutting Tool Program

The Company is dedicated to providing a safe and healthful workplace by ensuring all employees use equipment in the manner that it was designed to prevent potential injury.

The use of folding knives, including pocketknives and homemade knives, in the workplace is prohibited. This includes locking folding knives and multi-tool devices with folding or retractable blades. Employees must use alternative safe cutting devices rather than exposed blade cutting tools when possible.

1.167 Requirements for All Cutting Tools

Knives must have a fixed handle, sharp on one side only, with a handle that is not prone to becoming slippery when wet or dirty.

Cutting instruments must be kept clean and free from grease or other lubricating substances that may cause the user to lose their grip.

Cutting edges should be kept sharp, as appropriate, and the tool be kept in good working order to avoid any undue pressure being applied when utilizing the tool.

Defective cutting instruments and knives must be taken out of service and either repaired or destroyed.

Any cutting tool that is dropped must be allowed to fall rather than attempting to catch it.

Cutting tools must not be used for any other purpose (e.g., prying, hammering, driving, removing screws, etc.).

1.168 Requirements for Exposed Blade Cutting Tools

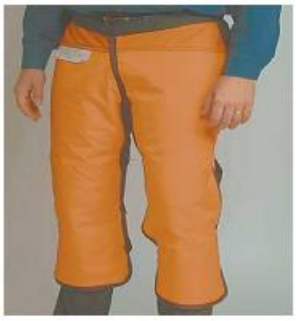
Exposed blade cutting tools should only be used when a suitable alternative tool is not available to perform the task. The following minimum requirements for safe operation must be met:

- Fixed knives with exposed blades must be kept in a device such as a sheath that covers the cutting blade or otherwise protected when not in use.
- Fixed knives with exposed blades must have a handle guard to keep the hand separated from the cutting edge.
- Exposed blades must not be carried from one location to another unless they are sheathed or otherwise protected. When carrying, the tool must be pointed down and away from the body.
- Employees using an exposed blade must wear a cutting glove on the free hand.
- Cutting made with an exposed blade must be made away from the body. If cutting cannot be done away from the body, barriers such as a leather apron must be worn to protect the user from the exposed blade.
- When utilizing an exposed blade cutting tool, the user must ensure that a “safety circle” is maintained at all times when the blade is exposed. This means that all other personnel are far enough away that the full extension of the blade users arm in any direction cannot contact another person.
- Disposable razor type blades must be placed in a puncture resistant container or otherwise appropriately packaged for disposal before placing into the trash.

Appendix 6 Alternative Cutting Tools

	**Utility Cutters**: Cutters feature an offset pivot design, a replaceable super-sharp stainless-steel blade, an ergonomic handle design with vinyl grips and a handle latch for protective storage.
	**Strap and/or Box Cutter Knife**: A guarded fixed position blade cutter designed for cutting tape, stretch film, straps, etc.
	**Diagonal Cutter**: Diagonal pliers, side cutter, wire cutters, diagonal cutting pliers, or dikes are wire-cutting pliers.
	**Retractable Utility Knife**: Utility knife with an automatic retracting blade or automatic safety hood that snaps, and locks as soon as contact it lost with the cutting surface.

Appendix 7 Examples of Personal Protective Equipment

	**Cutting Gloves**: Cut-resistant gloves provide cut, slash, and abrasion resistance. Use alone or with another glove as a liner. They are usually made of Kevlar mesh or may be any other material designed and designated for cut resistance.
	**Cut Resistance Sleeve**: Sleeves provide cut protection for forearms. Gauntlet length gloves also provide extended coverage to the forearm, as the cut is extended up the arm. The material may be Kevlar, leather, or other material designed and designated for cut resistance.
	**Apron**: An outer protective garment that covers primarily the front of the body. The material may be Kevlar, leather, or other material designed and designated for cut resistance.
	**Chaps**: Sturdy coverings for the legs, usually of leather, consisting of leggings and a belt. They are buckled on over pants with the chaps integrated belt, but they have to seat and are not joined at the crotch. They are designed to provide protection for the legs. They are usually made of leather or Kevlar.

17. Damage Prevention Program

1.169 Purpose and Scope

The purpose of this program is to convey safe practices to prevent damage such as "call before you dig" and following any applicable state and local laws related to excavations.

The program applies to all Van Kirk Bros. Contracting employees.

1.170 Training

Training will be provided for employees on damage prevention.

Training will be conducted when workers are hired and at least annually after for those who have excavation responsibilities.

The training shall cover applicable local rules related to digging, including any tolerance zones, ground markings, or other relevant elements of safe digging to prevent the striking of a pipe.

1.171 Worker Acknowledgment & Accountability

The competent worker must take ownership of their roles and responsibilities in preventing incidents during excavations.

The competent worker is responsible and must be capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to workers and is authorized to take prompt corrective measures to eliminate them.

Under the excavation standards, tasks performed by the competent person include:

- Inspect excavations/trenches daily,
- Classifying soil,
- Inspecting protective systems,
- Designing structural ramps,
- Monitoring water removal equipment and
- Conducting site inspections.

1.172 Incident Investigations

It is a requirement that all incidents must be reported and investigated.

The investigation must be thorough and seek to identify the events that contributed to causing the incident, the parties involved, the extent of the damage that occurred, and any other information that may be relevant.

Reporting must include all necessary levels of management.

All incidents that result in any damage to any buried infrastructure (e.g., gas lines, electric cables, or sewage systems) must be reported to the appropriate agency within the appropriate timeframe (AGA, DIRT, CGA, API, etc.).

For example, California requires reporting to CARGA DIRT within 30 days of an incident AGA, API, INGAA and applicable.

The appropriate agency will vary by location of the incident.

1.173 Corrective Action Plan

The goal of a corrective action plan is to identify solutions that will make future excavations for safer after an incident occurs.

The corrective action plan must address the performance of a root cause analysis to find the cause of an incident.

The plan details how corrective actions are determined from that root cause analysis.

1.174 Certifications

Employees shall be certified in Gold Shovel standard training or equivalent to so that the Company will have a qualification / verification element to verify that workers have been provided tools / training to carryout excavation responsibilities.

1.175 Stop Work Authority

This program establishes the Stop Work Authority (SWA) of all employees and contractors to suspend individual tasks or group operations when the control of Health, Safety or Environmental (HSE) risk is not clearly recognized or understood and/or equipment service is compromised.

All employees have the authority and responsibility to stop any task or operation where concerns or questions regarding the control of HSE exist.

No work will resume until all stop work issues and concerns have been effectively addressed.

Any form of retribution or intimidation directed at any team member or company for exercising their authority as outlined in this program will not be tolerated.

This “stop work” program applies to all projects and operations.

1.176 Excavation Statement

The Company is committed to safe digging practices such as “call before you dig” and to following any applicable state and local laws related to excavations.

_____ _____

Executive Signature Date

18. DASH CAMERA SAFETY PROGRAM

1.177 Purpose and Scope

The purpose of this program is to set out the principles the Company follows on the use of on-board incident capture devices (Dash Cams) in vehicles and its effect on employees.

This program applies to all Van Kirk Bros. Contracting employees driving Company vehicles.

1.178 Dash Camera Policy

The primary uses of dash cams are to assist in the protection and safety of persons and property, prevention or detection of criminal offences, defense of legal claims, and most importantly, driver training. It is not the Company's intended purpose to use dash cams for monitoring the work of employees or finding out whether or not they are complying with the organization's policies and procedures.

1.179 Principles

The following principles apply:

- Dash cams will be installed when appropriate in company vehicles, (i.e., cars, trucks, and tractors).
- Dash cams are set up in a way that ensures that there is minimal intrusion of privacy and that any intrusion is fully justified.
- All drivers are aware if there is a dash cam in their vehicle and have been provided with the manufacturer's overview sheet and an explanation of how the camera works. An acknowledgement sheet will be provided which drivers are requested to sign. This exercise for new employees joining the driving team is carried out as part of their orientation.
- No images and information will be stored except where a relevant incident (event) has occurred. It is possible to review up to 100 hours of video if deemed necessary to determine fault in the case of a complaint, citation, or incident that did not get saved as an event. This is an outside view only.
- Access to retained images and information will be restricted, with clearly defined rules to Designated Responsible Persons (DRPs) who can gain access.
- The dash cam is not normally active, and the driver cannot be remotely viewed in real time. However, there is a live view feature on each camera. It is an outside viewing feature only. This feature will only be used and activated at the request of the driver.

- The dash cam cannot be accessed covertly to monitor the quality and amount of work completed by employees or just to see what the driver is doing at that time. However, where an incident is captured that reveals inappropriate conduct that cannot in good conscience be ignored, the Company reserves the right to process in the business interests. This may include grievance or disciplinary proceedings, defense or litigation of a legal claim, and driver training. `When relevant to do so, dash cam footage may be retained and used for future health and safety training, including the improvement in safety quality and training of drivers. We shall seek the employee's consent if we wish to use it for this purpose.
- Recorded images and information will be subject to appropriate security measures to safeguard against unauthorized access and use.

1.180 Dash Cam Recordings

Access is approved on an incident-by-incident basis. Once access is approved by the Designated Responsible Person, recorded footage can be reviewed (not deleted or amended) by:

- Safety Compliance Manager
- Directors
- Management
- Driver Trainers
- Statutory bodies such as Police, HSE, etc.

Any other person with interest must obtain authority from the Safety Compliance Manager to view recorded footage, providing reasons and justification. Any persons whose images are recorded have a right to view those images, and to be provided with a copy of those images, within one month of making a written access request. Availability of images will be subject to the retention period. Employees making such a request should do so in writing, providing the relevant time and date of the image, so that they may be easily identifiable. The request should be made to management.

Van Kirk Bros. Contracting

Dash Camera Safety Program

1.181 Employees

As stated, the primary uses of dash cams are to assist in the protection and safety of persons and property, prevention or detection of criminal offences, defense of legal claims, and driver training. However, when dash cams are deployed, they are likely to capture pictures of employees and workers.

In accordance with the principle above, dash cam evidence may be used as part of an employee investigation where, in the reasonable belief of management, that there may have been misconduct, or a breach of health and safety. In such cases the footage must be requested by the Human Resources Manager.

Where footage is used in disciplinary proceedings, it will be retained for a further period of up to 5 years. The employee will be permitted to see and respond to the images, in addition to the employee's right to request a copy, which will be provided within one month.

Under appropriate circumstances the footage may be provided to Police (or other Competent Authority) with the intention to prosecute for criminal offences. In defense of legal claims, or in pursuance of civil recovery, footage may also be provided to our legal representatives with the intention of providing evidence before the courts.

1.182 Non-Employees

Where an incident involves a third party, the relevant insurers will be informed of the details. Although the third party may be made aware that there is recorded evidence in the form of dash cam footage, a copy of the recorded material can only be obtained if requested by the subject themselves. Third parties should also be aware that under appropriate circumstances the footage may be provided to Police (or other Competent Authority) with the intention to prosecute for criminal offences. In defense of legal claims, or in pursuance of civil recovery, footage may also be provided to our legal representatives with the intention of providing evidence before the courts.

1.183 Complaints

Complaints about the operation of the dash cam system should be addressed initially to Human Resources.

1.184 Monitoring and Review

This policy will be regularly reviewed, or sooner if there is a policy need or legislative change. This policy does form part of employees' terms and conditions of employment and may be subject to change at the discretion of the Company.

1.185 Disciplinary Action

Disciplinary action up to and including termination of employment will be taken against any employee who is involved in any of the following actions.

- Destroying, dismantling, or unplugging the camera(devise).
- Deliberately blocking the view of the camera inside the cab or outside the cab of the vehicle. This will include clothing items, tape, sun visor, etc.
- Exhibits unsafe behavior that endangers the lives of other workers and the traveling public.

Appendix 8 Acknowledgement

I, _____ have read the Company's Dash Camera Policy and agree to abide by it. I understand violation of any of the above terms, dismantling, destroying, or altering the view of the camera inside the cab or outside the can may result in discipline, up to and including termination.

_____

Employee Name (Print)

_____

Employee Signature

_____

Date

19. Diesel Exhaust Safety Program

1.186 Purpose and Scope

The purpose of this program is to protect employees from harmful exposures to diesel exhaust fumes, prevent occupational illnesses, and ensure compliance with relevant regulations and standards.

This program applies to all Van Kirk Bros. Contracting employees.

1.187 Diesel Exhaust

Many machines, vehicles, and heavy equipment use diesel fuel for power. Harmful diesel exhaust is emitted when diesel fuel is burned.

Diesel exhaust is a mixture of gases and particulates produced during the combustion of diesel fuel. Diesel exhaust contains diesel particulate matter (DPM).

DPM is made up of carbon, ash, metallic abrasion particles, sulfates, and silicates.

1.188 Hazards

The particles in diesel exhaust can cause harmful health effects. Diesel exhaust is classified as a carcinogen, which means that it can cause cancer.

1.189 Exposure

You can be exposed to diesel exhaust by breathing, swallowing, and through eye contact.

Short-term exposure to diesel exhaust can cause:

- Eye, nose, and throat irritation
- Chest tightness
- Headaches
- Heartburn
- Vomiting

Prolonged exposure to diesel exhaust can increase your risk of lung cancer and heart and lung disease.

Some jobs that can potentially expose employees to diesel exhaust / DPM include:

- Construction work

- Operating heavy equipment
- Oil and gas operations
- Truck driving
- Materials handling

1.190 Safe Work Practices

Engineering controls are the most effective way to reduce employee exposure to diesel exhaust. A combination of controls is usually required.

Engineering controls include:

- Performing regular preventative maintenance on diesel engines to reduce emissions.
- Using special fuels or fuel additives like biodiesel.
- Installing and upgrading ventilation systems to capture and remove emissions.

Administrative controls for diesel exhaust exposure include:

- Limiting vehicle speed and using one-way travel routes to reduce traffic congestion.
- Reducing or eliminating unnecessary engine idling or lugging.
- Designating areas that are off-limits for diesel engine operation or employee travel.

Personal protective equipment (PPE) should be used if no other controls eliminate the hazard. A respirator may also be needed.

20. Disciplinary Program

1.191 Purpose and Scope

The purpose of this program is to establish the minimum requirements to ensure proper action is taken when an employee violates written procedures and other known safety policies or goals.

This program applies to all Van Kirk Bros. Contracting employees.

1.192 Resources

Number	Title
29 CFR 1926 Subpart C	General Safety and Health Provisions
CMS-FM-0021	Safety Violation Form

1.193 Disciplinary Program

It is Company policy to provide a safe and healthy place of employment. A vital part of any program is employee participation and commitment to the safety program. In order to ensure compliance with established, communicated safety procedures, employee violations of those safety procedures shall be dealt with according to this program.

1.194 Roles and Responsibilities

The Safety Coordinator is responsible for enforcement of this disciplinary program.

All employees are responsible for following Company safety policies, procedures, and safe work practices.

1.195 Safety Violations

Safety violations include but are not limited to:

- Not following verbal or written safety policies, procedures, or safe work practices
- Not following guidelines or rules
- Horseplay
- Failure to wear or abuse of selected personal protective equipment (PPE)
- Substance abuse

1.196 Disciplinary Action

Van Kirk Bros. Contracting

Disciplinary Program

If a safety violation is issued, employees are subject to:

1) Verbal reprimand
2) Written warning if the issue continues
3) Suspension without pay and/or termination

Appendix 9 Safety Violation Form

General Information			
Employee Name:		Employee No.:	
Date of Violation:		Time of Violation:	
Location:			
Violation Description			
Disciplinary Action			
Employee Statement			
Signatures			
I, _____, have read/been read and understand the safety rules of this company. I agree to act in accordance with the safety rules and understand that the violation of any rule is cause for disciplinary action, up to and including termination of employment.			

Employee Signature:		Date:	
Supervisor Signature:		Date:	

21. Distracted Driving Program

1.197 Purpose and Scope

The purpose of this program is to provide information on the hazards of distracted driving and to reduce the risk of accidents caused by distracted driving.

This program applies to all Van Kirk Bros. Contracting employees.

1.198 Distracted Driving

Every day in the United States, approximately nine people are killed and more than 1,000 are injured in crashes that involve a distracted driver.

Distracted driving occurs any time you take your eyes off the road, hands off the wheel, and mind off your primary task—driving safely.

Any non-driving activity you engage in is a potential distraction and increases your risk of being involved in a motor vehicle crash.

Distracted drivers are more likely than all other drivers to:

- Have a near collision
- Fail to stop at an intersection
- Exceed the speed limit

Employees in many industries and occupations spend part of their workdays on the road. Motor vehicle crashes are the leading cause of work-related deaths in the US.

All employees are at risk of crashes, whether they drive light or heavy vehicles or driving is a main or secondary job.

1.199 Types of Distraction

There are three main types of distraction:

- Visual
- Manual
- Cognitive

Visual distractions are anything that take your eyes off the road in front of you, including:

- Reading a text message
- Looking up directions
- “Rubbernecking”

Manual distractions are anything that requires you to take your hands off the wheel, including:

- Reaching for things inside the vehicle
- Using a handheld device
- Adjusting the radio or music apps
- Eating or drinking
- Applying makeup

Cognitive distractions are anything that interrupts your focus on driving, and can include:

- Talking on the phone
- Arguing with a passenger
- Thinking about your destination

1.200 Prevention

Take these steps to prevent distracted driving:

- Make necessary adjustments to your car, such as adjusting controls or programming your directions, before starting your drive.
- Do not reach to pick up items from the floor, open the glove box, or try to catch falling objects in the vehicle.
- Focus on the driving environment—the vehicles around you, pedestrians, cyclists, and objects or events that may mean you need to act quickly to control or stop your vehicle.

1.200.1 Phone Usage

Talking and texting on a cell phone are driving distractions. Texting is one of the most serious distractions.

Texting while driving can be a visual, manual, and cognitive distraction all at once. Your eyes are off the road reading your phone, your hand is off the wheel holding your phone, and your mind is off the road and focused on your phone.

Sending or reading a text takes your eyes off the road for 5 seconds. At 55 miles per hour, that is the equivalent of driving the length of a football field with your eyes closed.

Hands-free phones are not necessarily safer than hand-held devices.

Drivers using handheld or hands-free cell phones are four times as likely to crash. The National Safety Council (NSC) estimates that cell phone use alone accounts for 27% of vehicular crashes.

1.200.2 Restrictions

The following restrictions are in place to prevent distracted driving:

- Handheld phone use, including calling, texting, email, etc., while driving a company vehicle is prohibited.
- The use of a company-issued phone while driving a personal vehicle is prohibited.
- Hands-free phone use while driving a company vehicle is prohibited.
- Employees shall pull over in a safe location if they must text, make a call, send an email, or look up directions.

22. Driving Safety Program

1.201 Purpose and Scope

The purpose of this program is to protect employees, reduce the frequency and severity of accidents involving motor vehicles, and prevent environmental damage.

This program applied to all Van Kirk Bros. Contracting employees.

1.202 Resources

Number	Title
CMS-FM-0022	Vehicle Inspection Form

1.203 Driving Safety Program

Motor vehicle accidents are recognized as a leading cause of work and non-work-related serious injuries and fatalities. Therefore, the operation of motor vehicles must not be perceived as a routine activity. Successful implementation of the following elements will result in fewer driving related incidents, injuries, and fatalities.

1.204 Roles and Responsibilities

Drivers are responsible for possessing a valid driver's license for the type of motor vehicle they operate. Training in the safe operation of motor vehicles will be provided to all employees who drive company vehicles.

Employees driving, along with their passengers, are responsible for ensuring seat belts are worn while the vehicle is in operation. Seat belt use is mandatory.

Drivers shall obey all traffic laws including possessing a valid driver's license, speed limits, signaling when changing lanes, obeying traffic lights, etc.

Drivers shall avoid distractions, such as adjusting the radio or other controls, eating, or drinking, and using the phone.

Drivers shall not drive with illegal drugs, including carrying or smoking marijuana, in the vehicle.

Drivers shall be monitored by the use of GPS and onboard camera system at all times while on duty.

1.205 Substance Abuse

Employees are strictly prohibited from operating a motor vehicle while under the influence of drugs or alcohol. This includes:

- Blood alcohol level at or above the local legal limit,
- Illegal drugs, including marijuana, and
- Prescription medications that cause drowsiness or other conditions that may cause impairment. Employees taking prescription medication that may impact their safety shall report this to their supervisor.

1.206 Incidents

Motor vehicle incidents occurring while on company business shall be reported immediately, regardless of the severity. Emergency services should be called first (if necessary). All incidents shall be reported to the insurance company, the employee's supervisor, and law enforcement as soon as feasible. All incidents shall be reviewed / investigated to determine the cause and corrective action.

1.207 Cargo

Any cargo on or in motor vehicles shall be adequately stored and secured to prevent unintentional movement of tools and equipment which could cause spillage, damage to the vehicle, damage to the environment, or injury to the operator.

1.208 Vehicle Maintenance

Vehicles shall be in a safe and working condition.

Pre-use inspections shall be performed before operating a vehicle. This consists of a walk-around the vehicle to check for any defects to the vehicle and ensure there are no barriers blocking the path. Company-owned vehicles shall have a maintenance program in place meeting the minimum manufacturer's recommendation.

In the event employees are driving personal vehicles for company business, pre-use inspections and regular vehicle maintenance shall still be completed.

1.209 Fatigue Management

Employees shall be well rested, alert, and sober on the road. Drivers shall continually search the roadway to be alert to situations requiring quick action. Drivers are required to stop about every 2 hours for a break and get out to stretch, take a walk, and get refreshed.

Van Kirk Bros. Contracting
Driving Safety Program

Appendix 10 **Vehicle Inspection Form**

General Information			
Driver's Name:		Date:	
Vehicle ID:		Odometer:	

Inspection Checklist

Walk Around Inspection	✓	✗	N/A
Tags and locks			
Fluid Levels (oil/water/leaks)			
High visibility (flag/ID/tape)			
Wheels (tire/rims/spare/tools)			
Windshield and windows			
Seatbelts and seats			
Current registration/inspection			
Current insurance			
Vehicle condition			
First aid kit			
Fire extinguisher			

Start Up (Cont.)	✓	✗	N/A
Taillights			
Turn signals			
Hazard lights			
Headlights			
Reverse alarm			
Horn			
Two-way radio			
Unusual noises			
Unusual smells			
Unusual vibrations			

Van Kirk Bros. Contracting
Driving Safety Program

Start Up	✓	✗	N/A
Mirrors			
Windshield wipers			
Washer fluid			
Fuel level			
Controls/gauges			
Warning lights			
Foot brake			
Parking brake			
Trailer brake			
Brake lights			

Other	✓	✗	N/A

Driver Signature:		Date:	

23. Emergency Action Plan Program

1.210 Purpose and Scope

The purpose of this program is to provide a framework for planning for and responding appropriately to emergency situations related to health, safety, the environment, or security. The key to preparedness is to have an effective plan, well trained responders, and informed and responsive employees.

This program applies to all Van Kirk Bros. Contracting employees.

1.211 Resources

Number	Title
29 CFR 1910 Subpart E	Exit Routes and Emergency Planning - Emergency Action Plans

1.212 Emergency Action Plan

The emergency action plan shall establish guidelines for all reasonably foreseeable workplace emergencies. Thoughtful actions based on situation assessment are required when responding to an emergency.

The emergency action plan shall be kept in the workplace and made available to employees for review. Employees shall be informed of the plan orally.

1.213 Bridging Documents

When required, emergency response procedures of the Company and its clients or subcontractors shall be bridged to clarify the responsibilities for control of the emergency to ensure there is:

- An Ultimate Work Authority (UWA) over the work site established.
- A clear and direct line of communication set up between the work site and the Company / project / external parties.
- A clear definition of personnel roles and responsibilities.
- Only one authoritative source of information to external organizations, media, and relatives.

1.214 Training

Employees shall undergo emergency action plan training as applicable to the authority having jurisdiction.

1.215 Responsibilities

Roles and responsibilities for employees such as fire wardens and supervisors during emergency situations shall be designated in accordance with jurisdictional requirements.

1.216 Plan Elements

1.216.1 Reporting Fire or Other Emergency

Employees will report fires by first calling 911 and pulling the alarm. Emergencies must be reported to management.

1.216.2 Emergency Evacuation

In the event of an emergency evacuation, employees will follow the evacuation routes.

1.216.3 Critical Operations

Employees who remain to operate critical operations before they evacuate must be trained in evacuation procedures specific to their responsibilities.

1.216.4 Accounting for Employees

Employees will be accounted for after evacuation by a roll call or checking in with their manager.

1.216.5 Medical or Rescue Duties

Employees who perform medical or rescue duties must be trained in the specific rescue duties.

1.216.6 More Information

The Safety Coordinator may be contacted by other employees for more information about the plan or an explanation of their duties under the plan.

1.217 Evacuation Procedures

Upon hearing the alarm or when directed by a warden:

- Prepare to evacuate.
- Get your workplace ready to be left unattended. Shut down computers; turn off gas and electrical equipment, if safe to do so.
- For fire, close the doors as you go – do not lock them. In the case of a bomb threat, leave doors open.
- Assist any person in immediate danger.
- Leave the building via the nearest safe route.
- Obey all directions from wardens.
- Move calmly to the assembly point or other advised area and stay there until the All Clear has been given.
- Follow closely the instructions of emergency services personnel.
- Wait for the OK to re-enter the building.

1.218 Fire

- Call 911
- Assist any person in immediate danger (only if safe to do so).
- If safe to do so, close doors to minimize spread of the fire.
- Attack the fire only if safe to do so.
- Contact the nearest supervisor and follow their directions.
- Assist with the evacuation of mobility impaired occupants.
- Move to the evacuation assembly point or other safe location, and stay there until the All Clear has been given.
- Follow closely the instructions of emergency services personnel.

1.219 Medical Emergency

- Assess the situation.
- Do not move a victim unless they are exposed to a life-threatening situation.
- Contact the nearest first aid officer.
- In extreme emergency situations contact the ambulance service by dialing 911
- Arrange for the ambulance to be met at the front or other nominated area.
- Remain with the victim and administer first aid as appropriate until assistance arrives.
- Follow closely the instructions of emergency services personnel.

1.220 Bomb Threat

On receipt of a telephone bomb threat:

- Keep the caller talking (do not hang up).
- Remain calm and do not say or do anything that may encourage irrational behavior.
- Ask someone else to call 911.
- Do not use mobile phones. Turn them all off.
- Evacuate the building via alternate exits, leaving doors and windows open.
- Take personal belongings with you, noting any suspicious parcels in your area as you leave.
- Move to assembly point maintaining a clear distance from parked vehicles.
- Follow closely the instructions of emergency services personnel.

1.221 Civil Disturbance

- Keep well clear of the disturbance and do not say or do anything that may encourage irrational behavior.
- Consider “locking down” the building to prevent unauthorized entry.
- Follow closely the instructions of emergency services personnel.
- Evacuate the building only if instructed to do so by emergency services personnel.

1.222 Attack Or Armed Threat

- Keep well clear of the intruder and do not say or do anything that may encourage irrational behavior.
- Notify 911.
- Note as many details as possible.
- Follow closely the instructions of emergency services personnel.
- Evacuate the building only if instructed to do so by emergency services personnel.
- Stay clear of windows.

1.223 Personal Preparation

- Know the location of emergency exits in your building.
- Plan an escape route from your office to each exit.
- Familiarize yourself with the location of any fire alarms in your building.
- Note the location of fire extinguishers.
- Familiarize yourself with the identity and location of the first aid officers and first aid kits.

1.224 Tornadoes

Preparing for a tornado requires identifying a place to take shelter, being familiar with and monitoring your community's warning system, and creating procedures to account for personnel.

Underground areas, such as a basement or storm cellar, are the recommended places to shelter from a tornado. If an underground shelter is unavailable, you should:

- Seek a small interior room or hallway on the lowest floor possible.
- Stay away from doors, windows, and outside walls.
- Stay in the center of the room and avoid corners because they attract debris.
- Avoid auditoriums and other buildings that have flat, wide-span roofs.

1.225 Floods

If you are in an area that could flood, you should monitor National Oceanic and Atmospheric Administration (NOAA) Weather Radio or commercial radio and television stations for information about flood watches and warnings.

Be prepared to move to higher ground immediately if you receive information about the potential for flash flooding. You should be prepared to evacuate before water levels rise and potentially cut off evacuation routes.

Do not drive through flooded areas. As little as 6 inches of water can cause a vehicle to lose control or stall. A foot of water is enough to float many cars.

1.226 Earthquakes

If you are in an area where earthquakes are a potential threat, you should identify safe places to shelter in your workplace and home, such as under a sturdy table or desk or against an interior wall away from windows or tall objects that could fall on you.

The shorter the distance you must move to get to safety, the less likely you are to be injured.

Practice “drop, cover, and hold on” in each safe place so that they become an automatic response:

- Drop under a sturdy desk or table.
- Hold on to one leg of the table or desk.
- Protect your eyes by keeping your head down.

1.227 Alert System

The alarm system shall be distinctive and recognizable as a signal to evacuate the work area or perform actions designated under the emergency action plan. For those employers with 10 or fewer employees in a particular workplace, direct voice communication is an acceptable procedure for sounding the alarm provided all employees can hear the alarm.

1.228 Plan Review

The emergency action plan shall be reviewed when the plan is developed, when the employee is initially assigned to a job, when the employee's responsibilities under the plan change, and when the plan is changed.

24. Ergonomics and the Back – Preventing Musculoskeletal Injuries Program

1.229 Purpose and Scope

The purpose of this program is to provide information on the use of ergonomics to prevent musculoskeletal injuries.

This program applies to all Van Kirk Bros. Contracting employees.

1.230 Ergonomics and the Back – Preventing Musculoskeletal Injuries

Ergonomics is the scientific study of equipment design for the purpose of improving efficiency, comfort, and safety.

1.231 Ergonomic Risk Factors

Ergonomic risk factors include:

- Repetitive, forceful, or prolonged exertions of hands.
- Frequent or heavy lifting, pushing, pulling, or carrying heavy objects.
- Prolonged awkward postures.

Improper ergonomics can lead to musculoskeletal disorder (MSD)

1.232 Prevention

To help prevent ergonomic injuries:

- Keep body in neutral position.
- Change working position throughout the day.
- Stretch fingers, hands, arms, and torso.
- Periodically stand up and walk around.

Hazard assessments must be performed to determine ergonomic controls.

Immediate injuries to the back can be caused by tearing or straining ligaments.

Minor, repeated damage over time can be as dangerous on your spine as one acute injury.

1.233 Back Injuries

Back problems account for a large percentage of injuries to employees.

Back injuries cause serious problems such as:

- Highest loss area in Worker's Compensation claims
- Leading cause of disability in employees
- Health problems affecting quality of employee's life

1.233.1 Common Causes of Back Injuries

Improper lifting is one of the most common causes of back problems.

Injuries are usually the result of several combined risk factors including:

- Lifting items that are too heavy
- Repetitive or forceful exertions
- Stretching and lifting
- Lifting and carrying a bulky load
- Twisting at the waist and lifting
- Bad posture
- Reaching above mid chest
- Working or sitting for long periods
- Slips, trips, and falls

Stress occurs when you:

- Bend at the waist
- Lift a heavy object
- Sit leaning forward
- Have a spine degenerating disease

Bending at the waist can add ten times the amount of force to the spine. When you add in the 105 lbs. of the average upper torso, lifting a 10 lb. object puts 1,150 lbs. of pressure on your lower back.

If you were 25 lbs. overweight, the extra weight increases your upper torso to 130 lbs. That would add an additional 250 lbs. of pressure on your back, making it 1,400 lbs. of pressure every time you bend over.

1.234 Symptoms of Back Injuries

If back injury is suspected, immediately report the injury and have the injury examined.

Signs and symptoms of back injuries include:

- Pain
- Numbness
- Reduced range of motion
- Stiffness
- Weakness
- Popping or grinding in the joints
- Muscle spasms due to stress or tension

1.235 Prevention of Back Injuries

1.235.1 Identification of Hazards

It may be possible to redesign a job to make it less likely to cause injury.

Controls and procedures should be determined to reduce the number of back injuries.

If you have suggestions, share information with you supervisor.

1.235.2 Engineering Controls

Possible engineering controls include:

- Mechanical lifting aids
- Adjustable worktables
- Storing materials
- Designing lighter materials

1.235.3 Administrative Controls

Administrative controls include:

- Training on ergonomic principles
- Placing the right person for the job
- Issuing changes

1.235.4 Personal Protective Equipment (PPE)

PPE is not as effective at preventing back injuries as engineering controls.

1.235.5 Prevention

Reduce back injuries by:

- Staying in good shape
- Eliminating negative lifestyles by reducing stress and tension
- Asking for help
- Releasing stress to back by moving and stretching
- Transferring weight for support
- Practicing lumbar stabilization
- Avoiding extreme force when using tools
- Pushing rather than pulling loads

1.235.6 Proper Lifting Techniques

Proper lifting techniques:

- Position yourself close to the load.
- Spread feet a shoulder's width apart.
- Keep knees bent, back straight.
- Tighten the stomach muscles.
- Lift using the large muscles of the legs.
- Avoid twisting your body.
- Keep object within safe lifting zone which is between waist and shoulders.

25. Excavations and Trenching Program

1.236 Purpose and Scope

The purpose of this program is to provide specific requirements and safety principles to ensure that excavation and trenching is conducted safely and effectively.

This program applies to all Van Kirk Bros. Contracting employees in excavation and trenching operations.

1.237 Resources

Number	Title
29 CFR 1926 Subpart P	OSHA Excavation Standards
Cal/OSHA T8 CCR Subchapter 4	Construction Safety Orders - Excavations General Requirements
CMS-FM-0023	Excavation Permit / Competent Person Checklist
CMS-FM-0024	Excavation / Trenching Daily Inspection Form
CMS-FM-0025	Soil Classification Worksheet

1.238 Definitions

Acronym/Term	Definition
Trench	A narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth of a trench is greater than its width, but the width of a trench (measured at the bottom) is not greater than 15 feet.
Excavation	Any man-made cut, cavity, trench, or depression in the Earth's surface formed by earth removal.
Competent Employee / Person	A person who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

1.239 Excavation and Trenching

Specific requirements shall be met and enforced when trenching or excavating takes place. It shall be the responsibility of management overseeing the operations to assure that the individuals who are involved in and exposed to trenching or excavating have been properly trained and instructed whether they be in-house or contract employees. Training shall include excavator notification and excavation practices.

The minimum requirements of this procedure, as set forth in the 29 CFR 1926 Construction Excavation Standards by the Federal Occupational Safety and Health Administration (OSHA), are quite extensive and therefore shall be reviewed thoroughly by those responsible for enforcement, administration, monitoring, and implementation prior to commencement of any work task involving excavation.

1.240 Roles and Responsibilities

A competent person shall document the layout and diagram of the trench and/or excavation prior to start-up and conduct daily documented site inspections. Inspections shall also be documented after natural events such as rainstorms or other hazard-increasing occurrences such as nearby traffic or simultaneous work.

The competent person overseeing the trenching or excavation project is responsible for the following:

- Obtaining and completing an excavation permit form.
- Contacting utility companies or owners within established or customary local response time, advising of proposed work, and asking to establish the exact location of the underground utility installations prior to the start of actual excavation.
- Locating and marking the location of underground lines before project begins.
- Assessing the area and erecting proper barricading.
- Obtaining all personal protective equipment (PPE) necessary.
- Ensuring proper benching, shoring, or shielding are in place. In excavations greater than 4 feet, test for oxygen deficiency or hazardous atmospheres. A trench excavation may present many of the hazards of a permit-required confined space. In general practice, all trench excavations over 4 feet in depth shall be considered confined spaces until a competent person has ruled out all the potential hazards associated with them.
- If hazardous condition could exist or develop, ensure the ready availability of emergency rescue equipment such as breathing apparatus, safety harness, or basket stretcher. This equipment shall be attended when in use.

- In excavations 4 feet or greater, provide means of access and egress not to exceed 25 feet from workers.

1.241 Underground Installations

The estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, shall be determined prior to opening an excavation.

Utility companies or owners shall be contacted within established or customary local response times, advised of the proposed work, and asked to establish the location of the utility underground installations prior to the start of actual excavation. When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours (unless a longer period is required by state or local law) or cannot establish the exact location of these installations, the Company may proceed, provided this is done so with caution, and provided detection equipment or other acceptable means to locate utility installations are used.

When excavation operations approach the estimated location of underground installations, the exact location of the installations shall be determined by safe and acceptable means. While the excavation is open, underground installations shall be protected, supported, or removed as necessary to safeguard employees.

Energized lines shall be located by manual digging when there is a possibility of damaging them with mechanical excavation equipment. Some of the lines encountered may have to be locked and tagged out for employee safety. Tools and equipment may have to be grounded and insulation provided for employees when electrical exposure is possible. Should the work involve the excavation of an area to uncover a gas leak, good ventilation, the use of a multi-gas monitor, and the use of non-sparking tools shall be required.

Backhoes or other digging machines shall not be allowed to excavate close to underground facilities that must be left in place. A proximity limit for machine operations shall be established and the excavation completed by hand digging.

When hand excavation is conducted, employees shall be warned about driving picks or using other powered tools that may break through the envelope of buried facilities.

1.242 Access and Egress

A stairway, ladder, ramp, or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel for employees.

Structural ramps that are used solely by employees as a means of access or egress from an excavation shall be designed by a designated competent person.

Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design and shall be constructed in accordance with the design.

Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement.

Structural ramps used in lieu of steps shall be provided with cleats or other surface treatments on the top surface to prevent slipping.

Structural members used for ramps and runways shall be of uniform thickness. Cleats or other appropriate means used to connect runway structural members shall be attached in a manner to prevent tripping.

1.243 Vehicular Traffic

Employees exposed to public vehicular traffic shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.

1.244 Exposure to Falling Loads

No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped to provide adequate protection for the operator during loading and unloading operations.

1.245 Warning Systems for Mobile Equipment

When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system, such as barricades, hand or mechanical signals, or stop logs shall be utilized. Where possible, the grade should be away from the excavation. Material excavated by machine or hand shall be kept at least 2 feet from the edge of the excavation unless adequate barricading is provided.

1.246 Hazardous Atmospheres

To prevent employee exposure to harmful levels of atmospheric contaminants and to ensure acceptable atmospheric conditions within excavations, the following requirements shall be met:

- Prior to allowing employees to enter an excavation where oxygen deficiency or a hazardous atmosphere exists or could reasonably be expected to exist, such as in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in excavations greater than 4 feet in depth shall be tested.
- It shall be ascertained by air sampling performed by a competent person that the atmospheres in the excavations contain an adequate quantity of oxygen and that harmful contaminants have been diluted to safe concentrations prior to, and periodically during, occupancy.
- Tests for gas and toxic substances shall be made whenever there is a possibility that the excavation contains or may have contained a toxic substance. Test results shall be within the limits established by OSHA's permissible exposure level (PEL) or American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit values (TLVs).
- If any test conducted indicates that the atmosphere is unsafe, before any employee is permitted to enter the excavation, the space shall be ventilated until the concentration of hazardous substance is reduced to a safe level or removed. Ventilation shall be continued as long as recurrence of the hazard is probable.
- Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.
- Employees entering bell bottom pier holes, or other similar deep and confined footing excavations, shall wear a harness with a lifeline securely attached to it. The lifeline shall be separate from any line used to handle materials and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.

1.247 Protection from Water Accumulation

Employees shall not work in excavations in which there is accumulated water or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation but could include:

- Special support or shield systems to protect from cave-ins.
- Water removal to control the level of accumulating water.
- Use of a safety harness and lifeline.

If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation. If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person.

1.248 Stability of Adjacent Structures

All surface encumbrances that are located so as to create a hazard to employees shall be removed or supported, as necessary, to safeguard employees.

Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems shall be provided, such as shoring, bracing, or underpinning to ensure the stability of such structures for the protection of employees.

Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be done without meeting one of the following criteria:

a) A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure.

b) The excavation is in stable rock.

c) A registered professional engineer has determined that the structure is sufficiently removed from the excavation so that it will be unaffected by the excavation activity.

d) A registered professional engineer has determined that such excavation work will not pose a hazard to employees.

Sidewalks, pavements, and appurtenant structures shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

A level area extending at least three feet (one meter) from the upper edge of each wall of an excavation shall be kept clear of equipment, excavated soil, rock and construction material.

1.249 Subsurface Installations

The approximate location of subsurface installations, such as sewer, telephone, fuel, electric, water lines, or any other subsurface installations that reasonably may be expected to be encountered during excavation work, shall be determined by the excavator prior to opening an excavation.

Excavation shall not commence until:

1. The excavation area has been marked by the excavator; and
2. The excavator has received a positive response from all known owner/operators of subsurface installations within the boundaries of the proposed project; those responses confirm that the owner/operators have located their installations, and those responses either advise the excavator of those locations or advise the excavator that the owner/operator does not operate a subsurface installation that would be affected by the proposed excavation.

When the excavation is proposed within 10 feet of a high priority subsurface installation, the excavator shall be notified by the facility owner/operator of the existence of the high priority subsurface installation before the legal excavation start date and time, and an onsite meeting involving the excavator and the subsurface installation owner/operator's representative shall be scheduled by the excavator and the owner/operator at a mutually agreed on time to determine the action or activities required to verify the location of such installations. High priority subsurface installations are high pressure natural gas pipelines with normal operating pressures greater than 415 kPA gauge (60 p.s.i.g.), petroleum pipelines, pressurized sewage pipelines, conductors or cables that have a potential to ground of 60,000 volts or more, or hazardous materials pipelines that are potentially hazardous to employees, or the public, if damaged.

Only qualified persons shall perform subsurface installation locating activities, and all such activities shall be performed in accordance with regulations. Persons who complete a training program in accordance with the requirements of Section 1509, Injury and Illness Prevention Program (IIPP), that meets the minimum training guidelines and practices of the Common Ground Alliance (CGA) Best Practices, Version 3.0, published March 2006, or the standards of the National Utility Locating Contractors Association (NULCA), Standard 101: Professional

Competence Standards for Locating Technicians, 2001, First Edition, which are incorporated by reference, shall be deemed qualified for the purpose of this section.

Employees who are involved in the excavation operation and exposed to excavation operation hazards shall be trained in the excavator notification and excavation practices required by regulation.

All Regional Notification Centers as defined by Government Code Section 4216(j) in the area involved and all known owners of subsurface facilities in the area who are not members of a Notification Center shall be advised of the proposed work at least 2 working days prior to the start of any digging or excavation work. Except for repair work to subsurface facilities done in response to an emergency.

When excavation or boring operations approach the approximate location of subsurface installations, the exact location of the installations shall be determined by safe and acceptable means that will prevent damage to the subsurface installation.

While the excavation is open, subsurface installations shall be protected, supported, or removed as necessary to safeguard employees.

An excavator discovering or causing damages to a subsurface installation shall immediately notify the facility owner/operator or contact the Regional Notification Center to obtain subsurface installation operator contact information immediately after which the excavator shall notify the facility operator. All breaks, leaks, nicks, dents, gouges, grooves, or other damages to an installation's lines, conduits, coatings, or cathodic protection shall be reported to the subsurface installation operator. If damage to a high priority subsurface installation results in the escape of any flammable, toxic, or corrosive gas or liquid or endangers life, health or property, the excavator responsible shall immediately notify 911, or if 911 is unavailable, the appropriate emergency response personnel having jurisdiction. The facility owner/operator shall also be contacted.

1.250 Loose Rock or Soil

Employees shall be adequately protected from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material, installing protective barricades at intervals as necessary on the face to stop and contain falling material, or providing other means of equivalent protection.

Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such material or equipment a minimum of 2 feet from the edge of excavations, by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

1.251 Inspections

Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions.

An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

1.252 Fall Protection

Where employees or equipment are required or permitted to cross over excavations over 6-feet in depth and wider than 30 inches, walkways or bridges with standard guardrails shall be provided.

Adequate barrier physical protection shall be provided at all remotely located excavations. All wells, pits, shafts, etc., shall be barricaded or covered. Upon completion of exploration and other similar operations, temporary wells, pits, shafts, etc., shall be backfilled.

1.253 Crossings and Walkways

Where employees or equipment are required or permitted to cross over excavations over 6 feet in depth and wider than 30 inches, walkways or bridges with standard guardrails shall be provided.

Where the potential exists for exposed ends of a walkway or bridge to create a tripping hazard, it shall be appropriately provided with beveled cleating.

Adequate barrier physical protection shall be provided at all remotely located excavations. All wells, pits, shafts, etc., shall be barricaded or covered. Upon completion of exploration and similar operations, temporary wells, pits, shafts, etc., shall be backfilled.

1.254 Soil Classifications and Employee Protection

Soil classifications shall be determined by testing and protective systems designed according to soil classifications.

The most stable type of soil is Type A. It is dense and heavy and consists primarily of clay. Type B has a medium level of stability and is made of soils such as silt, sandy loam, and medium clay. The least stable soil is Type C, which consists of gravel, loamy sand, and soft clay.

Adequate protection shall be provided to protect employees from loose rock or soil or excavated other materials or equipment that could pose a hazard by falling or rolling from into excavations.

1.255 Protective Systems

All protective systems shall be inspected by a competent person before work begins.

Types of protective systems:

- Benching - a method of protecting workers from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels. Benching cannot be done in Type C soil.
- Sloping - cutting back the trench wall at an angle inclined away from the excavation. Shoring requires installing aluminum hydraulic or other types of supports to prevent soil movement and cave-ins.
- Shielding - protects workers by using trench boxes or other types of supports to prevent soil cave-ins. Designing a protective system can be complex because many factors must be considered such as soil classification, depth of cut, water content of soil, changes caused by weather or climate, surcharge loads (e.g., spoil, other materials to be used in the trench) and other operations in the vicinity. Shields shall be used to protect against water accumulation.

1.256 Design of Sloping and Benching Systems

The slopes and configurations of sloping and benching systems shall be selected and constructed in accordance with one of the following options:

- **Option 1:**

If no attempt is made to determine soil type, excavations shall be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal). This angle represents the worst soil condition (Type C) and therefore requires the use of configurations that are in accordance with the slopes shown for Type C soil.

- **Option 2**

Maximum allowable slopes and allowable configurations for sloping and benching systems shall be determined in accordance with the conditions and requirements set forth.

- **Option 3**

Design of sloping or benching systems shall be selected from and be in accordance with tabulated data. The tabulated data shall be in written form and shall include all the following:

  - Identification of the parameters that affect the selection of a sloping or benching system drawn from such data.
  - Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe.
  - Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.

A copy of the tabulated data, which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction and use of the protective system.

- **Option 4**

Sloping and benching systems not utilizing Options 1, 2, or 3 above shall be approved by a registered professional engineer. All such designs shall be in written form and include all the following:

  - The magnitude of the slopes that were determined to be safe for the particular project.
  - The configurations that were determined to be safe for the particular project.
  - The identity of the registered professional engineer approving the design.

A copy of the design shall be maintained at the jobsite during construction and use of the system.

1.257 Materials and Equipment

Ensure that all materials and equipment used for protective systems are free from damage or defects that might impair their proper function.

Manufactured materials and equipment used for protective systems shall be used and maintained in a manner that is consistent with the recommendations of the manufacturer and in a manner that will prevent employee exposure to hazards.

Any materials or equipment that are damaged shall be assessed by the supervisor or engineer designated as the competent person as to its suitability for continued use.

1.258 Installation and Removal of Supports

Members of support systems shall be securely connected together to prevent sliding, falling, kickouts, or other predictable failure.

Support systems shall be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system.

Individual members of support systems shall not be subjected to loads exceeding their designed capacity.

Before removal of individual members begins, the need for additional precautionary measures to ensure the safety of employees shall be evaluated by a competent person. Such measures may include the installation of other structural members to carry the loads imposed on the support system.

Removal operations shall begin at and progress from the bottom of the excavation. Members shall be released slowly to note any indication of possible failure of the remaining members or possible cave-in of the sides of the excavation.

Backfilling shall progress together with the removal of support systems from excavations.

1.259 Additional Requirements for Support Systems for Trench Excavations

The depth of trench excavations may extend to a maximum of 2 feet below the bottom of the members of a support system, provided the system is designed to resist the forces calculated for the full depth of the trench and there are no indications, while the trench is open, of a possible loss of soil from behind or below the bottom of the support system.

Installation of support systems shall be closely coordinated with the excavation of trenches.

Employees shall not be permitted to work on the faces of sloped or benched excavations at levels above other employees unless employees at the lower levels are protected from the hazards of falling, rolling, or sliding material or equipment.

1.260 Identifying underground installations

1.260.1 Identification

An excavation permit / checklist shall be utilized to prepare for excavation work in the event the identity of an underground installation(s) is unknown.

Contact the relevant local One Call Center telephone number for requesting mark-out of buried public utilities, such as gas lines, electrical lines, telephone / cable lines, sewer lines, and water lines. This number is typically called a minimum of 72 hours prior to subsurface activities depending on the area in which the work will be conducted. The One Call Center will notify the local public utilities of a request for a line location mark-out for the location. The individual public utilities must locate and mark-out the utilities upon request. In most cases, the mark-outs will not be performed on private property. A confirmation number is typically established, and confirmation report generated and submitted to the requester.

Once the underground installation has been identified, proper surface marking shall be made in accordance with the guidelines contained within this procedure.

1.260.2 Surface Markings

Color-coded surface marks (paints or similar coatings) shall be used to indicate the type, location, and route of buried installations. Additionally, to increase visibility, color-coded vertical markers (temporary stakes or flags) shall supplement surface marks.

All marks and markers shall indicate the name, initials, or logo of the company that owns or operates the installation and the width of the installation if it is greater than 2 inches.

If the surface over the buried installation is to be removed, supplemental offset marking shall be used. Offset markings shall be on a uniform alignment and shall clearly indicate that the actual installation is a specific distance away.

1.260.3 Uniform Color-Coding

The following color codes are based on American Public Works Association's (APWA) Utility Location and Coordination Council (ULCC) Uniform Color Code based on ANSI Standard Z53.1 - Safety Colors. The colors and corresponding installation type are as follows:

Color	Type of Installation
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 Conduit
BLUE	Water, Irrigation, and Slurry Lines
GREEN	Sewers and Drain Lines
WHITE	Proposed Excavation

1.261 Recordkeeping

All information regarding the identification of underground installations shall be transferred to the appropriate drawings and/or prints and shall be available onsite. Drawings and/or prints shall be maintained for the life of the project.

Appendix 11 Sloping and Benching

Table B-1 Maximum Allowable Slopes

Soil or Rock Type	Maximum Allowable Slopes (H:V)[1] for Excavations Less Than 20 Feet Deep[3]	
Stable Rock	Vertical	(90°)
Type A[2]	3/4:1	(53°)
Type B	1:1	(45°)
Type C	1½:1	(34°)

Notes:

[1] Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.

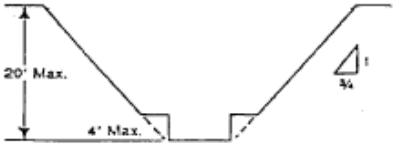
[2] A short-term maximum allowable slope of 1/2H:1V (53°) is allowed in excavations in Type A soil that are 12 feet (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be 3/4H:1V (53°).

[3] Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

Simple Slope—Short Term

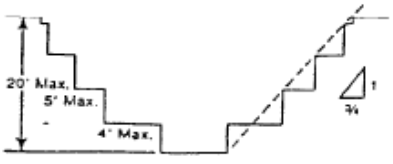
Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of ½:1.

Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of ½:1.



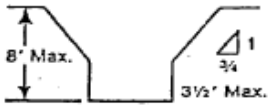
Simple Bench

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of ¾ to 1 and maximum bench dimensions as shown above.



Multiple Bench

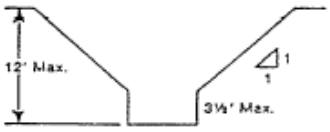
3. All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3½ feet.



Unsupported Vertically Sided Lower Portion—Maximum 8 Feet in Depth

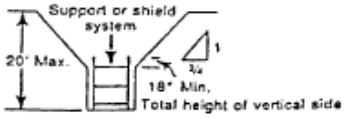
All excavations more than 8 feet but not more than 12 feet in depth which unsupported vertically sided lower portions shall have a maximum allowable slope of 1:1 and a maximum vertical side of 3½ feet.

All excavations more than 8 feet but not more than 12 feet in depth which unsupported vertically sided lower portions shall have a maximum allowable slope of 1:1 and a maximum vertical side of 3½ feet.



Unsupported Vertically Sided Lower Portion—Maximum 12 Feet in Depth

All excavations 20 feet or les in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of ¾:1. The support or shield system must extend at least 18 inches above the top of the vertical side.



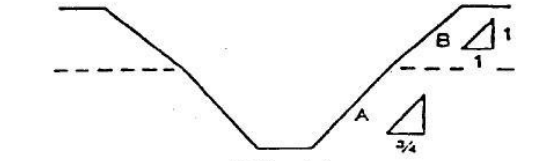
Supported or Shielded Vertically Sided Lower Portion

4. All other simple slope, compound slope, and vertically sided lower portion excavations shall be in accordance with the other options permitted under § 1926.652(b).

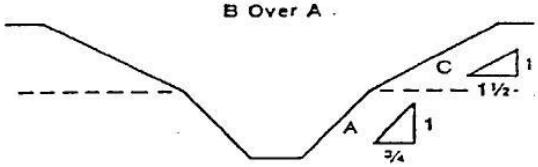
Appendix 1 continued

B—1.4 Excavations Made In Layered Soils

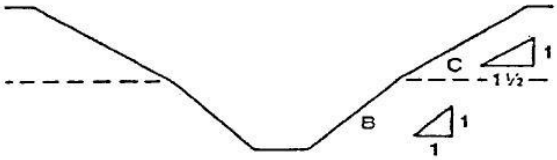
1. All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below.



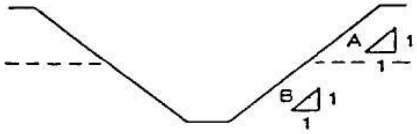
B Over A



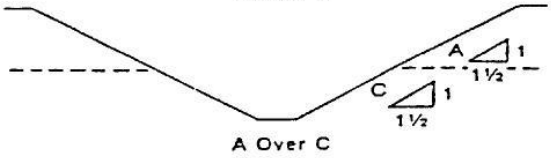
C Over A



C Over B



A Over B

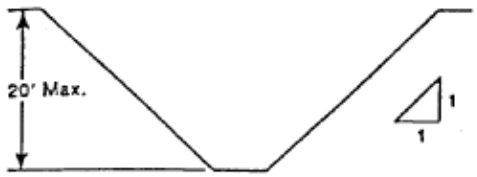


A Over C

B Over C

Appendix 1 continued

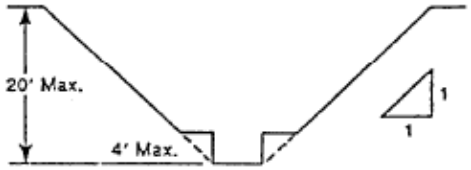
B—1.2 Excavations Made In Type B Soil



Simple Slope

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.

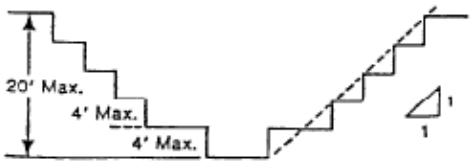
This bench allowed in cohesive soil only.



Single Bench

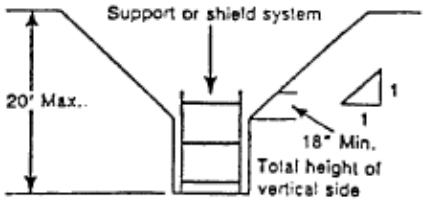
2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maximum bench dimensions as shown above.

This bench allowed in cohesive soil only



Multiple Bench

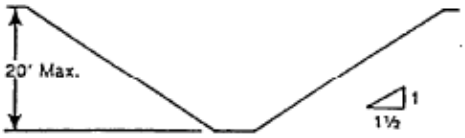
3. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.



Vertically Sided Lower Portion

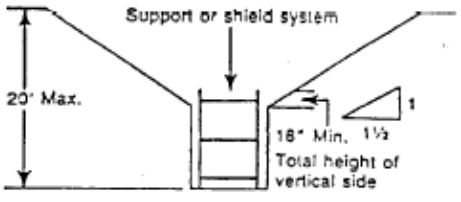
4. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

B—1.3 Excavations Made In Type C Soil



Simple Slope

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1½:1.



Vertical Sided Lower Portion

2. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1½:1.

3. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

Appendix 12 Soil Classification

SCOPE

This attachment describes a method of classifying soil and rock deposits based on site and environmental conditions and on the structure and composition of earth deposits. Contained herein are definitions, set forth requirements, and acceptable visual and manual tests for use in classifying soils.

Classification of soil by a competent person is a prerequisite to designing protective systems for excavations.

DEFINITIONS

Cemented Soil - A soil in which the particles are held together by a chemical agent, such as calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.

Cohesive Soil - Clay (fine grained soil) or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical side slopes, and is plastic when moist. Cohesive soil is hard to break up when dry and exhibits significant cohesion when submerged. Examples include clayey silt, sandy clay, silty clay, clay, and organic clay.

Dry Soil - Soil that does not exhibit visible signs of moisture content.

Fissured - A soil material that tends to break along definite planes of fracture with little resistance or a material that exhibits open cracks, such as tension cracks, in an exposed surface.

Granular Soil - Gravel, sand, or silt (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.

Layered System - Two or more distinctly different soil or rock types arranged in layers. Micaceous seams or weakened planes in rock or shale are considered layered.

Moist Soil - A condition in which a soil looks and feels damp. Moist, cohesive soil can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.

Plastic - A property of a soil which allows the soil to be deformed or molded without cracking or appreciable volume change.

Saturated Soil - A soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a pocket penetrometer or shear vane.

Soil Classification System - A method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the environmental conditions of exposure.

Stable Rock - Natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

Submerged Soil - Soil which is underwater or is free-seeping.

Type A - Cohesive soil with an unconfined compressive strength of 1.5 tons per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are clay, silty clay, sandy clay, clay loam, and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:

1) The soil is fissured; or
2) The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or
3) The soil has been previously disturbed; or
4) The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or
5) The material is subject to other factors that would require it to be classified as a less stable material.

Type B – Means:

1) Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1 .5 tsf, or:
2) Granular, cohesionless soils, including angular gravel, silt, silt loam, sandy loam, and, in some cases, silty clay loam and sandy clay loam.
3) Previously disturbed soil, except those which would otherwise be classed as Type C soil.
4) Soil that meets the unconfined compressive strength or requirements of Type A but is fissured or subject to vibration; or
5) Dry rock that is not stable; or
6) Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than 4H:1V, but only if the material would otherwise be classified as Type B.

Type C – Means:

1) Cohesive soil with an unconfined compression strength of 0.5 tsf or less; or
2) Granular soils including gravel, sand, and loamy sand; or
3) Submerged soil or soil from which water is free-seeping; or
4) Submerged rock that is not stable; or

5) Material in a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or steeper.

Unconfined Compressive Strength - The load per unit area at which a soil will fail in compression. It can be determined by laboratory testing or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.

Wet Soil - Soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

REQUIREMENTS

Each soil and rock deposit shall be classified by a competent person as Stable Rock, Type A, Type B, or Type C. The classification of deposits shall be made based on the results of at least one visual and at least one manual analysis using the tests described in this attachment or in other recognized methods of soil classification and testing, such as those adopted by the American Society of Testing Materials.

In a layered system, the system shall be classified in accordance with its weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer.

If, after classifying a deposit, the properties, factors, or conditions affecting its classification change in any way, the deposit shall be reclassified to reflect the changed conditions.

Acceptable Visual and Manual Tests

Visual Tests - Visual analysis is conducted to determine qualitative information regarding the excavation site in general, the soil adjacent to the excavation, the soil forming the sides of the open excavation, and the soil taken as samples from excavated material.

1) Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.
2) Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does not stay in clumps is granular.
3) Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil spall off a vertical side, the soil could be fissured. Small spalls are evidence of moving ground and are indications of potentially hazardous situations.
4) Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground structures and to identify previously disturbed soil.

5) Observe the opened side of the excavation to identify layered systems. Examine layered systems to identify whether the layers slope toward the excavation. Estimate the degree of slope of the layers.
6) Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water, water seeping from the sides of the excavation, or the location of the level of the water table.
7) Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the stability of the excavation face.

Manual Tests - Manual analysis of soil samples is conducted to determine quantitative as well as qualitative properties of soil and to provide more information in order to classify soil properly.

1) Plasticity - Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8 inch in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a 2 inch/50 millimeter (2”/50mm) length of 1/8 inch thread can be held on one end without tearing, the soil is cohesive.

2) Dry Strength - If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular (any combination of gravel, sand, or silt). If the soil is dry and falls into clumps which break up into smaller clumps, but the smaller clumps can only be broken up with difficulty, it may be clay in any combination with gravel, sand, or silt. If the dry soil breaks into clumps which do not break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the soil may be considered unfissured.

3) Thumb Penetration - The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils. (This test is based on the thumb penetration test described in American Society for Testing and Materials (ASTM) Standard designation D2488 - "Standard Recommended Practice for Description of Soils (Visual-Manual Procedure)”). Type A soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb; however, they can be penetrated by the thumb only with very great effort. Type C soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb and can be molded by light finger pressure. This test should be conducted on an undisturbed soil sample, such as a large clump of soil, as soon as practical after excavation to keep to a minimum the effects of exposure to drying influences. If the excavation is later exposed to wetting influences (rain, flooding), the classification of the soil shall be changed accordingly.

4) Other Strength Tests - Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated Torvane shear device.

5) Drying Test - The basic purpose of the drying test is to differentiate between cohesive material with fissures, unfissured cohesive material, and granular material. The procedure for the drying test involves drying a sample of soil that is approximately 1 inch/2.54 centimeters thick (1”/2.54cm) and 6 inches/15.24 centimeters (6”/15.24cm) in diameter until it is thoroughly dry:

   - If the sample develops cracks as it dries, significant fissures are indicated.
   - Samples that dry without cracking are to be broken by hand. If considerable force is necessary to break a sample, the soil has significant cohesive material content. The soil can be classified as an unfissured cohesive material and the unconfined compressive strength should be determined.
   - If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material. To distinguish between the two, pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.

Van Kirk Bros. Contracting

Excavations and Trenching Program

Appendix 13 **Excavation Permit / Competent Person Checklist**

Instructions
1. Complete permit before excavation begins. 2. Post permit and JSA at the job site until work is complete. 3. Retain permit on file for two years.

Site Details	
Supervisor's Name:	Job Site:
Permit Begins: Date_____ Time:_____a.m./p.m. Permit Expires: Date:_____ Time:_____a.m./p.m.	
Location & Dimensions of Excavation: Soil Type:	
Describe Nature of Work:	

Inspection Checklist

Check yes, no, or N/A:	Yes	No	N/A		Yes	No	N/A
Inspection of all open trenches?				Was traffic in area adequately away from trenching operations with barricades?			
Preplanning for emergencies and trench rescue.				Was there any evidence of caving or sloughing of soil since the last field inspection?			
Tension cracks observed along top of any slopes?				Were hydraulic shores pumped to design pressure?			
Were slopes cut at design angle and repose?				Access and egress provided?			
Was any water seepage noted in trench walls or bottom?				Atmospheric testing required?			

Was there evidence of significant fracture planes in soil or rock?				System lockout / tagout?			
Confined space entry permit required? (attach)				Stability of adjacent structures checked?			
Underground utilities/piping located and flagged?				Exposure from falling loads controlled (material at least 2' from edge)?			
Were trench box(es) certified?				Protection from water accumulation?			
Was bracing system installed in accordance with design? Shoring system installed and maintained in accordance with manufacturer's instruction?				Emergency Services: Phone Number: Method of Communication:			
Hot work permit required? (attach)							

Van Kirk Bros. Contracting

Excavations and Trenching Program

Protective Systems					
Sloping and Benching: What is the angle or slope ratio?	Option:	1	2	3	4
Support System (shoring):	Option:	1	2	3	4
Shielding System:	Option:	1	2	3	4

Atmospheric Testing

Oxygen Safe Range of 20.5% to 22% required
Combustibles < 10% LEL

% Oxygen	_____%	Test Time:_____	Flammables/	_____LEL	Test Time:_____
	_____%	Test Time:_____	Combustibles	_____LEL	Test Time:_____
	_____%	Test Time:_____		_____LEL	Test Time:_____
	_____%	Test Time:_____		_____LEL	Test Time:_____
Toxicity Test:	_____PPM	Test Time:_____			
	_____PPM	Test Time:_____	Other:		
	_____PPM	Test Time:_____			
	_____PPM	Test Time:_____			

Signature of Competent Person Authorizing Entry			
I hereby attest that the following conditions existed and that the following items were checked or reviewed during this inspection.			
Competent Person:		Date:	
Safety Representative:		Date:	

Van Kirk Bros. Contracting

Excavations and Trenching Program

Appendix 14 **Excavation / Trenching Daily Inspection Form**

General Information			
Project:		Date:	
Weather:		Trench Depth:	
Soil Type:		Width:	
		Length:	
Type of Protective System:			
Type of Protective System:			

Checklist			
Excavation	**Yes**	**No**	**N/A**
Excavations and Protective Systems inspected by Competent Person daily before start of work.			
Competent Person has authority to remove workers from excavation immediately.			
Surface encumbrances supported or removed.			
Employees protected from loose rock or soil.			
Hard hats worn by all employees.			
Spoils, materials, and equipment set back a minimum of 2' from edge of excavation.			
Barriers provided at all remote excavations, wells, pits, shafts, etc.			
Walkways and bridges over excavations 6' or more in depth equipped with guardrails.			

Warning vests, or other highly visible PPE provided and worn by all employees exposed to vehicular traffic.			
Employees prohibited from working or walking under suspended loads.			
Employees prohibited from working on faces of sloped or benched excavations above other employees.			
Warning system established and used when mobile equipment is operating near edge of excavation.			
Utilities	**Yes**	**No**	**N/A**
Utility companies contacted and/or utilities located.			
Exact location of utilities marked when near excavation.			
Underground installations protected, supported, or removed when excavation is open.			
Wet Conditions	**Yes**	**No**	**N/A**
Precautions taken to protect employees from accumulation of water.			
Water removal equipment monitored by Competent Person.			
Surface water controlled or diverted.			
Inspection made after each rainstorm.			

Hazardous Atmosphere	Yes	No	N/A
Atmosphere tested when there is a possibility of oxygen deficiency or build-up of hazardous gases.			
Oxygen content is between 19.5% and 21%.			
Ventilation provided to prevent flammable gas build-up to 20% of lower explosive limit of the gas.			
Continuous testing conducted to ensure that atmosphere remains safe.			
Emergency Response Equipment readily available where a hazardous atmosphere could or does exist.			
Employees trained in the use of Personal Protective and Emergency Response Equipment.			
Safety harness and lifeline individually attended when employees enter deep confined excavation.			

Signature			
Competent Person Signature:		Date:	

Appendix 15 Soil Classification Worksheet

Instructions
This worksheet outlines the visual and manual tests that the competent person shall perform at least once, and each time soil conditions change. At least one visual and one manual test shall be performed; however, performing several tests is recommended so that the condition of the excavation is thoroughly examined.

General Information			
Project:		Project Location:	
Date:		Time:	
From where was the sample taken?:			

Visual Tests	
One or more visual tests are required for each classification and each time conditions change.	
1. Estimate range of particle sizes:	a. Primarily fine-grained = cohesive material b. Primarily coarse-grained = granular material
2. Observe excavated soil:	a. Clumps = cohesive material b. Breaks up easily – granular material
3. Observe sides and adjacent surface area of opened excavation:	a. Cracks like openings = fissured material b. Soil spills of vertical sides = possible fissured material
4. Previous excavation activities:	a. Previously disturbed soil b. Not previously disturbed soil
5. Observe opened side of excavation:	a. Layered systems estimated degree of slope of layers b. Layers sloped towards excavation
6. Water condition:	a. Evidence of surface water b. Water seeping from sides. c. Depth of water table.
7. Vibration present:	a. Area adjacent to excavation b. Area within excavation

Manual Tests	
One or more manual tests are required for classification and each time soil conditions change.	
1. Plastically – soil is cohesive if following is true:	a. Mold soil samples into a small ball b. Roll ball into thread ___ " diameter c. Pick up 2" length of ___ " thread by one end without breaking
2. Dry Soil Strength:	a. Crumbles on its own or with moderate pressure = granular b. Falls into clumps which break into smaller clumps that are only broken with difficulty = clay with gravel, sand, or silt. c. Breaks into clumps which do not break into smaller clumps and can only be broken with difficulty with no visual indication of fissures = unfissured.

Signature			
Competent Person Signature:		Date:	

26. Eye Safety Program

1.262 Purpose and Scope

The purpose of this program is to provide information on safety to prevent injuries to the eyes.

This program applies to all Van Kirk Bros. Contracting employees.

1.263 Eye Safety

Each day, about 2,000 US employees injure their eyes and require medical treatment Thousands of employees are blinded each year from work-related eye injuries.

1.264 Injuries

Common eye injuries include:

- Cuts to or penetration of the eyelid
- Permanent or temporary loss of vision
- Burns
- Cuts and tears to the cornea
- Penetration of the eyeball

1.265 Hazards

Some causes of eye hazards include:

- Projectiles (flying fragments, particles, and sparks)
- Chemicals (molten metal, splashes, and fumes)
- Radiation (visible light, lasers, UV light, glare, heat, or infrared radiation)
- Infectious diseases transmitted through mucous membranes (bloodborne pathogens, respiratory droplets, and contact with contaminated fingers or objects)

Any job can expose you to eye hazards, but some jobs put you at higher risk, including welding and cutting, working with corrosive chemicals, working with paints and solvents, electrical work, maintenance work, etc.

1.266 Controls

Protect your eyes from injury by using engineering controls, safe work practices, and wearing eye and face protection while you work.

Engineering controls are the best method to reduce eye hazards at the worksite. Engineering controls can include machine guards, work screens, and enclosures.

Some safe work practices include:

- Being aware of the tasks that put you at risk for eye injuries.
- Obeying warning signs.
- Properly using and maintaining all guards, work screens, and enclosures.
- Being trained on the location of and how to use eyewash stations.
- Knowing what to do if there is an emergency.

1.267 Personal Protective Equipment (PPE)

Workplaces must be assessed for eye hazards and employees must be provided with personal protective equipment (PPE) to protect them from those hazards.

Employees must be trained on the use of the PPE to know:

- When it is necessary
- What type is necessary
- How to properly put on, take off, adjust, and wear it
- Its limitations
- The proper care, maintenance, useful life, and disposal

PPE designed to protect eyes includes safety glasses and safety goggles, face shields, and welding hoods.

Safety glasses are commonly used as protection against impact and radiation. Safety glasses are commonly worn for activities, such as sawing, hammering, and drilling.

Side shields are required any time there are hazards from flying particles or objects. Safety glasses must have protective side shields and be ANSI Z-87-approved.

Goggles are stronger than safety glasses and are used for higher impact protection, greater particle protection, chemical splashes, welding light protection, etc.

When using goggles for welding, make sure they are the proper shade number.

Face shields are used for higher impact protection and protect the wearer's face in addition to their eyes. Wear face shields with safety glasses or safety goggles because face shields do not provide enough protection by themselves. Face shields are often used for activities such as spraying, chipping, and grinding.

To protect eyes from exposure to extreme heat, UV light, glare, or radiation, such as during welding operations, wear special welding protection such as safety goggles and welding hood with properly tinted, filtered glass.

1.268 First Aid

If you get something in your eye or suffer an eye injury, use an eyewash station to rinse out your eyes. Flush eyes for at least 15 minutes. If you are welding, you must wash your eyes using the eyewash station during your shift and at the end of each shift.

Know where eyewash stations are before you start work so you can get to them quickly if needed.

27. Fall Protection and Rescue Plan

1.269 Purpose and Scope

The purpose of this program is to ensure the safety of both the fallen individual and the rescuers while minimizing further injury and providing prompt medical attention.

This document applies to all Van Kirk Bros. Contracting employees exposed to working at heights.

1.270 Training

Training shall be provided for each employee who might be exposed to fall hazards. Upon first employment, they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the OSHA Code of Safe Practices. Training must enable each employee to recognize the hazards of falling and the procedures to follow to minimize these hazards. Records showing participants, training dates, and signatures of instructors shall be maintained.

Only qualified persons are permitted to operate equipment and machinery. Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, falls, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.

Re-training shall be provided when there are deficiencies in training, inadequacies in an affected employee's knowledge or use of fall protection systems or equipment, when work practices are changed, or when fall protection equipment is modified.

1.271 Fall Protection Requirement

Fall protection is required whenever employees are potentially exposed to falls from heights that exceed applicable regulatory thresholds. Guard rails, safety nets, or personal or fall arrest systems should be used. Applicable regulatory thresholds include:

- General Industry 1910.28(b)(1)(i) - Protection for wall openings and holes. Every wall opening from which there is a drop of more than 4 feet shall be guarded.
- Construction Industry 1926.501(b)(1) - Unprotected sides and edges. Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

1.272 Fall Protection Plan

100% tie off is required.

1.273 Fall Protection Use, Inspection, and Storage

When purchasing equipment and raw materials for use in fall protection systems, applicable jurisdictional requirements apply.

Fall protection equipment must be inspected prior to use.

Fall protection equipment must be stored properly according to jurisdictional requirements.

1.274 Rescue Plan

Equipment and services for prompt rescue of fallen workers, including self-rescue, shall be available before elevated work begins. Local fire departments may not have the means to perform safe and efficient rescue so do not assume they are able to do so.

Steps in rescue include:

1. Assess the Situation:
   Evaluate the scene for potential hazards and ensure your own safety.
   Determine the nature and severity of the fall and the condition of the person involved.
2. Alert Emergency Services:
   Dial the appropriate emergency number (e.g., 911) to report the incident and provide them with necessary details such as location and the number of individuals involved.
3. Communicate and Reassure:
   Approach the fallen individual calmly and offer reassurance.
   Assess their level of consciousness and ability to communicate.
4. Stabilize the Area:
   Clear the immediate vicinity of any additional hazards or dangers.
   Secure the area to prevent further falls or accidents.
5. Check for Injuries:
   Perform a brief visual assessment for any visible injuries.
   Do not move the fallen person if there is a suspected head, neck, or spinal injury unless absolutely necessary to prevent further harm.
6. Establish Communication:
   If the fallen person is conscious and able to communicate, obtain any necessary medical information and ask about their condition.
   Provide clear instructions and encourage the person to remain as still as possible.

7. Retrieve Appropriate Equipment:
   Obtain the necessary equipment for the rescue, such as a ladder, harness, or other fall protection gear.
   Ensure that the equipment is in proper working condition before use.
8. Perform the Rescue:
   If the person is reachable and uninjured, assist them in safely getting up and away from the fall area.
   If the person is injured, carefully and gently extricate them from the fall area using appropriate techniques and equipment, while minimizing movement of the injured body parts.
9. Provide Initial First Aid:
   Administer basic first aid as necessary, such as stopping bleeding, immobilizing fractures, or performing CPR if required and trained to do so.
10. Monitor and Support:
    Continue to monitor the fallen individual's condition until medical professionals arrive.
    Offer comfort and reassurance to help reduce anxiety and stress.

1.275 Fall Arrest Systems

Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.

1.275.1 Personal Fall Arrest Systems

Personal fall arrest systems, when stopping a fall, shall:

- Limit maximum arresting force on an employee to 1,800 pounds when used with a body harness.
- Be rigged such that an employee can neither free fall more than 6 feet, nor contact any lower level, and, where practicable, the anchor end of the lanyard shall be secured at a level not lower than the employee's waist.
- Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet.
- Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet, or the free fall distance permitted by the system, whichever is less.

1.275.2 Anchorages

Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached, or shall be designed, installed, and used as follows:

- As part of a complete personal fall arrest system which maintains a safety factor of at least two.
- Under the supervision of a qualified person.

1.275.3 Positioning Systems

Positioning device systems and their use shall conform to the following provisions:

- Positioning devices shall be rigged such that an employee cannot free fall more than 2 feet.
- Position devices shall be inspected prior to each use for wear, damage, and other deterioration, and defective components shall be removed from service.
- The use of non-locking snaphooks shall be prohibited after January 1, 1998.
- Anchorage points for positioning device systems shall be capable of supporting two times the intended load or 3,000 pounds, whichever is greater.

1.275.4 Ladders

Depending on the situation, portable ladders may be used to access and retrieve a fallen individual from a lower level. Extension ladders or aerial lift equipment may also be employed in certain circumstances.

1.275.5 Fall Protection Equipment

All safety belts, harnesses, and lanyards placed in service or purchased on or before February 1, 1997, shall be labeled as meeting the requirements contained in ANSI A10.14-1975, Requirements for Safety Belts, Harnesses, Lanyards, Lifelines and Drop Lines for Construction and Industrial Use.

All personal fall arrest, personal fall restraint, and positioning device systems purchased or placed in service after February 1, 1997, shall be labeled as meeting the requirements contained in ANSI A10.14-1991 American National Standard for Construction and Demolition Use, or ANSI Z359.1-1992 American National Standard Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components.

When purchasing equipment and raw materials for use in fall protection systems, applicable standards and requirements shall be met.

28. Fall Protection Program

1.276 Purpose and Scope

The purpose of this program is to provide specific requirements and safety principles to ensure that work at heights is conducted safely and effectively.

This program applies to all Van Kirk Bros. Contracting employees exposed to working at heights.

1.277 Resources

Number	Title
29 CFR 1926 Subpart M	Fall Protection
29 CFR 1910 Subpart D	Walking-Working Surfaces
29 CFR 1917 Subpart F	Terminal Facilities - Guarding of Edges
29 CFR 1915 Subpart E	Scaffolds, Ladders, and Other Working Surfaces - Guarding of Deck Openings and Edges
29 CFR 1926 Subpart R	Steel Erection-Fall Protection
Cal/OSHA T8 CCR Subchapter 7	General Industry Safety Orders - Injury and Illness Prevention Program
Cal/OSHA T8 CCR Subchapter 4	Construction Safety Orders - Fall Protection

1.278 Definitions

Acronym/Term	Definition
Competent Employee / Person	A person who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

1.279 Fall Protection Program

The standards for regulating fall protection systems and procedures are intended to prevent employees from falling off, onto, or through working levels and to protect employees from falling objects. Fall protection requirements under the regulations require considerable planning and preparation.

1.280 Roles and Responsibilities

A competent person shall be assigned to act as the safety monitoring system. Responsibilities are to:

- Recognize fall hazards.
- Warn employees if they are unaware of a fall hazard or are acting in an unsafe manner.
- Be on same working surface and in visual sight.
- Stay close enough for verbal communication.
- Not have other assignments that would take monitors attention from the monitoring function.

Mechanical equipment must not be used or stored in areas where safety monitoring systems are being used to monitor employees engaged in roofing operations on low-slope roofs. No employee other than an employee engaged in roofing work [on low-sloped roofs] or an employee covered by a fall protection plan shall be allowed in an area where an employee is being protected by a safety monitoring system. Each employee working in a controlled access zone shall be directed to comply promptly with fall hazard warnings from safety monitors.

1.281 Training

Training shall be provided for each employee who might be exposed to fall hazards. Upon first employment, they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the OSHA Code of Safe Practices. Training must enable each employee to recognize the hazards of falling and the procedures to follow to minimize these hazards. Records showing participants, training dates, and signatures of instructors shall be maintained.

Only qualified persons are permitted to operate equipment and machinery. Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, falls, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.

Re-training shall be provided when there are deficiencies in training, inadequacies in an affected employee's knowledge or use of fall protection systems or equipment, when work practices are changed, or when fall protection equipment is modified.

1.282 Fall Protection Requirement

Fall protection is required whenever employees are potentially exposed to falls from heights that exceed applicable regulatory thresholds. Guard rails, safety nets, or personal or fall arrest systems should be used. Applicable regulatory thresholds include:

- General Industry 1910.28(b)(1)(i) - Protection for wall openings and holes. Every wall opening from which there is a drop of more than 4 feet shall be guarded.
- Construction Industry 1926.501(b)(1) - Unprotected sides and edges. Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.
- Marine Terminals 1917.112(b)(1) - Guardrails shall be provided at locations where employees are exposed to floor or wall openings or waterside edges, including bridges or gangway-like structures leading to pilings or vessel mooring or berthing installations, which present a hazard of falling more than 4 feet or into the water.
- Shipyard Industry 1915.73(d) - When employees are exposed to unguarded edges of decks, platforms, flats, and similar flat surfaces, more than 5 feet above a solid surface, the edges shall be guarded by adequate guardrails.
- Steel Erection 1926.760(a)(1) - Each employee engaged in a steel erection activity who is on a walking/working surface with an unprotected side or edge more than 15 feet above a lower level shall be protected from fall hazards by guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, or fall restraint systems.
- Cal/OSHA Construction CCR 1670(a) - ANSI Approved personal fall arrest, personal fall restraint or positioning systems shall be worn by those employees whose work exposes them to falling in excess of 7 1/2 feet from the perimeter of a structure, unprotected sides and edges, leading edges, through shaftways and openings, sloped roof surfaces steeper than 7:12, or other sloped surfaces steeper than 40 degrees not otherwise adequately protected.

1.283 Incidents

Incidents shall be investigated, and corrective actions must be developed and implemented. The investigation shall look at the fall protection plan to see if any updates are needed to prevent recurrence.

1.284 Fall Protection Plan

100% tie off is required.

A fall protection plan shall be prepared by a qualified person and developed specifically for the site (leading edge work, precast concrete work, or residential construction) where the work is being performed. The plan shall be maintained up to date and include the minimum qualifications of the person(s) preparing the plan by identifying that person by name or title.

1.285 Rescue Plan

Equipment and services for prompt rescue of fallen workers, including self-rescue, shall be available before elevated work begins. Local fire departments may not have the means to perform safe and efficient rescue so do not assume they are able to do so.

1.286 Fall Arrest Systems

Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.

1.286.1 Personal Fall Arrest Systems

Personal fall arrest systems, when stopping a fall, shall:

- Limit maximum arresting force on an employee to 1,800 pounds when used with a body harness.
- Be rigged such that an employee can neither free fall more than 6 feet, nor contact any lower level, and, where practicable, the anchor end of the lanyard shall be secured at a level not lower than the employee's waist.
- Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet.
- Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet, or the free fall distance permitted by the system, whichever is less.

1.286.2 Anchorages

Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached, or shall be designed, installed, and used as follows:

- As part of a complete personal fall arrest system which maintains a safety factor of at least two.
- Under the supervision of a qualified person.

1.286.3 Positioning Systems

Positioning device systems and their use shall conform to the following provisions:

- Positioning devices shall be rigged such that an employee cannot free fall more than 2 feet.
- Position devices shall be inspected prior to each use for wear, damage, and other deterioration, and defective components shall be removed from service.
- The use of non-locking snaphooks shall be prohibited after January 1, 1998.
- Anchorage points for positioning device systems shall be capable of supporting two times the intended load or 3,000 pounds, whichever is greater.

1.286.4 Fall Protection Equipment

All safety belts, harnesses, and lanyards placed in service or purchased on or before February 1, 1997, shall be labeled as meeting the requirements contained in ANSI A10.14-1975, Requirements for Safety Belts, Harnesses, Lanyards, Lifelines and Drop Lines for Construction and Industrial Use.

All personal fall arrest, personal fall restraint, and positioning device systems purchased or placed in service after February 1, 1997, shall be labeled as meeting the requirements contained in ANSI A10.14-1991 American National Standard for Construction and Demolition Use, or ANSI Z359.1-1992 American National Standard Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components.

When purchasing equipment and raw materials for use in fall protection systems, applicable standards and requirements shall be met.

1.287 Access Control

Access to dangerous areas where safety monitoring systems are in place shall be controlled. When used to control access to areas where leading edge and other operations are taking place, the controlled access zone shall be defined by a control line or by any other means that restricts access. Signs shall be posted to warn unauthorized employees to stay out of the controlled access zone.

1.288 Guardrails

A standard guardrail shall consist of top rail, mid-rail or equivalent protection, and posts, and shall have a vertical height within the range of 42 inches to 45 inches from the upper surface of the top rail to the floor, platform, runway, or ramp level.

29. Fire Protection Program

1.289 Purpose and Scope

The purpose of this program is to describe a framework for fire hazards commonly occurring at work sites and provide protocols and procedures to control these hazards.

This program applies to all Van Kirk Bros. Contracting employees.

1.290 Resources

Number	Title
29 CFR 1926 Subpart F	Fire Protection
29 CFR 1910 Subpart L	Fire Protection and Prevention
Cal/OSHA T8 Subchapter 7	General Industry Safety Orders
Cal/OSHA T8 Subchapter 4	Construction Safety Orders
NFPA 10	Portable Fire Extinguishers

1.291 Fire Protection Program

Ignition sources can include any material, equipment, or operation that emits a spark or flame including obvious items, such as torches, as well as less obvious items, such as static electricity and grinding operations. Equipment or components that radiate heat, such as kettles, catalytic converters, and mufflers, also can be ignition sources.

Fuel sources include combustible materials, such as wood, paper, trash, and clothing; flammable liquids, such as gasoline or solvents; and flammable gases, such as propane or natural gas.

1.292 Training

Where portable fire extinguishers are provided for employee use, employees shall be trained to familiarize themselves with the general principles of fire extinguisher use and the hazards associated with basic firefighting.

Employees who are expected to use fire extinguishers in case of emergency shall be trained during their orientation upon initial assignment. Refresher training shall occur at least annually.

1.293 Inspection

Portable fire extinguishers shall be subjected to monthly visual inspections and annual servicing / maintenance. Monthly inspections involve a visual check to ensure the pin is in place, it is adequately charged, and not corroded. Visual inspections shall be noted on the tag. The annual servicing and inspection are more thorough. The annual inspection is typically performed by a third-party professional, as it may involve re-charging the extinguisher and maintenance / servicing.

The annual maintenance date shall be recorded and retained for 1 year after the last entry or life of the shell, whichever is less.

1.294 Selection and Distribution

Portable fire extinguishers shall be provided for employee use and selected and distributed based on the classes of anticipated workplace fires and on the size and degree of hazard which would affect their use.

Management shall examine its premises and processes thoroughly and repeatedly, correcting threatening situations as soon as they are identified. In addition, adequate fire protection equipment shall be provided.

Particular guidance on fire codes and standards may be sought from manufacturers of fire protection equipment and systems, local municipal fire departments, the company insurance agency, the National Fire Protection Association (NFPA), and other fire protection agencies whose services may be secured on a consulting or staff basis.

1.295 Number of Extinguishers Required

See NFPA 10 for classification of occupancy hazards.

Class A Hazards (ordinary combustibles such as wood, cloth, paper, rubber, and many plastics)

Criteria	Light Hazard Occupancy	Ordinary Hazard Occupancy	Extra Hazard Occupancy
Minimum rated single extinguisher	2-A	2-A	4-A
Maximum floor area per unit of A	3000 sq ft	1500 sq ft	1000 sq ft
Maximum floor area per extinguisher	11,250 sq ft	11,250 sq ft	11,250 sq ft
Maximum travel distance to extinguisher	75 ft	75 ft	75 ft

Class B Hazards (flammable or combustible liquids, petroleum greases, tars, oils, oil-based paints, alcohols, solvents, lacquers, flammable gases, and similar materials)

Basic Minimum Extinguisher Rating for Area Specified	Basic Minimum Extinguisher Rating	Maximum Travel Distance to Extinguishers
Light (low)	5B 10B	30 ft 50 ft
Ordinary (moderate)	10B 20B	30 ft 50 ft
Extra (high)	40B 80B	30 ft 50 ft

Class C Hazards (energized electrical equipment)

Live electrical fires require certain types of extinguishing agents (e.g., CO^2, powder, halon). If the power can be turned off the fire hazard is reclassified as a class A or B. However, certain types of electrical equipment, such as capacitors, retain electrical charge even when electricity is turned off.

Class D Hazards (combustible metals such as magnesium, titanium, zirconium, sodium, lithium, and potassium)

Distribution of portable fire extinguishers for Class D hazards, such as combustible metal powders, flake, or shavings are required in the work areas so that the maximum travel distance is 75 feet or less in any direction.

Class K Hazards (cooking appliances that involve combustible cooking media such as vegetable or animal oils and fats)

Fire extinguishers provided for the protection of cooking grease fires shall be of an approved type compatible with the automatic fire-extinguishing system agent. Class K portable fire extinguishers must be located 30 feet of travel distance from the hazard to the extinguishers.

1.296 Requirements of Portable Extinguishers

- Extinguishers shall be fully charged and kept in their designated areas.
- Extinguishers shall be conspicuously located, clearly marked as to their intended use, and not be unobscured from view.
- The top shall not be more than 5 feet above the floor if the extinguisher weighs less than 40 lbs. The top must not be more than 3.5 feet above the floor if the extinguisher weighs more than 40 lbs. Clearance between the floor and the bottom of the extinguisher shall not be less than 4 inches.
- Extinguishers shall be thoroughly examined and/or recharged or repaired as needed at regular intervals not more than 1 year apart.
- Extinguishers shall be hydrostatically tested at the specified interval.

1.297 Reporting of Hostile Fires

All hostile fires resulting in property damage, no matter how small, shall be investigated to prevent recurrence and to develop loss experience data upon which preventative measures can be based.

- Investigation – fires shall be investigated by the appropriate personnel (HSE, incident commander, etc.).
- Reporting – copies of the completed investigation reports shall be distributed to management.

30. First Aid Program

1.298 Purpose and Scope

The purpose of this program is to ensure the safety of employees and describe a framework for administering first aid.

This program applies to all Van Kirk Bros. Contracting employees.

1.299 Resources

Number	Title
29 CFR 1910 Subpart K	Medical and First Aid
29 CFR 1926 Subpart D	Occupational Health and Environmental Controls
Cal/OSHA T8 Subchapter 4	Construction Safety Orders – Emergency Medical Services
Cal/OSHA T8 Subchapter 4	General Industry Safety Orders-Personal Safety Services and Safeguards
CMS-FM-0026	First Aid Kit Inspection Form

1.300 First Aid

Medical facilities will be made available where possible. In the absence of an infirmary, clinic, or hospital in near proximity to the workplace, a person or persons shall be available and adequately trained to render first aid.

1.301 Training

A person who has a valid certificate in first-aid training from the American Red Cross or equivalent that can be verified by documentary evidence shall be available at the worksite to render first aid.

1.302 First Aid Supplies

The first aid equipment and supplies shall be determined by the potential occupational injuries and illnesses of personnel. First aid supplies shall be easily accessible when required.

The items and amounts of each item needed on site will depend on the following variables:

- Size of work force
- Type of work
- Availability of medical services
- Types of injuries and illnesses
- Scope and environment of the work location

Adequate first aid supplies shall be available and periodically reassessed for the demand for supplies with inventories adjusted.

First aid kits shall be placed in a weatherproof container with individual sealed packages of each type of item. See the Appendix for suggested contents of a first aid kit.

For construction operations, first aid kits shall be checked before being sent out to each job and at least weekly to ensure that the expended items are replaced.

1.303 Location

Where there is a first aid facility provided, it shall be located as close as possible to the main work area to provide prompt first aid care to injured and ill employees. Distance should not hamper the prompt reporting of minor injuries. See the Appendix for suggested first aid supplies.

Location of the first aid facility shall also be near water and sanitary sewer lines. The first aid facility shall be easily accessible to ambulance service.

The first aid facility should be designed to eliminate noise, vibration, and other disturbances insofar as is practical.

1.304 Transport

Proper equipment for prompt transportation of the injured person to a physician or hospital or a communication system for contacting necessary ambulance service shall be provided.

If an ambulance service is not readily available to the work site, or if travel conditions are not normal, other transportation must be available that:

- Is suitable, considering the distance to be travelled and the types of acute illnesses or injuries that may occur at the work site
- Protects occupants from the weather
- Has systems that allow the occupants to communicate with the health care facility to which the injured or ill worker is being taken
- Can accommodate a stretcher and an accompanying person if required to

1.305 Emergency Eye Washing

Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities shall be provided within the work area.

1.306 Emergency Phone Numbers

In areas where 911 is not available, the telephone numbers of the physicians, hospitals, or ambulances shall be conspicuously posted. The site Safety Coordinator is responsible for posting these telephone numbers.

1.307 Documentation

The company must keep a record of all circumstances respecting an accident as described by the injured worker, the date and time of its occurrence, the names of witnesses, the nature and exact location of the injuries to the worker and the date, time, and nature of each first aid treatment given.

Appendix 16 Suggested First Aid Kit Contents

First Aid Supply	Minimum Quantity		Minimum Size or Volume	
	Class A Kits	Class B Kit	(US)	(metric)
Adhesive Bandage	16	50	1 x 3 in.	2.5 x 7.5 cm
Adhesive Tape	1	2	2.5 yd (total)	2.3 m
Antibiotic Application	10	25	1/57 oz	0.5 g
Antiseptic	10	50	1/57 oz	0.5 g
Breathing Barrier	1	1	N/A	N/A
Burn Dressing (gel soaked)	1	2	4 x 4 in.	10 x 10 cm
Burn Treatment	10	25	1/32 oz	0.9 g
Cold Pack	1	2	4 x 5 in.	10 x 12.5 cm
Eye Covering, with attachment	2	2	2.9 sq. in.	19 sq. cm
Eye/Skin Wash	1	0	1 fl. oz total	29.6 ml
	0	1	4 fl. oz total	118.3 ml
Foil Blanket	1	1	52 x 84 in.	132 x 213 cm
First Aid Guide	1	1	N/A	N/A
Hand Sanitizer	10	20	1/32 oz	0.9 g
Medical Exam Gloves	2 pair	4 pair	N/A	N/A
Roller Bandage	1	2	2 in. x 4 yd	5 cm x 3.66 m
	0	1	4 in. x 4 yd	10 cm x 3.66 m
Scissors	1	1	N/A	N/A
Splint	0	1	4.0 x 4 yd	10.2 x 61 cm
Sterile Pad	2	4	3 x 3 in.	7.5 x 7.5 cm

Tourniquet	0	1	1.5 in. (width)	3.8 cm (width)
Trauma Pad	2	4	5 x 9 in.	12.7 x 22.9 cm
Triangular Bandage	1	2	40 x 40 x 56 in.	101 x 101 x 142 cm

Van Kirk Bros. Contracting **First Aid Program**

Appendix 17 **First Aid Kit Inspection Form**

General Information			
Inspector Name:		Inspection Date:	
Kit Location:			

Required First Aid Items	Stocked	Needs Restocking
1. Gauze pads		
2. Large gauze pads		
3. Adhesive bandages (Band-Aids)		
4. Gauze roller bandages		
5. Triangular bandages		
6. Wound cleaning agent		
7. Scissors		
8. Blanket		
9. Tweezers		
10. Adhesive tape		

11. Latex gloves		
12. Resuscitation bag / pocket mask		
13. Elastic wraps		
14. Splint		
15. Ibuprofen		
16. Saline solution		
17. Directions for requesting emergency assistance		

Signatures			
Employee Signature:		Date:	

31. Flagger and Spotter Operations Safety Program

1.308 Purpose and Scope

The purpose of this program is to establish procedures and training protocols to minimize the risks associated with traffic control and heavy equipment operations during construction, maintenance, and other activities that require the presence of flaggers and spotters.

This program applies to all Van Kirk Bros. Contracting employees.

1.309 Flagger and Spotter Operations Safety Program

Flaggers and spotters play a critical role in directing traffic and ensuring the safe operation of heavy equipment, making it essential to implement safety measures that mitigate risks and prevent accidents.

By implementing the Flagger and Spotter Operations Safety Program, the Company can promote a safer work environment, reduce accidents and injuries, and ensure the well-being of workers and the public in and around work zones.

1.310 Dedicated Flagger and/or Spotter

A dedicated spotter must be present whenever the operator does not have a clear view of the site, operations are taking place around energized power lines or equipment, work is being performed in congested areas, or varied terrain is present.

A dedicated flagger must be provided when operations require following guidance of Federal, State, or Local guidelines and/or industry best practices for maintaining traffic flow through a work zone, despite a closure of lane(s).

A Hazard Assessment, Job Hazard Analysis (JHA), or Job Safety Analysis (JSA) must be conducted prior to work taking place that specifically references Flagger and/or Spotter operations and/or responsibilities to establish when a Flagger and/or Spotter is required.

1.311 Training and Certification

The program provides thorough training for flaggers, spotters, equipment operators, and other personnel involved in work zone activities. Training must cover essential safety protocols, traffic control techniques, communication skills, and awareness of potential hazards. Workers must obtain certifications to demonstrate their competence in performing their duties safely.

The company provides training on Flagger and/or Spotter responsibilities before any traffic control work takes place and/or heavy equipment is to be moved. These responsibilities may include safe traffic control practices, public contact techniques, control signaling devices, ability

to recognize dangerous traffic situations and warn workers in sufficient time to avoid injury, receive and communicate specific instructions clearly, maintain a line of vision with the operator or have electronic communications, and avoid being in the path of vehicles and/or equipment.

Flaggers and/or Spotters must be trained on proper signs, symbols, and hand signals used to direct communication with vehicles. Additionally, they must know how to maintain traffic flow through a work zone, identify blind spots for typical construction equipment, how to identify hazards and implement safety controls before and during the operation, and must not be distracted by any personal devices.

Flaggers and/or Spotters must not be assigned to simultaneous duties while assigned to Flagger and/or Spotter responsibilities.

1.312 Traffic Control Plans

Development of detailed traffic control plans is required for each work zone. These plans must include the proper placement of flaggers, signage, cones, barricades, and other traffic control devices to guide motorists safely through the work area.

1.313 Temporary Traffic Control (TTC) Plan

When normal function of the roadway, or a private road open to public travel, is suspended, temporary traffic control (TTC) will be implemented to provide reasonably safe and affective movement of road users through or around TTC zones while reasonably protecting road users, workers, responders to traffic incidents, and equipment.

1.314 High-Visibility Clothing

All flaggers and spotters are required to wear high-visibility clothing to enhance their visibility to motorists and equipment operators, especially in low-light conditions.

Flaggers and/or Spotters are required to wear high-visibility apparel. Specific colors include fluorescent orange-red, fluorescent yellow-green, or a combination of the two.

Flaggers and/or Spotters must be stationed sufficiently in advance of workers to warn them (for example, with audible warning devices such as horns or whistles) of imminent danger.

Flaggers and/or Spotters must also be provided with additional equipment including but not limited to safety eyewear, safety footwear, two-way radios or any other method for communication, additional Flagger devices, etc. ITS (Intelligent Transport Systems) technology, such as portable camera systems, variable speed limits, highway advisory radio, ramp metering, etc. may also be utilized to improve operational safety.

1.315 Communication Protocols

Clear communication protocols must be established among flaggers, spotters, equipment operators, and other team members. Proper communication is essential for coordinating movements and promptly addressing any potential hazards.

1.316 Equipment Inspections

Regular inspections of traffic control devices and safety equipment, such as signs, cones, and personal protective equipment, must be conducted to ensure they are in good working condition and meet safety standards.

1.317 Safe Distance and Escape Routes

Flaggers and spotters are trained to maintain a safe distance from moving equipment and to identify escape routes in case of emergencies or unforeseen hazards.

1.318 Environmental Hazards

The program addresses potential environmental hazards in work zones, such as extreme weather conditions, uneven terrain, and hazardous materials must be addressed, and measures outlined to mitigate these risks.

1.319 Health and Ergonomics

Workers must be protected from health hazards related to prolonged exposure to specific work conditions and ergonomic considerations to reduce the risk of musculoskeletal injuries.

1.320 Flagging and/or Spotting

The spotter must first recognize the fact that they are there to direct the safe movement of vehicles and that the driver is reliant upon their guidance.

Never pass out of view of the driver without stopping the vehicle.

Never go directly behind a vehicle unless the vehicle is completely stopped, and the operator agrees that it is okay to do so.

Remain in clear sight of the operator and always signal on the driver’s side of the vehicle toward the rear. This position will allow the spotter an unobstructed view of the backing path and will help to avoid miscommunication.

Instruct the operator to stop if there is ever a time when the operator cannot positively identify the spotter’s whereabouts.

Move about in a safe manner to avoid slipping, tripping, or falling. Walking backwards could yield a situation where tripping hazards are difficult to detect.

Wear high-visibility clothing to increase chances of being seen by the backing vehicles and others on site.

The operator and the spotter working together as a team ensures the safe movement of vehicles on the jobsite.

1.321 Incident Reporting and Investigation

Procedures for reporting incidents and near-misses must be established to facilitate the investigation and analysis of safety-related occurrences. Lessons learned from these incidents are used to improve safety measures.

1.322 Regulatory Compliance

The program ensures strict adherence to all applicable local, state, and federal regulations concerning work zone safety, traffic control, and worker protection.

1.323 Continuous Improvement

The program is regularly reviewed and updated to incorporate the latest safety best practices, technologies, and industry standards, fostering a culture of continuous improvement.

32. Fleet Safety Program

1.324 Purpose and Scope

The purpose of this section is to outline safe work practices for commercial motor vehicles.

This procedure applies to all Van Kirk Bros. Contracting employees driving commercial motor vehicles.

1.325 Policy Statement

Our motor fleet safety program has been implemented to promote safe driving on and off the job. When properly implemented, this program can help reduce the frequency and severity of crashes and violations in our vehicle operations. Our focus is on reducing the financial burden of crashes and the accompanying human suffering. It is equally important that we present a strong public image of a company that puts safe drivers on the road.

We will properly select and train employees who drive on company business and we will keep well-maintained vehicles. The fleet coordinator has the responsibility for managing vehicle and driver safety issues. They have authority to implement our vehicle safety program and are accountable to management for its effectiveness.

Our fleet coordinator is responsible for investigating, documenting, contacting, and maintaining communication with our insurance carrier, and following up on automobile claims handling. Our fleet coordinator is also responsible for maintaining and complying with all DOT regulations regarding driver qualification, hours of service, vehicle maintenance, and cargo Securement.

Employees are required to immediately report all crashes and moving violations that occur during work-related activities, if they are driving a company-owned or personal vehicle on company business.

We will provide safe and reliable transportation to authorized drivers, and the resources for properly maintaining company vehicles. It is each driver's responsibility to ensure proper vehicle maintenance, exercise defensive driving habits, maintain a good driving record, and adhere to the company safe driving expectations and objectives of this program.

Employees who are authorized to drive personal vehicles on company business are expected to maintain their vehicles in safe operating condition, as well as provide the fleet coordinator with proof of liability insurance with minimum coverage that aligns with corporate risk management philosophy. All occupants of company vehicles and occupants of personally owned vehicles driven on company business must wear seat belts / restraints at all times.

We will adhere to all federal, state, and local laws governing vehicle operation.

1.326 Commercial Motor Vehicle

A commercial motor vehicle (CMV) (CFR 49 §383.5) speaks directly to drivers and motor carriers that operate large vehicles and those who operate certain specialized types of vehicles. This definition covers both interstate and intrastate drivers and motor carriers.

1.327 Commercial Drivers

Drivers are required to obtain and hold a CDL if they operate in interstate, intrastate, or foreign commerce and drive a vehicle that meets one or more of the classifications of a CMV described below.

Classes of License and Commercial Learner's Permits (CLP)

Endorsements and Restrictions

Entry-level drivers are subject to the requirements in the Entry-Level Driver Training (ELDT) regulations. This applies to drivers seeking to:

- Obtain a Class A or Class B CDL for the first time;
- Upgrade an existing Class B CDL to a Class A CDL; or
- Obtain a school bus (S), passenger (P), or hazardous materials (H) endorsement for the first time.

1.328 Driver Training

New drivers will undergo a preliminary new employee orientation for new hires or transferred employees who now have driving responsibilities. Our fleet coordinator will determine a schedule of topics for regular continuing education.

Topics can include, but are not limited to:

- Company policies and procedures for operation of company-owned vehicles
- Safe driving objectives and company expectations
- Vehicle use and limitations for personal use
- Annual MVR checks and methods for management evaluation
- Cargo handling and security precautions
- Driver training and crash reporting/response procedures
- Vehicle maintenance and inspection requirements
- Concepts of safe driving

- Territory and routes of expected travel
- License requirements (CDL, verification of physical/visual exams, etc.)

All other employees that drive a company vehicle or drive a personal vehicle for company business will go through a defensive driving course. This could include internal defensive driving or a recognized third-party driver training.

All drivers will also attend required daily safety meetings that should also include a driving topic.

Post crash or those receiving moving violations could also be required to attend additional training.

DOT drivers will also go through various additional training including:

- Hours of Service (Driver Logs)
- Drug and Alcohol Policy
- Cargo Securement
- Hazardous Materials
- Vehicle Maintenance (Vehicle Inspection)

1.329 Road Tests

Prior to employment in a position requiring driving on company business, the applicant will complete a driving test in the vehicle that they will most likely be driving. An employee or manager trained in administering road tests will conduct the road test. It is suggested that a road test be at least 20 miles in length over a planned route.

1.330 Driver Qualification Criteria

Driver applicants will not be considered for employment unless they meet the minimum requirements listed below.

- Possess a valid non-commercial driver's license with at least 2 years driving experience.
- Be at least 21 years old to operate a commercial motor vehicle interstate.
- Be able to read and speak English sufficiently to converse with the general public, to understand highway traffic signs and signals, to respond to official inquiries, and to make entries on reports and records.
- Be physically and mentally qualified to drive a company vehicle and possess a valid medical certificate as defined in 49 CFR Part 391.

- Possess a current and valid commercial driver's license and proper endorsements for the type of commercial vehicle to be driven.
- Must not be disqualified to drive a commercial motor vehicle under the rules and regulations set forth in 49 CFR Part 391.15.
- Meets all of the requirements and be able to perform all of the tasks and essential duties of the job description.
- Have at least 2 years of verifiable driving experience with like-type vehicles.
- Have at least 5 years verifiable driving experience, if required to transport hazardous materials.
- Has not been convicted of any of the following major violations:
    - Being under the influence of alcohol as prescribed by state law;
    - Being under the influence of a controlled substance;
    - Having an alcohol concentration of 0.04 or greater while operating a CMV;
    - Refusing to take an alcohol test as required by a state or jurisdiction under its implied consent laws or regulations;
    - Leaving the scene of an accident;
    - Using the vehicle to commit a felony;
    - Driving a CMV when, as a result of prior violations committed operating a CMV, the driver's CDL is revoked, suspended, or cancelled, or the driver is disqualified from operating a CMV;
    - Causing a fatality through the negligent operation of a CMV, including but not limited to the crimes of motor vehicle manslaughter, homicide by motor vehicle, and negligent homicide; and
    - Using the vehicle in the commission of a felony involving manufacturing, distributing, or dispensing a controlled substance.
- Has not been convicted of any of the following serious violations:
    - Speeding excessively, involving any speed of 15 mph or more above the posted speed limit;
    - Driving recklessly, as defined by state or local law or regulation, including, but not limited to, offenses of driving a motor vehicle in willful or wanton disregard for the safety of persons or property;

- Making improper or erratic traffic lane changes;
- Following the vehicle ahead too closely;
- Violating state or local law relating to motor vehicle traffic control (other than a parking violation) arising in connection with a fatal accident;
- Driving a CMV without obtaining a CDL;
- Driving a CMV without a CDL in the driver's possession; and
- Driving a CMV without the proper class of CDL and/or endorsements for the specific vehicle group being operated or for the passengers or type of cargo being transported.

1.331 Driver's Vehicle Inspection Reports (DVIR)

The written Driver's Vehicle Inspection Report (DVIR) must be completed at the end of each day's work on each vehicle operated. The report must be prepared, signed, and dated by the driver. If two drivers are on the vehicle, only one needs to sign the report. The following must be accomplished:

- The original DVIR is turned in with their paperwork at the days end.
- If defects that would affect safe operation are reported, the person making the repairs must sign the original and the truck copy of the inspection report. The next driver must sign the truck copy of the report to verify that the repairs were accomplished.
- A copy of the latest DVIR must be kept in the vehicle and the next driver must sign the vehicle copy during their pre-trip inspection.

1.332 Hours of Service

A motor carrier must not require or permit a driver to drive:

- More than 11 hours within a 14-hour, non-extendable window from the start of the workday, following at least 10 consecutive hours off-duty. This is known as the 11-Hour driving rule. This means that after drivers have taken 10 consecutive hours (or more) off-duty, they are eligible for another 11-hour driving period, provided there is not a violation of the "60/70 hours in 7/8 days" limitations.
  - Rest breaks. Driving is not permitted if more than 8 hours have passed since the end of the driver's last off-duty or sleeper-berth period of at least 30 minutes.
- May not drive after 60/70 hours on duty in 7/8 consecutive days.
  - A driver may restart a 7/8 consecutive day period after taking 34 or more consecutive hours off.

- CMV drivers using the sleeper berth provision must take at least 8 consecutive hours in the sleeper berth, plus 2 consecutive hours either in the sleeper berth, off duty, or any combination of the two.

Most states have adopted the federal Hours of Service regulations. However, the weekly on-duty aggregate limits may have been increased for intrastate drivers. Drivers may not drive after 70 hours on duty in 7 consecutive days if the motor carrier does not operate CMVs every day of the week. If the motor carrier operates CMVs every day of the week, drivers may not drive after 80 hours on duty in 8 consecutive days. Drivers who have been off duty for 24 or more hours may reset their calculation of the 70 hour/7day or 80 hour/8day weekly on-duty aggregate totals.

1.332.1 Preparing a Driver's Log

You are exempt if you drive under 100-mile radius.

- The log is an hour-by-hour graph of the driver's activity for each day.
- The log must be kept current and turned in to the management upon completion of each trip.
- When delivering in a single town, a driver is authorized to lump all local delivery time together on line 4 and all local driving together on line 3. For example, if a driver makes deliveries in Athens, GA and spends 6 hours performing the task, the log entry might show:
  - Driving time from Atlanta to Athens (6 a.m. to 8 a.m.) is shown on line 3.
  - Off-duty (meal) 8 a.m. to 8:30 a.m. is shown on line 1.
  - Local delivery Athens, GA (8 a.m. to 1:30 p.m.) is shown on line 4, a total of 5 1/2hours.
  - From 2:00 p.m. to 3:00 p.m., fine 3 accounts for the total (one hour) of local driving in Athens, between the hours of 8 a.m. and 3:00 p.m. Using this method, the driver has accurately accounted for his/her time.
- All entries must be made by the driver.
- All required entries must be made on each log.
- Each log's hours must add up to equal 24 hours.
- The trip information numbers (load number or manifest number) must be put on logs daily.

- If an hours violation occurs, it must be explained in the “Remarks” section of the log. This does not excuse the violation; however, it is required by D.O.T. The violation must not be resolved by falsifying the log.
- All entries must be true and correct.

1.332.2 Other Hours of Service Requirements

100-Mile Radius Driver:

Under certain conditions drivers that normally operate within a 100-air mile radius of the work reporting location are exempt from making a daily log according to D.O.T. regulations. All drivers must complete a log regardless of their trip distance.

Recapping Hours:

Even though this is not a D.O.T. requirement, a recap of hours it required for our drivers. It is very difficult to keep track of drivers’ available hours during a 7 consecutive day period without maintaining a recap chart for each driver. By subtracting the total duty hours for the last 7 days from 70 the driver will know how many hours are available for on-duty time the next day

1.333 Vehicle Use Policy

Company vehicles are intended to be used for company use only. Personal use is strictly prohibited unless prior permission is granted by management. When assigned a company vehicle, its use is restricted to the assigned driver only. Use by family members or non-employees is not permitted.

1.334 Cell Phone Usage

Driving is a serious responsibility that demands and deserves full attention. Driver distractions may occur anytime, anywhere. A distraction is anything that takes your attention away from driving, such as cell phone use.

Studies have proven the risk of having an accident increases by 400% every time a cell phone is used when driving.

The use of company issued cell phones or radios is on an as needed basis and only when it is safe to do so. Personal use of these units is prohibited.

Many state laws prohibit the use of cellular phones while operating a motor vehicle without the presence of a hands-free device.

The use of personal cell phones while on duty is strictly prohibited while driving a company vehicle, operating a forklift, working in a warehouse, and/or any other safety sensitive position.

Disciplinary actions, when required, will be based on the severity, frequency, and overall impact of the infraction. Potential disciplinary actions are as follows:

- Verbal Warning
- Written Warning
- Suspension without pay
- Termination

1.335 Distracted Driving

Every day in the United States, approximately nine people are killed and more than 1,000 are injured in crashes that involve a distracted driver.

Distracted driving occurs any time you take your eyes off the road, hands off the wheel, and mind off your primary task—driving safely.

Any non-driving activity you engage in is a potential distraction and increases your risk of being involved in a motor vehicle crash.

Distracted drivers are more likely than all other drivers to:

- Have a near collision
- Fail to stop at an intersection
- Exceed the speed limit

Employees in many industries and occupations spend part of their workdays on the road. Motor vehicle crashes are the leading cause of work-related deaths in the US.

All employees are at risk of crashes, whether they drive light or heavy vehicles or driving is a main or secondary job.

1.335.1 Types of Distraction

There are three main types of distraction:

- Visual
- Manual
- Cognitive

Visual distractions are anything that take your eyes off the road in front of you, including:

- Reading a text message

- Looking up directions
- “Rubbernecking”

Manual distractions are anything that requires you to take your hands off the wheel, including:

- Reaching for things inside the vehicle
- Using a handheld device
- Adjusting the radio or music apps
- Eating or drinking
- Applying makeup

Cognitive distractions are anything that interrupts your focus on driving, and can include:

- Talking on the phone
- Arguing with a passenger
- Thinking about your destination

1.335.2 Prevention

Take these steps to prevent distracted driving:

- Make necessary adjustments to your car, such as adjusting controls or programming your directions, before starting your drive.
- Do not reach to pick up items from the floor, open the glove box, or try to catch falling objects in the vehicle.
- Focus on the driving environment—the vehicles around you, pedestrians, cyclists, and objects or events that may mean you need to act quickly to control or stop your vehicle.

1.335.3 Phone Usage

Talking and texting on a cell phone are driving distractions. Texting is one of the most serious distractions.

Texting while driving can be a visual, manual, and cognitive distraction all at once. Your eyes are off the road reading your phone, your hand is off the wheel holding your phone, and your mind is off the road and focused on your phone.

Sending or reading a text takes your eyes off the road for 5 seconds. At 55 miles per hour, that is the equivalent of driving the length of a football field with your eyes closed.

Hands-free phones are not necessarily safer than hand-held devices.

Drivers using handheld or hands-free cell phones are four times as likely to crash. The National Safety Council (NSC) estimates that cell phone use alone accounts for 27% of vehicular crashes.

1.335.4 Restrictions

The following restrictions are in place to prevent distracted driving:

- Handheld phone use, including calling, texting, email, etc., while driving a company vehicle is prohibited.
- The use of a company-issued phone while driving a personal vehicle is prohibited.
- Hands-free phone use while driving a company vehicle is prohibited.
- Employees shall pull over in a safe location if they must text, make a call, send an email, or look up directions.

1.336 Substance Abuse

Employees are strictly prohibited from operating a motor vehicle while under the influence of drugs or alcohol. This includes:

- Blood alcohol level at or above the local legal limit,
- Illegal drugs, including marijuana, and
- Prescription medications that cause drowsiness or other conditions that may cause impairment. Employees taking prescription medication that may impact their safety shall report this to their supervisor.

1.337 Drug and Alcohol Screening

All commercial driver applicants will submit to a drug/alcohol screening before an initial offer of employment is extended. Only the designated drug/alcohol testing facility will be used. Drug/alcohol test results from the commercial driver applicant's previous employer will not be accepted. A negative test result is a condition of employment. No driver applicant will perform any work or activity until a negative test result has been obtained for the driver applicant. Be advised that marijuana remains a drug listed in Schedule I of the Controlled Substances Act. It is unacceptable for any employee subject to drug testing under the DOT's drug testing regulation to use drugs or alcohol medicinally or recreationally.

All applicants will be asked if they have tested positive, or refused to test, on any pre-employment drug and alcohol test administered by a previous employer. If the applicant admits

to any of the above, without documented successful completion of DOT return-to-duty requirements, they will not be considered for employment.

All applicants who indicate no drug or alcohol violations must provide written consent for a drug and alcohol history to be obtained for the preceding 2 years from all DOT-regulated employers. If the applicant fails to provide this consent, they will not be considered for employment. Any positive indication of drug or alcohol use at the following levels will immediately disqualify the applicant:

- Alcohol test with a result of 0.04 or higher;
- Verified positive drug test;
- Verified adulterated or substituted drug test results; and
- Violations of DOT agency drug and alcohol testing regulations.

Applicants who have successfully completed DOT return-to-duty requirements after a drug or alcohol regulation violation will continue through the hiring process.

A driver may be required to take a controlled substance/alcohol test for any of five reasons. More information regarding controlled substances (i.e., testing is presented in Drug and Alcohol Testing Policy.

- Pre-employment.
- Reasonable Suspicion: Drivers will be required to take a test when the company requests it with good cause.
- Random: The company program must randomly test at least half of the drivers each year for drugs and 25% for alcohol.
- Post-Accident: Drivers involved in reportable accidents must be tested within 32 hours of the accident for drugs and 2 hours for alcohol.
- Return-to-Duty and follow-up: Drivers who are returned to work after successfully completing a Company approved rehabilitation program are subject to continued testing.

1.338 DOT Clearinghouse Requirements

The FMCSA Clearinghouse mandate is a new law that mainly impacts employers of CDL drivers.

Clearinghouse is a mandatory database with real-time information on drug and alcohol violations of CDL drivers. Violations must be reported to the Clearinghouse.

Queries on CDL drivers must be conducted both annually (every 12 months since employment) and at pre-employment.

1.339 Motor Vehicle Records Requirements (MVR)

The Motor Vehicle Record (MVR) is a list of moving violations and crashes reported against a driver's license number for the past 3 to 5 years, in most states. The prospective driver may provide, in writing, a copy of their MVR once employment has been offered. A copy may be obtained, for a small fee, with the employee's permission by writing to the proper state Department of Motor Vehicles.

Drivers with unacceptable driving records may be subject to having job review and possible removal from positions requiring driving.

Drivers are required to report any crashes or moving violations to their supervisor immediately following the occurrence (including those occurrences while driving a personal car while on company business). Drivers are responsible for notifying their supervisor of final outcomes of violations.

As a condition of their continued employment as a company driver, an MVR will be obtained, at least annually, on all employees who drive on company business.

1.340 Qualification Files

As required by the DOT, the Company maintains a qualification file for all drivers.

No employee shall operate a company vehicle or any personal vehicle while on company business unless they are listed on the company's qualified driver list. This includes personal vehicles if used for company business.

The Company maintains a current list of qualified drivers and is required to provide this list to our insurance carrier annually and anytime changes are made to the list. This information is required for each driver:

- Driver application for employment
- Copy of driver's license
- Hire date
- Inquiry to previous employers in the past 3 years
- Inquiry to state agencies
- Medical examiner's certificate (medical waiver copy only)
- Driver's road test examination results

- Certificate of road test*
- Annual MVR and review of driving record
- Annual driver's certificate of violations
- Annual review of driving record

Drivers will be issued copies of these certificates. Drivers only need to have a copy of the medical examiner's certificate in their possession while driving.

Qualification records for each commercial driver will be maintained for a minimum of 3 years after the driver's employment is terminated.

33. Forklifts & Powered Industrial Trucks Safety Program

1.341 Purpose and Scope

The purpose of this program is to provide safety procedures for forklifts and powered industrial trucks to maintain a safe workplace for employees and prevent or mitigate incidents.

This program applies to all Van Kirk Bros. Contracting employees that work with or around forklifts or powered industrial trucks.

1.342 Resources

Number	Title
29 CFR 1910 Subpart N	Materials Handling and Storage
29 CFR 1926 Subpart C	General Safety and Health Provisions
Cal/OSHA T8 CCR Subchapter 7	General Industry Safety Orders
CMS-FM-0027	Forklift/Powered Industrial Truck Inspection Checklist

1.343 Definitions

Acronym/Term	Definition
Competent Employee / Person	A person who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
Free Rigging	The direct attachment to or placement of rigging equipment (slings, shackles, rings, etc.) onto the tines of a forklift/powered industrial truck for a below-the-forks lift. This type of lift does not use an approved lifting attachment.
Rated Capacity	The maximum working load that a forklift/powered industrial truck is designed, by the manufacturer, to carry at a specified load height.
Truck	Forklift or any powered industrial truck.
Unattended Forklift	When the forklift operator is 25 feet or more away from the forklift even if it remains in view or whenever the forklift operator leaves the forklift, and it is not in view.

1.344 Forklifts and Powered Industrial Trucks Program

A forklift or powered industrial truck is a powerful tool that allows one person to precisely lift and place large heavy loads with little effort. Using a tool such as a forklift, cart, or hand truck instead of lifting and carrying items by hand can reduce the risk of back injury. However, there is a greater risk of injury or death when an operator has not been trained properly, is not familiar with the way a particular forklift operates, operates carelessly, or operates a malfunctioning forklift.

1.345 Operation Qualification

Powered industrial truck operators shall be competent to operate the equipment safely. A competent operator has the necessary education / knowledge, training, and experience to safely perform the job.

1.346 Training

Training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace. Practical training involves instructor demonstrations and trainee exercises.

All operator training and evaluation shall be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence. The training content shall include forklift operating instructions, use of controls, capacity, and load stability as a minimum.

Refresher training in relevant topics shall be provided to the operator when:

- The operator has been observed to operate the vehicle in an unsafe manner,
- The operator has been involved in an accident or near-miss incident,
- The operator has received an evaluation that reveals that the operator is not operating the truck safely,
- The operator is assigned to drive a different type of truck, or
- A condition in the workplace changes in a manner that could affect safe operation of the truck.

Recertification: An evaluation of each powered industrial truck operator's performance shall be conducted at least once every 3 years.

1.347 Trainees

Trainees may operate powered industrial trucks only:

- Under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence; and
- Where such operation does not endanger the trainee or other employees.

1.348 Inspection

Industrial trucks shall be examined before being placed in service and shall not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Such examination shall be made at least daily. Operators must ensure the equipment is safe prior to operating.

Where industrial trucks are used on around-the-clock basis, they shall be examined after each shift. Defects when found shall be immediately reported and corrected.

1.349 Vehicle Certifications

Name plates indicating the capacity are to be current and visible.

Forklifts approved for use in flammable vapor or dust-hazardous areas shall bear a label or some other identifying mark indicating approval by the testing laboratory.

High-lift rider trucks shall be fitted with an overhead guard unless operating conditions make this impossible. If the type of load presents a hazard, the truck shall be equipped with a vertical load backrest extension.

1.350 Truck Operations

Trucks shall not be driven up to anyone standing in front of a bench or other fixed object.

No person is allowed to stand or pass under the elevated portion of any truck, whether loaded or empty.

Unauthorized personnel shall not be permitted to ride on powered industrial trucks. A safe place to ride shall be provided where riding of trucks is authorized.

Arms or legs shall not be placed between the uprights of the mast or outside the running lines of the truck.

Forklifts shall not be used for non-lifting tasks such as pushing or pulling unless recommended by the manufacturer or with the appropriate use of an attachment.

When a powered industrial truck is left unattended, load engaging means shall be fully lowered, controls neutralized, power shut off, and brakes set. Wheels shall be blocked if the truck is parked on an incline.

A powered industrial truck is unattended when the operator is 25 feet or more away from the vehicle which remains in view, or whenever the operator leaves the vehicle, and it is not in view.

A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock, platform, or freight car. Trucks shall not be used for opening or closing freight doors.

Brakes shall be set with wheel blocks in place to prevent movement of trucks, trailers, or railroad cars while loading or unloading. Fixed jacks may be necessary to support a semitrailer during loading or unloading when the trailer is not coupled to a tractor. The flooring of trucks, trailers, and railroad cars shall be checked for breaks and weakness before they are driven onto.

There shall be sufficient headroom under overhead installations, lights, pipes, sprinkler systems, etc.

An overhead guard shall be used as protection against falling objects. It should be noted that an overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application, but not to withstand the impact of a falling capacity load.

A load backrest extension shall be used whenever necessary to minimize the possibility of the load or part of it from falling rearward.

Only approved industrial trucks may be used in hazardous locations.

Fire aisles, access to stairways, and fire equipment shall be kept clear.

1.351 Spotters / Banksman

A risk assessment shall be performed to determine when operators will use spotters / banksman. As guidance, the following shall be considered when determining the need for spotters:

- Pedestrian proximity
- Adjacent traffic / simultaneous operations (SIMOPS)
- Lateral, overhead, or other obstructions exist in the work area
- Blind spots in the vicinity (equipment layout, buildings, trucks, vehicles, etc.)
- Blind spots due to the type of equipment or the load being carried

- Overall visibility (nighttime, rain, etc.)
- Ease of picking up and setting down the load
- Any other reason deemed necessary by the operator(s) or supervisor.

Spotters shall wear a high visibility vest and be in direct visual contact with the operator at all times. In the event the operator loses visual reference of the banksman / spotter they shall stop all equipment movement until they regain line of sight.

Banksman / spotters shall also have a radio that allows them to speak directly with the operator. The channel to be used shall be determined in the toolbox talk prior to the commencement of the task. The channel shall be one that is free from excessive use.

1.352 Traveling

The wearing of a safety belt is mandatory for the driver of a self-propelled vehicle equipped with a roll-over protective structure as well as for any worker in the vehicle while it is in motion. Any persons other than the driver are prohibited from being on a self-propelled vehicle if it is not equipped with a seat and a belt to accommodate each person.

All traffic regulations shall be observed, including authorized speed limits. A safe distance shall be maintained approximately three truck lengths from the truck ahead, and the truck shall be kept under control at all times.

The right of way shall be yielded to ambulances, fire trucks, or other vehicles in emergency situations.

Other trucks traveling in the same direction at intersections, blind spots, or other dangerous locations shall not be passed.

Drivers are required to slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver shall travel with the load trailing.

Railroad tracks shall be crossed diagonally wherever possible. Parking closer than 8 feet from the center of railroad tracks is prohibited.

Drivers are required to look in the direction of and keep a clear view of the path of travel.

Grades shall be ascended or descended slowly.

When ascending or descending grades more than 10%, loaded trucks shall be driven with the load upgrade.

On all grades, the load and load engaging means shall be tilted back, if applicable, and raised only as far as necessary to clear the road surface.

Under all travel conditions the truck shall be operated at a speed that will permit it to be brought to a stop in a safe manner.

Stunt driving and horseplay is not permitted.

Drivers are required to slow down for wet and slippery floors.

Dockboards or bridge plates, shall be properly secured before they are driven over. Dockboards or bridge plates shall be driven over carefully and slowly, and their rated capacity never exceeded.

Elevators shall be approached slowly and then entered squarely after the elevator car is properly leveled. Once on the elevator, the controls shall be neutralized, power shut off, and the brakes set.

Motorized hand trucks shall enter elevator or other confined areas with load end forward.

Running over loose objects on the roadway surface shall be avoided.

While negotiating turns, speed shall be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel shall be turned at a moderate, even rate.

A load engaging means shall be placed under the load as far as possible; the mast shall be carefully tilted backward to stabilize the load.

Extreme care shall be used when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevated is prohibited except to pick up a load. An elevated load shall not be tilted forward except when the load is in a deposit position over a rack or stack. When stacking or tiering, only enough backward tilt to stabilize the load shall be used.

The operator shall verify trailer chocks, supports, and dock plates prior to loading or unloading.

1.353 Maintenance

If at any time a powered industrial truck is found to be in need of repair, defective, or in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition by authorized personnel.

Repairs to the fuel and ignition systems of industrial trucks which involve fire hazards shall be conducted only in locations designated for such repairs.

Trucks in need of repairs to the electrical system shall have the battery disconnected prior to such repairs.

All parts of any such industrial truck requiring replacement shall be replaced only by parts equivalent as to safety with those used in the original design.

Industrial trucks shall not be altered so that the relative positions of the various parts are different from what they were when originally received from the manufacturer, nor may they be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts. Additional counterweighting of fork trucks shall not be done unless approved by the truck manufacturer.

Water mufflers shall be filled daily or as frequently as is necessary to prevent depletion of the supply of water below 75% of the filled capacity. Vehicles with mufflers having screens or other parts that may become clogged shall not be operated while such screens or parts are clogged. Any vehicle that emits hazardous sparks or flames from the exhaust system shall immediately be removed from service and not returned to service until the cause for the emission of such sparks and flames has been eliminated.

When the temperature of any part of any truck is found to be in excess of its normal operating temperature, thus creating a hazardous condition, the vehicle shall be removed from service and not returned to service until the cause for such overheating has been eliminated.

Industrial trucks shall be kept in a clean condition, free of lint, excess oil, and grease. Noncombustible agents shall be used for cleaning trucks. Low flash point (below 100 °F.) solvents shall not be used. High flash point (at or above 100 °F.) solvents may be used. Precautions regarding toxicity, ventilation, and fire hazard shall be consonant with the agent or solvent used.

1.354 Refueling Stations

Refueling stations shall be designated, properly equipped, maintained, and provided with instructions for each type of forklift.

1.355 Battery Charging Station Equipment and Precautions

A carboy tilter or siphon for handling electrolyte and a hose with running water to flush and neutralize a spill are required. When charging batteries, acid shall be poured into the water.

Fire protection in accordance with the size of the forklift shall be provided.

Safety shower and eyewash station shall be provided.

Adequate ventilation for dispersal or removal of hydrogen gas shall be provided.

Non-sparking or coasted battery rack supports, and an overhead hoist or equivalent battery-handling equipment shall be provided.

Trucks shall be properly positioned with brakes applied.

Vent caps shall be kept in place and battery compartment or cover shall be open.

Smoking and open flames shall not be permitted, and efforts shall be made to prevent sparks or electric arcs.

Tools and other metallic objects shall be kept clear of the top of uncovered batteries.

1.356 Gasoline and Diesel Precautions

Fuel tanks shall not be filled while the engine in running.

The tank shall not be filled to the top. Spillage of oil or fuel shall be carefully cleaned up or completely evaporated and the fuel tank cap replaced before restarting engine.

Open flames shall not be used for checking gasoline level in fuel tanks.

Trucks shall not be operated with a leak in the fuel system until the leak has been corrected.

An appropriate portable fire extinguisher shall be provided at the refueling station.

1.357 LP Gas (propane) Precautions

LPG-powered trucks shall not be refueled in confined areas where LPG vapors could collect if a leak occurs.

LPG-powered trucks shall not be left near heat sources, stairways, exits, or other egress areas.

When parking LPG-powered trucks for a long period of time, the service valve shall be turned off.

Only trained and authorized personnel are authorized to replace LPG containers.

Spare tanks shall be stored in an outside shelter with adequate ventilation and an appropriate portable fire extinguisher shall be provided.

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Forklifts & Powered Industrial Trucks Safety Program

Appendix 18 **Forklift/Powered Industrial Truck Inspection Checklist**

General Information **(Internal Combustion Engine Truck – Gas / LPG / Diesel Truck)**			
Operator Name:		Date.:	
Truck No.:		Hours Worked:	
Hour Meter Start of Shift:		End of Shift:	

Record of Fluid Added			
Battery Water:		Hydraulic Oil:	
Fuel:		Engine Oil:	
Radiator Coolant:		Other:	

Meter Reading			
Drive Hour:		Hoist Hour:	

Mark any defective item with an X and give details below. Have a qualified mechanic correct all problems.

Engine Off Checks	**OK**	**Maintenance Required**
Leaks – fuel, hydraulic oil, engine oil, or radiator coolant		
Tires – condition and pressure		
Forks, top clip retaining pin and heel – check condition		
Load backrest – securely attached		
Hydraulic hoses, mast chains, cables and stops – check visually		
Overhead guard – attached		
Finger guards – attached		
Propane tank (LP gas truck) – rust corrosion, damage		
Safety warnings – attached (refer to parts manual for location)		
Battery – check water / electrolyte level and charge		
All engine belts – check visually		

Hydraulic fluid level – check level		
Engine oil level – dipstick		
Transmission fluid level – dipstick		
Engine air cleaner – squeeze rubber dirt trap or check the restriction alarm (if equipped)		
Fuel sedimentor (diesel)		
Radiator coolant – check level		
Operator's manual – in container		
Nameplate – attached and information matches model, serial number, and attachments		
Seatbelt – functioning smoothly		
Hood latch – adjusted and securely fastened		
Brake fluid – check level		
Engine On Checks	**OK**	**Maintenance Required**
Accelerator or direction control pedal – functioning smoothly		
Service brake – functioning smoothly		
Parking brake – functioning smoothly		
Steering operation – functioning smoothly		
Drive control – forward / reverse – functioning smoothly		
Tilt control – forward and back – functioning smoothly		
Hoist and lowering control – functioning smoothly		
Attachment control – operation		
Horn and lights – functioning		
Cab (if equipped) – heater, defroster, wipers - functioning		
Gauges: ammeter, engine oil pressure, hour meter, fuel level, instrument monitors - functioning		

Signatures			
Inspector Signature:		Date:	

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General Information (Electric Truck)			
Operator Name:		Date.:	
Truck No.:		Hours Worked:	
Hour Meter Start of Shift:		End of Shift:	

Record of Fluid Added			
Battery Water:		Hydraulic Oil:	
Fuel:		Engine Oil:	
Radiator Coolant:		Other:	

Meter Reading			
Drive Hour:		Hoist Hour:	

Safety & Operational Checks

Mark any defective item with an X and give details below. Have a qualified mechanic correct all problems.

Motor Off Checks	OK	Maintenance Required
Leaks – hydraulic oil, battery		
Tires – condition and pressure		
Forks, top clip retaining pin and heel – condition		
Load backrest extension – attached		
Hydraulic hoses, mast chains, cables and stops – check visually		
Finger guards – attached		
Overhead guard – attached		
Safety warnings – attached (refer to parts manual for location)		
Battery – water / electrolyte level and charge		
Hydraulic fluid level – dipstick		
Transmission fluid level – dipstick		
Operator's manual in container		

Capacity plate attached – information matches model, serial number, and attachments		
Battery restraint system – adjust and fasten		
Operator protection • Sit-down truck – seatbelt – functioning smoothly • Man-up truck – fall protection / restraining means – functioning smoothly		
Brake fluid – check level		
Motor On Checks	**OK**	**Maintenance Required**
Accelerator linkage – functioning smoothly		
Parking brake – functioning smoothly		
Service brake – functioning smoothly		
Steering operation – functioning smoothly		
Drive control – forward / reverse – functioning smoothly		
Tilt control – forswear and back – functioning smoothly		
Hoist and lowering control – functioning smoothly		
Attachment control – operation		
Horn – functioning		
Lights and alarms (where present) – functioning		
Hour meter – functioning		
Battery discharge indicator – functioning		
Instrument monitors - functioning		

Signatures			
Inspector Signature:		Date:	

34. Front End Loader Safety Program

1.358 Purpose and Scope

The purpose of this program is to mitigate the risks associated with front end loader operations, minimize accidents and injuries, and promote a culture of safety among operators and personnel working in proximity to front end loaders.

This program applies to all Van Kirk Bros. Contracting employees that operate or work near front end loaders.

1.359 Front End Loader Safety

A loader is an implement attached to a tractor by “arms” (hitches) allowing it to be raised and lowered. Loaders lift and move large amounts of materials.

A single or tandem hydraulic pump power implements. A single pump provides power to both the implement and steering causing a loss of steering power when using an implement with a heavy load such as a full loader bucket. A tandem pump provides power to both the steering and implements without robbing either of power.

1.360 Hazards

A front-end loader changes the tractor’s center of gravity reducing its stability and increasing the risk of overturning. Greater instability occurs when the loader is raised as the center of gravity is raised and shifts forward. Uneven or loose terrain, obstacles, sharp turns, and jerky movement also increase instability and chance of rollover. Maneuverability is affected by the loader, especially if it is full. Additional clearance is needed during operation to account for the extra length.

1.361 Before Use

- Read and follow the operator’s manual.
- Use a rollover protection structure (ROPS) and a seatbelt for rollover protection.
- Set wheels at the widest recommend width.
- Add wheel ballast or weights per the operator’s manual.
- Perform a safety/maintenance check before use.
- Front end loaders shall be tested with the loader bucket empty.

1.362 Traveling and Turning

- Travel and turn tractor at low speed.
- Carry load as low as possible to the ground.
- Do not travel with bucket in raised position.
- Do not turn with a load raised above the tractor.
- Keep loaded bucket facing uphill when driving.
- Be alert for overhead powerlines, obstructions, uneven ground, and holes in the ground.
- Keep away from the edges of banks and slopes.

1.363 Loading and Unloading

- Only operate controls when seated on the tractor.
- Slowly and steadily raise and lower loader arms.
- Drive in straight line when loading and unloading.
- Do not try to load and turn at the same time.
- Load bucket evenly and keep load balanced.
- Do not overload. Follow the load limits listed in the operator's manual.

1.364 Safety for Self and Others

- The bucket is not for people. Never lift, carry, or allow anyone to work in the bucket.
- Do not stand, walk, or work under a raised loader or allow others to do so.
- Never move or swing a load with people around.
- Lower the bucket to ground or remove the loader from the tractor when not in use.
- Use the cylinder safety locks or otherwise block a raised loader during maintenance.
- Front end loaders shall be provided with falling object protective structures if used in an area where falling objects could create a hazard to the operator.

35. Gas Hazards Program

1.365 Purpose and Scope

The purpose of this program is to provide information on an awareness level basis about gas hazards in the workplace.

This program applies to all Van Kirk Bros. Contracting employees that work with or around flammable gas.

1.366 Gas Hazards

Working with gases can present a variety of hazards depending on the makeup of the gases. These hazards can cause serious injuries and illnesses.

1.367 Training

Gas hazard awareness training shall be provided before initial assignment and annually thereafter.

Training shall be documented and readily available for review.

Employees shall be aware of the site contingency plan provisions including evacuation routes and alarms. Employees shall participate in emergency evacuation drills and practice rescue procedures.

The Gas Hazard Awareness training shall include at a minimum:

- Locations of alarm stations
- Gas monitoring equipment - portable and fixed detection
- Gas alarms
- Gas hazards - characteristics of gases, to include oxygen deficiency, oxygen or nitrogen enrichment, carbon monoxide and hydrogen sulfide at a minimum. Hazard training shall also include any site-specific gases of concern. Training shall include signs and symptoms of overexposure.
- Personnel rescue procedures
- Use and care of self-contained breathing apparatus (SCBA) - including donning and emergency procedures (if applicable)
- Evacuation procedures
- Staging areas

1.368 Gas Detectors

Each employee shall use a portable gas detector as required in all high gas hazard areas.

The gas monitor shall be calibrated per manufacturer's recommendations and contain a current calibration sticker on the monitor providing the date of calibration.

Bump tests are required to be completed at the beginning of each day the monitor is in use, per the site and manufacturer's guidelines, to ensure the monitor is functioning correctly.

36. Hand and Power Tools Safety Program

1.369 Purpose and Scope

The purpose of this program is to ensure all employees are aware of safe work practices for the use of hand and power tools to prevent or mitigate incidents that may arise from the improper handling of the tools.

This program applies to all Van Kirk Bros. Contracting employees that use hand and power tools on the job.

1.370 Resources

Number	Title
29 CFR 1926 Subpart I	Tools-Hand and Power
29 CFR 1910 Subpart P	Hand and Portable Powered Tools and Equipment, General
Cal/OSHA T8 CCR Subpart 7	General Industry Safety Standards
29 CFR 1910 Subpart I	Personal Protective Equipment
29 CFR 1910 Subpart J	General Environmental Controls
29 CFR 1926 Subpart C	General Safety and Health Provisions

1.371 Definitions

Acronym/Term	Definition
Point of Operation	The area on a machine where work is actually performed upon the material being processed.
Competent Employee / Person	A person who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

1.372 Hand and Power Tools Program

Hand tools are tools that are powered manually. Some examples of hand tools include anvils, axes, chisels, files, hammers, hand boring tools, planes, pliers, punches, saws, industrial scissors, screw drivers, tin snips, and wrenches.

Power tools must be equipped with safety switches and guards (if provided by the manufacturer). Types of power tools are determined by their power source: electric, pneumatic, liquid fuel, hydraulic, and powder actuated.

There is a variety of hazards associated with hand and power tools.

1.373 General

The proper tools for the job shall be selected and employees in the proximity of work shall be alerted. Tools shall be used in accordance with manufacturer;s recommendations.

Employees shall be alert to any potential hazards in the area such as flammable or explosive gases, vapors, dusts, etc. that may ignite if a spark is generated by the tool or from work being done with the tool. Use of tools in an area where flammable gases are normally present which may be explosive shall be electrically rated for service in that area.

All power-driven tools shall be stopped when not in use.

Accidental start-ups shall be avoided. Ensure that the switch or other activating mechanism on the tools is in the "off" position before connecting to the power source.

Operators shall be capable of inspecting the tools to ensure safe operating condition prior to use and be aware of the tool’s limitations and potential hazards.

Before undertaking any maintenance, repair, or unjamming work in a machine's danger zone, the following safety precautions shall be taken:

- Turn the machine's power supply switch to the off position
- Bring the machine to a complete stop
- Each person exposed to danger locks off all the machine's sources of energy in order to avoid any accidental startup of the machine for the duration of the work.

In areas where there is a danger of contact with moving parts, workers shall comply with the following standards:

- Their clothing shall fit well and have no loose flaps
- Necklaces, bracelets, or rings shall not be worn, with the exception of medical alert bracelets
- Anyone with long hair shall tuck it under a bonnet, a hat, or a hairnet

1.374 Training

Training on the safe and proper use of all hand and power tools shall be provided to employees that operate hand and power tools.

Only authorized, trained employees shall operate hand and power tools.

In-house power tool repairs shall be performed by trained technicians.

1.375 Hand and Power Tool Condition and Location

All hand and power tools and similar equipment, whether furnished by the Company or the employee, shall be maintained in a safe condition.

Hand tools and portable power tools shall be examined regularly and if found defective, be repaired or replaced.

The use of any machinery, tool, material, or equipment which is not in compliance with any applicable requirement of this document is prohibited. Such machine, tool, material, or equipment shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operation.

Compressed air shall not be used for cleaning purposes except where reduced to less than 30 psi and then only with effective chip guarding and personal protective equipment (PPE).

Machines designed for a fixed location shall be securely anchored to prevent walking or moving.

1.376 Ergonomics

Awkward postures are postures that strain the neck, shoulders, elbows, wrists, hands or back. Bending, stooping, twisting, and reaching are examples of awkward postures. Tool use and body positioning the work piece will affect your shoulder, elbow, wrist, hand or back posture.

Choose an ergonomic tool requiring the least continuous force and repetitive motion and which can be used without awkward postures. The right tool will help you to minimize pain and fatigue by keeping your neck, shoulders, and back relaxed and your arms at your sides. Avoid raising your shoulders and elbows; relaxed shoulders and elbows are more comfortable and will make it easier to drive downward.

Ergonomic Tools

- A tool becomes “ergonomic” only when it fits the task you are performing, and it fits your hand without causing awkward postures, harmful contact pressures or other safety and health risks.
- If you select and use a tool that does not fit your hand or use the tool in a way it was not intended, you might develop an injury such as carpal tunnel syndrome, tendonitis, or muscle strain.
- These injuries do not happen because of a single event but result from repetitive movements performed over time.

These repetitive movements may result in damage to muscles, tendons, nerves, ligaments, joints, cartilage, spinal discs, or blood vessels.

1.376.1 Selecting and Using the Right Tool

- Make and take the time, before you pick up a tool and begin working to think about the requirements of the job. Do you have the right tools for the job? For optimum safety, find the correct tool or should you rent a specialized tool or hire a professional?
- Select tools designed for the intended and specific use purpose.
- Using a tool for something other than its intended purpose often damages the tool and could cause you pain, discomfort, or injury.
- Assess your workspace to determine which tool will work efficiently and safely in that space.

1.377 Guarding

When power operated tools are designed to accommodate guards, they shall be in place and operable at all times while the tool is in use. The guard shall not be manipulated in such a way that will compromise its integrity or compromise the protection intended. Guarding shall meet the requirements set forth in ANSI B15.1-1953 (R1958), Safety Code for Mechanical Power-Transmission Apparatus.

Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or moving parts of equipment shall be guarded if such parts are exposed to contact by employees or otherwise create a hazard.

One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks. Examples of guarding methods are - barrier guards, two-hand tripping devices, electronic safety devices, etc.

The point of operation of machines whose operation exposes an employee to injury, shall be guarded. The guarding device shall be in conformity with any appropriate standards therefore, or, in the absence of applicable specific standards, shall be so designed and constructed as to prevent the operator from having any body part in the danger zone during the operating cycle.

Special hand tools for placing and removing material shall be such as to permit easy handling of material without the operator placing a hand in the danger zone. Such tools shall not be in lieu of other guarding required but can only be used to supplement protection provided.

When the periphery of the blades of a fan is less than 7 feet above the floor or working level, the blades shall be guarded. The guard shall have openings no larger than 1/2 inch.

Safety guards for bench and floor stands and cylindrical grinders, where the operator stands in front of the opening, shall be constructed so that the peripheral protecting member can be

adjusted to the constantly decreasing diameter of the wheel. The maximum angular exposure above the horizontal plane of the wheel spindle shall never be exceeded, and the distance between the wheel periphery and the adjustable tongue or the end of the peripheral member at the top shall never exceed 1/4 inch.

1.378 Bench and Floor Stands

The angular exposure of the grinding wheel periphery and sides for safety guards used on machines known as bench and floor stands shall not exceed 90 degrees or one-fourth of the periphery. This exposure shall begin at a point not more than 65 degrees above the horizontal plane of the wheel spindle.

1.379 Cylindrical Grinders

The maximum angular exposure of the grinding wheel periphery and sides for safety guards used on cylindrical grinding machines shall not exceed 180 degrees. This exposure shall begin at a point not more than 65 degrees above the horizontal plane of the wheel spindle.

1.380 Positive Accessory Holding Means

All hand-held powered platen sanders, grinders with wheels 2-inch diameter or less, routers, planers, laminate trimmers, nibblers, shears, scroll saws, and jigsaws with blade shanks 1/4 inch wide or less shall be equipped with only a positive "on-off" control.

All hand-held powered drills, tappers, fastener drivers, horizontal, vertical, and angle grinders with wheels greater than 2 inches in diameter, disc sanders, belt sanders, reciprocating saws, saber saws, and other similar operating powered tools shall be equipped with a momentary contact "on-off" control and shall have a lock-on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.

All other hand-held powered tools, such as circular saws, chain saws, and percussion tools without positive accessory holding means, shall be equipped with a constant pressure switch that will shut off the power when the pressure is released.

1.381 Personal Protective Equipment (PPE)

Employees using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dust, fumes, mists vapors, or gases shall be provided with particular PPE necessary to protect them from the hazard.

37. Hazards of Long Hair, Loose Clothing, and Jewelry Program

1.382 Purpose and Scope

The purpose of this program is to raise awareness among employees about the potential hazards and provide guidance on proper attire to ensure their safety and well-being.

This program applies to all Van Kirk Bros. Contracting employees.

1.383 General

Industrial manufacturing, food processing, chemical plants, warehousing, and even office areas have unique hazards.

No matter what type of work done, employees must be aware of these hazards and dress appropriately for the job.

Allowing long hair, including beards, loose clothing, and jewelry to get tangled in moving parts and machinery causes many injuries and deaths each year.

Employees should not wear loose-fitting clothing or jewelry or other items that could become entangled in machinery.

Long hair should be worn under a cap or otherwise contained to prevent entanglement in moving machinery.

Long beards must be covered to prevent entanglement.

1.384 Shirts

When working around moving machinery, always have shirts tucked into pants.

Short sleeve shirts are recommended because short sleeves are less likely to catch on moving parts.

Some jobs such as welding, or handling chemicals may require long sleeve shirts. Check with supervision if unsure.

If a long sleeve shirt must be worn, button the cuffs at the ends of the sleeves.

Van Kirk Bros. Contracting

Hazards of Long Hair, Loose Clothing, and Jewelry Program

1.385 Gloves and Shoes

Many people wear gloves for protection against chemicals and other hazards, but gloves should not be worn around rotating shafts or other moving equipment.

Gloves can be caught on equipment and result in serious hand and arm injuries.

Sturdy shoes or boots made of leather with proper sole construction should be worn in these types of work environments.

Make sure to keep shoelaces tied. Untied laces can become tangled and result in an injury.

1.386 Jewelry

Watches, rings, necklaces, and other types of jewelry can cause serious injuries at work.

The risk of getting jewelry caught on moving machinery is one reason jewelry is not permitted at work.

Most of our body parts that are attached to jewelry that we wear cannot support our body weight. If we slip, fall, or jump and our jewelry catches on a solid object, an amputation, deep cut, laceration, or even strangulation could occur.

In the food industry, jewelry can cause contamination or hygiene problems. Also, earrings, set stones, and other items may fall off into the food products.

1.387 Long Hair

Long hair needs to be controlled so it stays on the head and out of machinery. The best way to do this is to pull it up in a bun or other style and put it under a hair net.

For really long hair or wear a ponytail, two hair nets may be needed to hold it properly.

If hair nets are not needed to meet sanitation requirements, wear it up on the head in a tight style or under a cap.

Some work areas also allow long ponytails to be put down the back of the shirt. Check with supervision to see if this is an option.

Remember that long beards and mustaches can also become caught in machinery and pull a person in face first.

If unsure a hair style is appropriate for a particular work area, check with supervision or a safety representative.

1.388 Other Safety Tips

Only persons trained and authorized to perform maintenance procedures and lockout/tagout should service machines in the workplace.

Never cheat machine guards or use hands to clear jams. If allowed, use an assist tool to clear a jam.

Even if work is not directly with moving parts and rotating shafts, be aware that loose clothing can get caught on other things in the workplace. Forklifts, dollies, cranes, and other material handling equipment can get caught on coats, belts, scarves, or other loose clothing.

Be aware of the hazards in the work area and dress appropriately for the job.

38. Heat Illness Prevention Program

1.389 Purpose and Scope

The purpose of this program is to provide information on the recognition, evaluation, and control of potential heat stress conditions to prevent heat related illnesses.

This program applies to all Van Kirk Bros. Contracting employees.

1.390 Resources

Number	Title
Cal/OSHA T8 CCR Subchapter 7	General Industry Safety Orders-Safe Practices and Personal Protection

1.391 Heat Illness Prevention

Heat stress occurs when the heat load on the body exceeds the body's capacity to cool itself.

Being uncomfortable is not the major problem with working in high temperature and humidity. Employees who are suddenly exposed to working in a hot environment face additional and generally avoidable hazards to their safety and health.

Specific measures must be in place to controls the effects of environmental factors related to heat illnesses and heat related thermal stressors.

Methods of electrolyte replacement must be provided during physical activities in how climates where such activities could bring on heat related illnesses.

1.392 Workplace and Task Evaluation

A thorough evaluation of the workplace may be necessary to identify tasks and conditions that present a potential heat stress hazard. This evaluation should include observations, discussions with employees and supervisors, and the review of any reported heat-related disorders. Physical and other factors that can contribute to heat related illness shall be taken into consideration prior to performing tasks in a heat stress environment, which include but are not limited to:

- Job Location
- Work Duration
- Schedule
- Staffing

- Clothing type, weight, and breathability
- Metabolism
- Environmental conditions (ambient temperature, relative humidity)
- Fitness for duty
- Existing controls (e.g., proper tools and equipment, work/rest ratio, ventilation, cool zones, cool vests, fluid and electrolyte replacement, buddy system, etc.).

1.393 Risk Factors

Physical factors that contribute to heat related illness shall be taken into consideration before performing a task. The most common physical factors that can contribute to heat related illness are type of work, level of physical activity and duration, and clothing color, weight, and breathability.

Personal risk factors include medical conditions, lack of physical fitness, previous episodes of heat-related illness, alcohol consumption, drugs, and use of certain medication.

Supervisors shall ensure personal factors that contribute to heat related illness are taken into consideration before assigning a task where there is the possibility of a heat-related illness occurring.

1.394 Recognition

When the human body cannot maintain the internal body temperature or electrolyte balance, this leads to heat related illness such as heat edema, heat cramps, heat exhaustion, and heat stroke.

The body temperature must be maintained near the normal body temperature of 98.6 °F to function properly. The body is capable of removing excess heat, leading to the following heat related illnesses:

1.394.1 Heat Stroke

Heat stroke is the most serious heat-related illness. It occurs when the body becomes unable to control its temperature: the body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. When heat stroke occurs, the body temperature can rise to 106 °F or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not given. Symptoms include confusion, altered mental status, slurred speech, loss of consciousness, seizures, very high body temperature.

Take the following steps to treat an employee with heat stroke:

- Call 911 for emergency medical care.
- Stay with the employee until emergency medical services arrive.
- Move the employee to a shaded, cool area and remove outer clothing.
- Cool the employee quickly with a cold water or ice bath if possible; wet the skin, place cold wet cloth on skin, or soak clothing with cool water.
- Circulate the air around the employee to speed cooling.
- Place cold wet cloth or ice on head, neck, armpits, and groin; or soak the clothing with cool water.

1.394.2 Heat Exhaustion

Heat exhaustion is the body's response to an excessive loss of the water and salt, usually through excessive sweating. Employees most prone to heat exhaustion are those that are elderly, have high blood pressure, and those working in a hot environment. Symptoms include headache, nausea, dizziness, weakness, irritability, thirst, heavy sweating, elevated body temperature, and decreased urine output.

Treat an employee suffering from heat exhaustion with the following:

- Take them to a clinic or emergency room for medical evaluation and treatment.
- If medical care is unavailable, call 911.
- Someone should stay with employee until help arrives.
- Remove the employee from hot area and give liquids to drink.
- Remove unnecessary clothing, including shoes and socks.
- Cool the employee with cold compresses or have the employee wash head, face, and neck with cold water.
- Encourage frequent sips of cool water.

1.394.3 Rhabdomyolysis

Rhabdomyolysis is a medical condition associated with heat stress and prolonged physical exertion, resulting in the rapid breakdown, rupture, and death of muscle. When muscle tissue dies, electrolytes and large proteins are released into the bloodstream that can cause irregular heart rhythms and seizures and damage the kidneys. Symptoms include muscle cramps / pain, abnormally dark urine, weakness, exercise intolerance, or be asymptomatic.

Employee with symptoms of rhabdomyolysis should:

- Stop activity.
- Increase oral hydration (water preferred).
- Seek immediate care at the nearest medical facility.
- Ask to be checked for rhabdomyolysis (i.e., blood sample analyzed for creatine kinase).

1.394.4 Heat Syncope

A fainting (syncope) episode or dizziness that usually occurs with prolonged standing or sudden rising from a sitting or lying position. Factors that may contribute to heat syncope include dehydration and lack of acclimatization.

Employees with heat syncope should sit or lie down in a cool place and slowly drink water, clear juice, or a sports drink.

1.394.5 Heat Cramps

Heat cramps usually affect employees who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture levels. Low salt levels in muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

Employees should drink water and have a snack and/or carbohydrate-electrolyte replacement liquid every 15 to 20 minutes. Salt tablets should be avoided. Get medical help if the employee has heart problems, is on a low sodium diet, or if cramps do not subside within one hour.

1.394.6 Heat Edema

Heat causes the blood vessels to expand, so body fluid moves into the hand or legs by gravity.

Mild edema usually goes away on its own, particularly if the affected limb is raised higher than the heart.

1.394.7 Heat Rash

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather. Symptoms include what looks like red cluster of pimples or small blisters that usually appear on the neck, upper chest, groin, under the breasts, and in elbow creases.

Employees experiencing heat rash should:

- When possible, a cooler, less humid work environment is best treatment.
- Keep rash area dry.

- Powder may be applied to increase comfort.
- Ointments and creams should not be used.

1.395 Evaluation

The Heat Index should be used as a reference or indicator to define the general overall heat stress conditions. The Heat Index is also known as the “effective / feels like temperature”.

The Heat Index is based on relative humidity and air temperature. It is predictive of heat stress in circumstances in which the relationship has been established for a particular environment. Heat Index indicates thermal comfort.

1.396 Controls

Employees shall have access to fresh, pure, and suitably cool potable drinking water at no charge. Where it is not plumbed or otherwise continuously supplied, it shall be provided in sufficient quantity at the beginning of the work shift, but not less than one quart per hour per employee.

At or below 80 degrees Fahrenheit employees shall have timely access to shade that is either open to the air or provided with ventilation or cooling upon request. For temperatures at or above 80 degrees Fahrenheit, one or more areas with shade shall be provided at all times while employees are present. Shade shall accommodate the number of employees on recovery or rest periods at all times.

In high temperatures, the following shall be considered:

- Effective communication by voice or electronic means.
- Observation of employees for alertness and signs / symptoms of heat illness.
- Designation of employees on each worksite to call for emergency medical services.
- Reminders to drink water throughout the shift.
- Pre-shift meetings before beginning work.
- Reminders to employees of their right to take a cool-down rest when necessary.

An individual at the worksite shall be responsible for monitoring conditions and implementing the heat plan throughout the workday. This individual can be a foreman, jobsite supervisor, safety director, or anyone else with the proper training.

Engineering controls such as air conditioning, with cooled air, and increased air flow shall be employed. During their first few days in warm or hot environments, employees should consume

adequate fluids, work shorter shifts, take frequent breaks, and quickly identify any heat illness symptoms.

1.396.1 Acclimation

Acclimatization is the beneficial physiological adaptations that occur during repeated exposure to a hot environment.

To acclimatize employees, gradually increase their exposure time in hot environmental conditions over a 7-to-14-day period. New employees will need more time to acclimatize than employees who have already had some exposure.

For new employees, the schedule should be no more than a 20% exposure on day one and an increase of no more than 20% on each additional day.

For employees who have had previous experience with the job, the acclimatization regimen should be no more than a 50% exposure on day one, 60% on day two, 80% on day three, and 100% on day four.

In addition, the level of acclimatization each employee reaches is relative to the initial level of physical fitness and the total heat stress experienced by the individual.

1.397 Training

The program shall include:

- The environmental and personal risk factors for heat illness.
- Company procedures for complying with the requirements of the standard.
- The importance of frequent consumption of small quantities of water, up to four cups per hour, when the work environment is hot, and employees are likely to be sweating more than usual in the performance of their duties.
- The importance of acclimatization.
- The different types of heat illness and the common signs and symptoms of heat illness.
- The importance to employees of immediately reporting to the employer, directly or through the employee's supervisor, symptoms, or signs of heat illness in themselves, or in co-workers.
- Company procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary

- Company procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by an emergency medical service provider.
- Company procedures for ensuring that, in the event of an emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders.

Supervisors shall be trained in heat related illness prior to supervision of employees working in the heat. Training shall include:

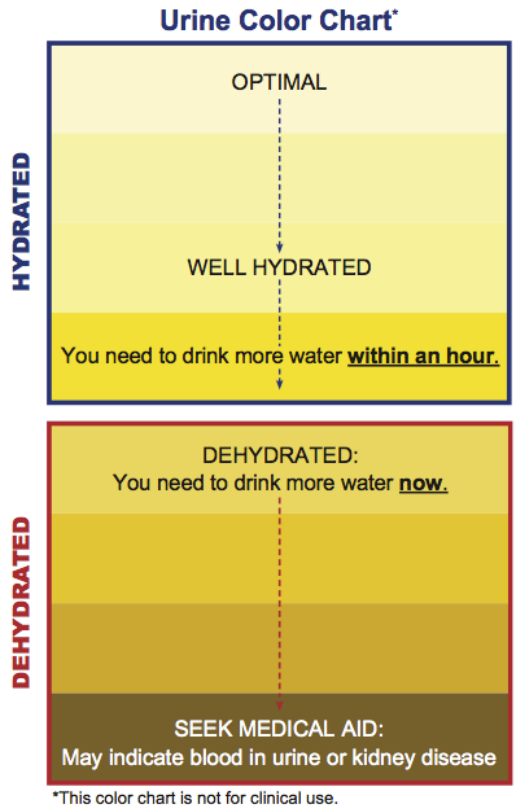
- The procedures the supervisor is to follow to implement the applicable procedures to prevent heat illness.
- The procedures the supervisor is to follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.

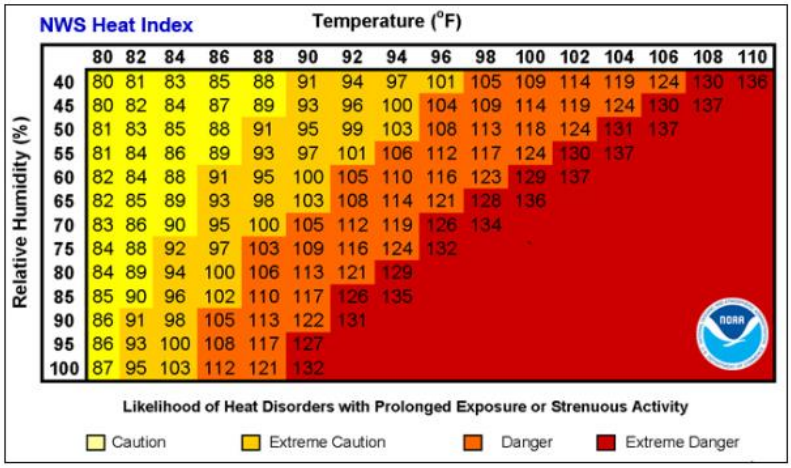
1.398 Emergency Response

When any heat-related illness symptom is present, promptly provide first aid to the affected employee. First aid for heat related illness includes:

- Taking the affected employee to a cooler area,
- Cooling the employee immediately,
- Never leave an employee with heat-related illness alone, and
- When in doubt, call 911.

Appendix 19 Hydration Chart and Heat Index





Heat Category	WBGT Index, °F	Easy Work	Moderate Work	Hard Work
		Water Intake (Quart/Hour)	*Water Intake (Quart/Hour)*	*Water Intake (Quart/Hour)*
1	78° - 81.9°	½	¾	¾
2	82° - 84.9°	½	¾	1
3	85° - 87.9°	¾	¾	1
4	88° - 89.9°	¾	¾	1
5	> 90°	1	1	1

39. Heavy Equipment Safety Program

1.399 Purpose and Scope

The purpose of this program is to mitigate risks, prevent accidents, and protect the well-being of individuals operating and working around heavy equipment.

More than 100 people each year are killed by mobile heavy equipment.

These are the main causes of death:

- Workers on foot are struck by equipment, usually when it is backing up or changing direction.
- Equipment rolls over and kills the operator while on a slope or when equipment is loaded or unloaded from a flatbed/lowboy truck.
- Operators or mechanics are run over or caught in equipment when the brakes are not set, equipment is left in gear, wheel chocks are not used, or the equipment and controls are not locked out.
- Workers on foot or in a trench are crushed by falling equipment loads, backhoe buckets, or other moving parts.

This program applies to all Van Kirk Bros. Contracting employees that work with heavy equipment.

1.400 Training

Training will be provided for employees whose job activities involve the use of heavy equipment.

Training and competency requirements for heavy mobile equipment operators are crucial to ensure safety, efficiency, and compliance with regulations in industries such as construction, mining, agriculture, and logistics. The specific requirements may vary depending on the type of equipment and local regulations. Following are general training and competency requirements in accordance with local jurisdiction:

- Basic Training:
  Attend a formal training program specific to the type of heavy mobile equipment to be operated. This training should cover the fundamentals of equipment operation, safety procedures, and maintenance.
- Classroom Instruction:
  Classroom instruction should cover topics such as:

  - Equipment components and controls
  - Safety regulations and standards
  - Hazard identification and risk assessment
  - Pre-operation inspection and maintenance
  - Emergency procedures and response
- Practical Training:
  Hands-on training under the supervision of an experienced operator or instructor is essential. Trainees should become proficient in operating the equipment safely and effectively.
- Certification and Licensing:
  Depending on the jurisdiction, heavy equipment operators may need to obtain a license or certification to operate specific types of equipment. This may require passing written and practical exams.
- Equipment-Specific Training:
  Operators should receive equipment-specific training for the type of heavy mobile equipment they will operate, such as bulldozers, excavators, cranes, forklifts, or dump trucks.
- Site-Specific Training:
  Training should include knowledge of the specific work site, including potential hazards, safety protocols, and site-specific rules and regulations.
- Safety Training:
  Comprehensive safety training is essential and should cover:
  - Safe equipment operation techniques
  - Load handling and securement
  - Traffic control and work zone safety
  - Personal protective equipment (PPE) usage
  - Emergency shutdown procedures
  - Communication protocols
- Maintenance and Inspection Training:
  Operators should be trained in routine equipment maintenance, including daily inspections and basic troubleshooting. This ensures that operators can identify and address minor issues before they become major problems.

- Continuous Education:
  Operators should stay updated with the latest safety regulations, equipment advancements, and industry best practices through ongoing training and education programs.
- Competency Assessment:
  Regularly assess operators' competency through practical evaluations, written tests, and performance reviews. This ensures that operators continue to meet safety and proficiency standards.

1.401 General Operation

All employees must follow specific procedures when working on, with, or around heavy equipment, such as:

- Dump trucks,
- Backhoes,
- Trenching machines,
- Side booms,
- Bulldozers,
- Gas shovels,
- Air compressors, and
- Front-end loaders.

1.402 General Operation Procedures

All employees must obtain and keep current the proper operator license for each type of vehicle that is operated.

The Company will provide adequate training on vehicle operation, maintenance and safety to the employees performing such work.

Before using heavy equipment, test and check it to be sure it is in proper operating condition as per manufacturer specifications.

When leaving heavy equipment, lower suspended equipment, shut off the power, and set the brakes.

Be sure that people can hear the truck's warning signals and only use them only when necessary.

Make sure to stop a safe distance from other trucks or pedestrians.

Always give pedestrians the benefit of the doubt, as they may be deaf or wearing hearing protection.

Only authorized maintenance and repairmen are allowed to work on the equipment mechanism.

When transporting a load, always keep it as low as possible and tilted toward the body of the equipment.

All equipment left unattended at night, adjacent to a highway in normal use, or adjacent to construction areas where work is in progress, must have appropriate lights or reflectors, or barricades equipped with appropriate reflectors, to identify the location of the equipment.

Where traffic is diverted on to dusty surfaces, good visibility must be maintained by the suppression of dust, through the periodic application of brine or water to the grade surface, as required.

Do not operate heavy equipment, a vehicle or power tools, within 10 feet of any power line or electrical distribution.

Personnel must not get on or off the machine while the machine is in motion.

Riders, except mechanics and persons in training to operate equipment, must not be allowed on equipment unless a seat with a seatbelt is provided and used.

1.403 General Safety and Maintenance

All employees are responsible for the following:

Placing substantial blocking under any chain-hoist-suspended or jack supported equipment under which people must work. (The operator of the equipment should never leave the controls while shovels are suspended without blocking).

Work must not occur in areas where passing automobiles or moving machinery result in a hazardous condition.

All work areas must be provided with proper ventilation.

Employees must not work in areas where they are exposed to excessive carbon monoxide gas from exhausts of running engines.

Do not keep gasoline in open containers or pits.

Use a reasonably nontoxic solvent with a high flash point for cleaning parts. Never use gasoline or tetrachloride.

Ask for help or use a hoist to lift unusually heavy loads.

Keep wrenches or tools clean and in safe working condition

Secure unbolted heavy parts or engines if necessary, to leave the work.

Wear goggles when eye protection is needed.

Aisles and open spaces must be kept free of tools and parts.

Change clothes that become soaked with oil or gasoline to prevent risk of a fire.

Make sure that all lock washers and cotter pins are in place before deeming the maintenance work complete.

Always keep a suitable fire extinguisher ready. Inspect fire extinguishers regularly and keep them in good operating order.

Enforce no-smoking rules.

Ground electric appliances and keep them in good working condition. Ensure that sparking will not ignite gases or vapors. Do not permit live cords to touch workers.

Put oily rags in closed metal containers for disposal after use.

Review personal-protection provisions for arc welders before attempting such work.

No repairs on a blade or dozer equipment will be permitted unless the motor has been stopped and the dozer blade is resting on the ground or securely blocked.

Tire rack, cage, or equivalent protection shall be provided and used when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locking rings or similar device.

Heavy machinery, equipment, or parts thereof, which are suspended or held aloft by use of slings, hoists, or jacks shall be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between them.

1.404 Heavy Equipment Engineering Controls and Work Practices

All vehicles must have:

- A service brake system, an emergency brake system, and a parking brake system.
- Working headlights, taillights, and brake lights
- An audible warning device (horn).
- Intact windshield with working windshield wipers.

Ensure that all operators have been trained on the equipment they will use.

Check vehicles at the beginning of each shift to ensure that the parts, equipment, and accessories are in safe operating condition. Repair or replace any defective parts or equipment prior to use.

Do not operate vehicle in reverse with an obstructed rear view unless it has a reverse signal alarm capable of being heard above ambient noise levels or a signal observer indicates that it is safe to move.

Vehicles loaded from the top (e.g., dump trucks) must have cab shields or canopies to protect the operator while loading.

Ensure that vehicles used to transport workers have seats, with operable seat belts, firmly secured and adequate for the number of workers to be carried.

Equipment should have roll-over protection and protection from falling debris hazards as needed.

Prior to permitting construction equipment or vehicles onto an access roadway or grade, verify that the roadway or grade is constructed and maintained to safely accommodate the equipment and vehicles involved.

Do not modify the equipment's capacity or safety features without the manufacturer's written approval.

Where possible, do not allow debris collection work or other operations involving heavy equipment under overhead lines.

1.405 Material Falling from Vehicles Engineering Controls and Work Practices

Do not overload vehicles.

Ensure that loads are balanced and are fully contained within the vehicle. Trim loads, where necessary, to ensure loads do not extend beyond the sides or top of the vehicle.

Cover and secure loads before moving the vehicle.

1.406 Fueling Engineering Controls and Work Practices

Ensure that ignition sources are at least 25 feet away from fueling areas.

Prohibit smoking in fueling areas.

Ensure that vehicles are attended while being fueled.

40. Housekeeping Program – Slips, Trips, and Falls

1.407 Purpose and Scope

The purpose of this program is to mitigate the risks associated with slip, trip, and fall accidents by implementing effective housekeeping practices and promoting awareness.

This program applies to all Van Kirk Bros. Contracting employees.

1.408 Housekeeping – Slips, Trips, and Falls

Many workers are injured annually due to falls on walking and working surfaces. These injuries account for a significant percentage of lost-time injuries. Not only are slips, trips, and falls an economical loss, but they also account for a lot of pain and suffering and sometimes even death. It is important to understand how slips, trips, and falls happen, how to identify hazards, and how to eliminate or minimize these hazards.

1.409 Slips

Slips happen because of a lack of friction or traction between the footwear we are wearing and the walking surface. Some common causes of slips are:

- Spills
- Hazards created from weather (e.g., puddles, ice)
- Surfaces that are wet or oily
- Loose rugs or mats

1.410 Trips

Trips occur when your foot strikes or hits an object which causes you to lose your balance. Common causes of tripping are:

- Clutter on the floor (e.g., power cords, boxes)
- Poor lighting
- Uneven walking surfaces (e.g., carpeting, steps, thresholds)
- Sudden change in slip resistance properties of walking surfaces (e.g., wet floor or stepping from tiled to thick pile carpeted floors)

1.411 Falls

Falls can occur from a height or on surfaces that are on the same level. A fall can be the result of a slip or a trip where your center of gravity is shifted causing you to lose your balance. Preventive measures should be taken to avoid slips and trips.

1.412 Preventing Slips, Trips, and Falls

When there is an unexpected change in the contact between your feet and the ground or walking surface, the result is usually a slip or trip. This demonstrates the importance of training and educating employees about the hazards, selecting suitable walking surfaces, having proper housekeeping standards, and wearing proper footwear to prevent falls. Here are a few different methods of controlling hazards leading to slips, trips, and falls.

1.412.1 Training and Education

It is very important that all employees be trained on recognizing hazards related to slips, trips, and falls in their workplace. Many employees are not aware that they can contribute to the risks of a slip, trip, and fall hazard through typical work tasks. A couple of examples of an employee creating hazards through work habits are:

- Leaving a mess behind after completing a task by not following workplace housekeeping standards after receiving training to do so.
- Putting boxes in walkways, on the stairs, or in high traffic areas where there are designated storage spaces and racks.

Workplace policies and employee behavior have significant impact on the incidence of slips, trips, and falls. Time pressures for completing tasks can cause behaviors such as rushing, not paying attention, and being unaware of hazards due to a lack of training can mistakenly be seen as carelessness. Workplaces should identify potentially dangerous hazards and behaviors and control or eliminate them through education and communication.

Employees need to know how to properly identify, report, or eliminate any hazards that can be encountered in their work; this may require specific standards and training. For example:

- Good housekeeping standards should be set with provided supervision, information, and training.
- Employees should be trained on spill cleanup and proper disposal of spilled materials such as chemicals, oils, inks, coolants, grease, etc.
- Employees should be trained on how to prevent falls on icy, wet, and unstable conditions (loose gravel or sand).

1.412.2 Walking Surfaces

The quality of walking surfaces is critical in preventing slip and trips. Flooring should be regularly maintained to eliminate tripping hazards, such as bunched carpet, chipped tile or hardwood, missing tiles, etc. Replacing floors, installing mats, or resurfacing floors can help to improve safety and reduce the risk of falling. However, it is important to remember that improving the quality of the flooring also requires good housekeeping practices to be effective.

Weather is also a significant factor in relation to slips, trips, and fall hazards. Rain, snow, ice, leaves, mud, etc., can all become hazards. Parking lots, walkways, stairs, and other high traffic areas should be monitored frequently for any of the identified hazards and control measures should be put in place to remove / eliminate these hazards.

1.412.3 Lighting

Any lighting that is not working should be repaired immediately. Any identified dark areas should be well lit to avoid tripping over hazards or slipping due to a change in floor condition.

1.412.4 Housekeeping

Good housekeeping is very important when working to prevent falls due to slips and trips.

Without having good housekeeping practices, preventive measures (e.g., specialty footwear or floor surfaces) will not be fully effective. Good housekeeping includes:

- Provide housekeeping standards training for employees and supervisors before starting work.
- Clean up any spills immediately and investigate the cause to prevent reoccurrence.
- Immediately correct any hazard that might cause a fall or report it to a supervisor.
- Keep walkways and floors clear of boxes, extension cords, and litter.
- Sweep debris from floors.
- Move anything that is stored on or near stairways or report the hazard to a supervisor.
- Mark any temporarily made wet areas with signs or limit pedestrian access.
- Secure mats, rugs, and carpets to prevent slippage and overlaps.
- Make sure to always close file cabinet or storage drawers.
- Cover cables that cross over walkways.
- Keep walkways and work areas well-lit for good visibility

1.412.5 Footwear

When selecting proper footwear, it is important that it be appropriate safe footwear for the work environment (e.g., slip-resistant safety shoes or boots in an agricultural work environment, factory or warehouse). Footwear that fits properly, increases comfort and helps to prevent fatigue, which also improves safety for employees.

1.412.6 Working on the Same Level

- Take your time and pay attention to where you are going.
- Adjust your pace to suit the walking surface (e.g., wet, rough, icy, sloped or cluttered).
- Make wide turns at corners.
- Use a flashlight if you enter a dark room where there is no light.
- When carrying a load, be sure that there is clear visibility over or around the load.
- Close cabinet doors and drawers.
- Hold handrail when going up or down stairs.
- Floor openings should be guarded by a standard fixed railing surrounding the hole.
- Walk when using stairways – do not run.
- Open, exposed stairways should have a railing – be sure to use it.
- Closed stairways should have at least one handrail.
- Keep stairways uncluttered.
- Keep platforms or steps on machinery clean and dry
- Use handholds, handrails, and steps provided on riding machinery (e.g., lift trucks, tractors) when mounting or dismounting, using the 3-point system (both hands and one foot or one hand and two feet on the machine at all times).

1.412.7 Pictograms

Below are pictograms that can be used when setting workplace standards and providing training to help warn against specific hazards related to slips, trips, and falls or when using stairs. For each hazard warning pictogram there is a corresponding one that demonstrates control information for that hazard.

Trip Hazard

Control

Slip Hazard

Control

Fall on Stair Hazard

Control

41. Incident Investigation and Reporting Program

1.413 Purpose and Scope

The purpose of this program is to define the company incident investigation and reporting procedures.

This program applies to all Van Kirk Bros. Contracting employees.

1.414 Resources

Number	Title
30 CFR 250	SEMS-Incident Investigations
29 CFR 1926 Subpart C	General Safety and Health Provisions-Recording and Reporting of Injuries
N/A	OSHA Incident Investigations Guide for Employers
CMS-FM-0029	Incident Reporting Form
CMS-FM-0030	Incident Investigation Report
CMS-FM-0042	Injury / Illness Recording Flowchart
CMS-FM-0037	Incident Workplace Related Flowchart
CMS-FM-0038	Injury and Illness Classification Chart

1.415 Definitions

Acronym/Term	Definition
Hazard	A situation or an inherent property with the potential to cause harm to personnel, assets, the environment, or the company's reputation.
Hazard Observation	An unsafe condition that could lead to an incident involving people, environment, or property.
Incident	An unplanned, undesired event that can result in physical harm and/or property A work-related event in which an injury or ill-health (regardless of severity) or fatality occurred or could have occurred.
Investigation	To derive a level of understanding from a systematic gathering and subsequent analysis of information.
Near Miss/Near Hit	Incidents with no injury or property or environmental damage but having the potential to cause injury or property or environmental damage under slightly different circumstances. This could include an unsafe act.
Work Related Injury or Illness	An event or exposure in the work environment that caused or contributed to the condition or significantly aggravated a pre-existing condition.

1.416 Incident Investigations

When notification of a work-related incident is received, qualified personnel shall be appointed to complete an investigation of the incident. Qualified personnel shall be knowledgeable in investigation techniques, processes involved, and other relevant specialties. The investigation should take place as soon as possible after the incident occurs. While all incidents, regardless of size and impact, including fatalities, injuries, illness, and near misses should be investigated, the extent of such investigation shall reflect the seriousness of the incident. First aid incidents shall be investigated but minimal resources may be required.

Prior to an incident occurring, assignments shall be made establishing responsibility for how and when management is to be notified; who will conduct investigations and what training they should have received; who will receive investigation recommendations; and, who is responsible for implementing corrective actions.

Before investigating, all emergency response needs shall be completed, and the incident site shall be safe and secure for entry and investigation.

At a minimum, the incident investigation program shall address:

- The nature of the incident.
- Human or other contributing factors leading to the incident.
- Recommended changes identified as a result of the investigation.

1.417 Reporting

When an employee is involved in a work-related incident or is aware of a condition that may cause one, the employee must report the incident to Management as soon as possible. Incidents include near misses, injuries, illnesses, property damage, etc.

Fatalities shall be reported to OSHA within 8 hours of their discovery. Inpatient hospitalizations, amputations, and loses of an eye shall be reported to OSHA within 24 hours. Incidents shall also be reported to the host client / site operator as soon as possible, or in a timely manner (within 24 hours of incident).

The company must report severe injuries and/or fatalities using one of the following methods: (a) by telephone or in person to the OSHA Area Office that is nearest to the site of the incident, (b) by telephone to the OSHA toll-free central telephone number, 1-800-321-OSHA (1-800-321-6742), or by electronic submission using the reporting application located on OSHA's public web site at www.osha.gov.

1.418 Training

Members of the incident investigation team shall be qualified / competent individuals. Training shall be provided on investigation techniques used during an incident investigation. Personnel shall be trained in their roles and responsibilities for incident response and incident investigation techniques.

1.419 Roles and Responsibilities

Incident Investigator: The primary role of the incident investigator is to lead the investigation process. Their responsibilities include:

- Planning and organizing the investigation.
- Gathering evidence and conducting interviews.
- Analyzing data and identifying root causes.
- Developing recommendations for prevention and mitigation.
- Preparing and presenting investigation reports.

Team Members: Depending on the complexity of the incident, the investigator may work with a team. Team members' responsibilities include:

- Assisting with evidence collection and analysis.
- Conducting interviews and documenting statements.
- Reviewing relevant documents and records.
- Providing technical expertise or subject matter knowledge.
- Collaborating with the investigator to identify root causes.

Subject Matter Experts: In certain investigations, subject matter experts may be involved to provide specialized knowledge or expertise related to the incident. Their responsibilities include:

- Providing technical guidance and support.
- Analyzing specific aspects of the incident.
- Assisting with data interpretation and analysis.
- Recommending corrective actions based on their expertise.

Interviewers: Interviewers play a crucial role in gathering information from individuals involved in the incident. Their responsibilities include:

- Conducting interviews with witnesses, victims, and involved parties.
- Documenting interviewee statements accurately and objectively.
- Probing for additional details and clarifications.
- Maintaining confidentiality and professionalism during interviews.

Evidence Collectors: Individuals responsible for collecting evidence have the following responsibilities:

- Identifying and documenting physical evidence at the incident site.
- Taking photographs, measurements, and samples, if applicable.
- Ensuring proper handling and preservation of evidence.
- Maintaining a chain of custody for the collected evidence.

Documentation Specialists: Accurate and comprehensive documentation is crucial for incident investigations. Documentation specialists are responsible for:

- Recording all relevant information, actions, and findings.
- Organizing and cataloging collected evidence and documentation.
- Maintaining a centralized repository for investigation records.
- Preparing clear and concise reports.

Legal and Compliance Advisors: Depending on the nature of the incident, legal and compliance advisors may be involved. Their responsibilities include:

- Providing guidance on legal requirements and compliance obligations.
- Assessing the potential legal implications of the incident.
- Ensuring the investigation adheres to legal and regulatory standards.
- Reviewing investigation findings and recommendations for legal compliance.

1.420 Evidence Collection

Initial identification of evidence may include:

- A listing of people, equipment, and materials involved.
- A recording of environmental factors such as weather, illumination, temperature, noise, ventilation.

- Physical factors such as fatigue, age, and medical conditions.

Incident information can be collected through interviews, document reviews and other means including: equipment manuals, industry guidance documents, Company policies and records, maintenance schedules, records and logs, training records, audit and follow-up reports, enforcement policies and records, and previous corrective action recommendations.

Witness interviews and statements shall be collected. Evidence shall be preserved using cones, tapes, and/or guards, secured, and collected through notes, photographs, witness statements, flagging, and impoundment of documents and equipment.

1.421 Corrective Action

Corrective action programs shall be established based on the findings of the incident investigation. The investigation shall be expedited, and findings and recommendations resolved in a timely manner. Corrective action programs shall analyze incidents for root causes and shall, at a minimum:

- Retain incident investigation findings for future hazard analysis or 2 years; whichever is greater.
- Determine and document responses to findings to ensure corrective action plans are completed.
- Implement a system to distribute incident investigation findings to appropriate personnel and/or similar facilities throughout the organization.

1.422 Incident Investigation Report

Incident investigations shall be documented. Participants shall prepare a written report including the description of the incident, any evidence collected during the investigation, an explanation of the causes of the incident, and corrective actions.

The written incident investigation report shall include any immediate corrective actions that were taken as well as any long-term actions that are required to prevent the recurrence of the incident.

Incident facts may include:

- The injured employee's name
- Injury description
- Whether they are temporary or permanent
- The date and location of the incident

Document the investigation such as date of the investigation and who is investigating. Investigators may also document the scene by video recording, photographing, and sketching.

1.423 Lessons Learned

Lessons learned shall be reviewed and communicated. Changes to processes shall be placed into effect to prevent reoccurrence or similar events. Corrective actions shall be supported by senior management.

Van Kirk Bros. Contracting

Incident Investigation Program

Appendix 20 **Incident Reporting Form**

General Information							
Incident No. / Title:	**Facility / Project Name:**					☐ **Near Miss**	
						☐ **Equipment Damage / Production Loss**	
						☐ **Employee Injury / Illness**	
						☐ **Environmental**	
Logistics of Incident							
Incident Date:		**Location:**		**Weather:**		**Meet/assist notified?**	
Incident Time:		**Project /Contract:**		**Wind:**		**How injured transporter?**	
Shift		**Specific Activity:**		**Other:**		**Location/time of meet?**	
						Destination?	

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Incident Investigation Program

Relevant Personnel					
Manager:		**Other:**		**Witness:**	
First Responder:					
Medic:					
Supervisor:					

Persons Involved in Incident									
Name	**Company**	**Title**	**Employee ID**	**Days on Shift**	**Length of Service**	**Type of Incident**	**Body Part**	**Side of Body**	**Primary Diagnosis (Doctor)**

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Incident Investigation Program

Description of Incident

Initial Actions Taken to Mitigate Risks and/or Prevent Escalation or Recurrence

Notifications Made

Entity Name	Name of Individual	Individual's Title	Date	Time

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Incident Investigation Program

Signatures			
Printed Name:		**Date:**	
Signature:		**Comments:**	

Van Kirk Bros. Contracting

Incident Investigation Program

Appendix 21 **Incident Investigation Report**

General Information			
Company Name:		**Date:**	
Team Member Name:		**Title:**	

Incident Description / Injury Information					
Name of Injured Employee:					
Employee's Age:					
Employee's Job Title:					
Job at Time of Injury:					
Type of Employment:	**☐ Full-time**	**☐ Part-time**	**☐ Temporary**	**☐ Seasonal**	**☐ Other:**
Date of Incident:		**Time of Incident:**			
Length of Time with Company:					
Time in Current Position:					
Location of Incident:					
Description of Injury:					

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Incident Investigation Program

Detailed Description of Incident
Include relevant events leading up to, during, and after the incident, preferably provided by the injured employee.
Eyewitness Description of Incident
Include relevant events leading up to, during, and after the incident. Include names of persons interviewed, job titles, and date and time of interviews.

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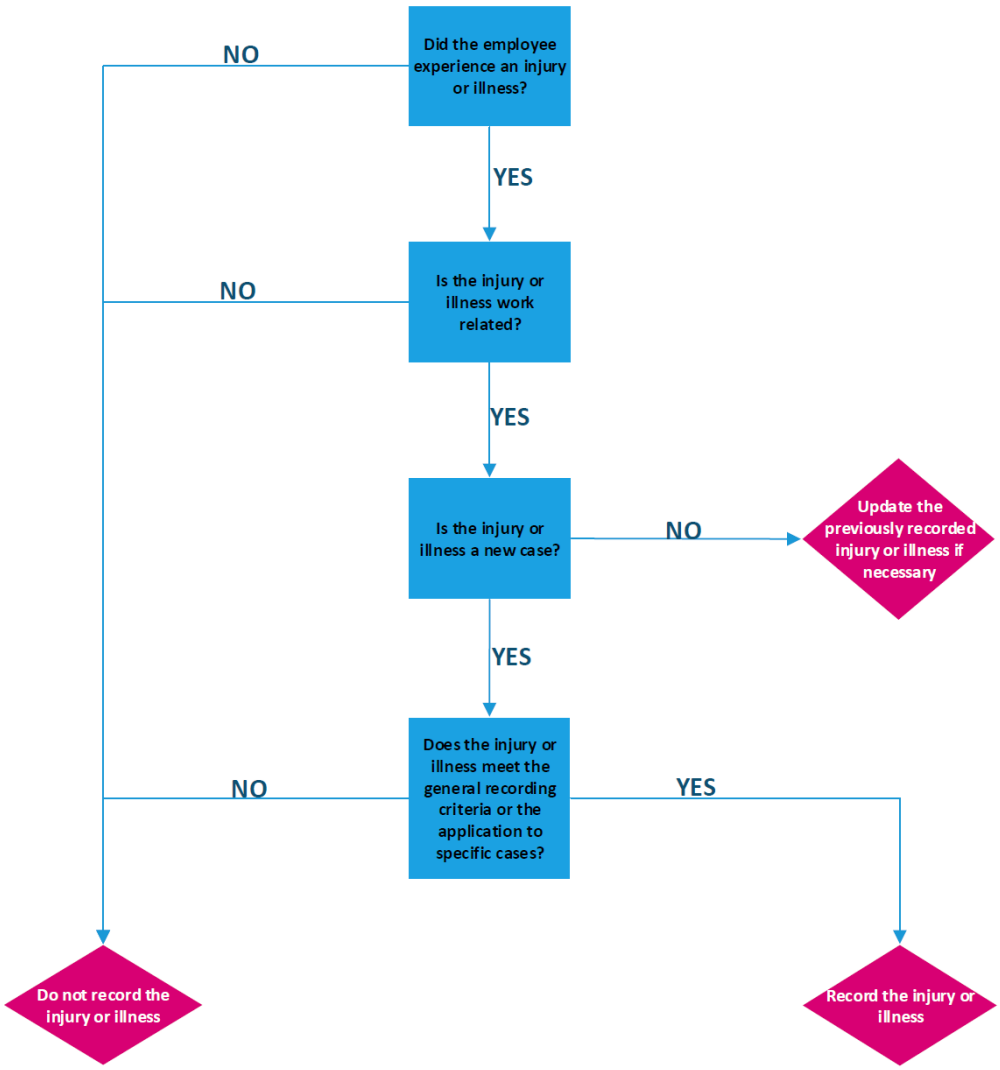
Incident Investigation Program

Description of Incident from Additional Employees with Knowledge
Include relevant events leading up to, during, and after the incident. Include names of persons interviewed, job titles, and date and time of interviews.
Identify the Root Cause
What caused or allowed the incident to happen?
The root causes are the underlying reasons the incident occurred and are the factors that need to be addressed to prevent future incidents. If safety procedures were not being followed, why were they not being followed? If a machine was faulty or a safety device failed, why did it fail? It is common to find factors that contributed to the incident in several of these areas: equipment/machinery, tools, procedures, training or lack of training, and work environment. If these factors are identified, it must be determined why these factors were not address before the incident.

Recommended Corrective Actions to Prevent Future Incidents
Corrective Actions Taken / Root Causes Addressed

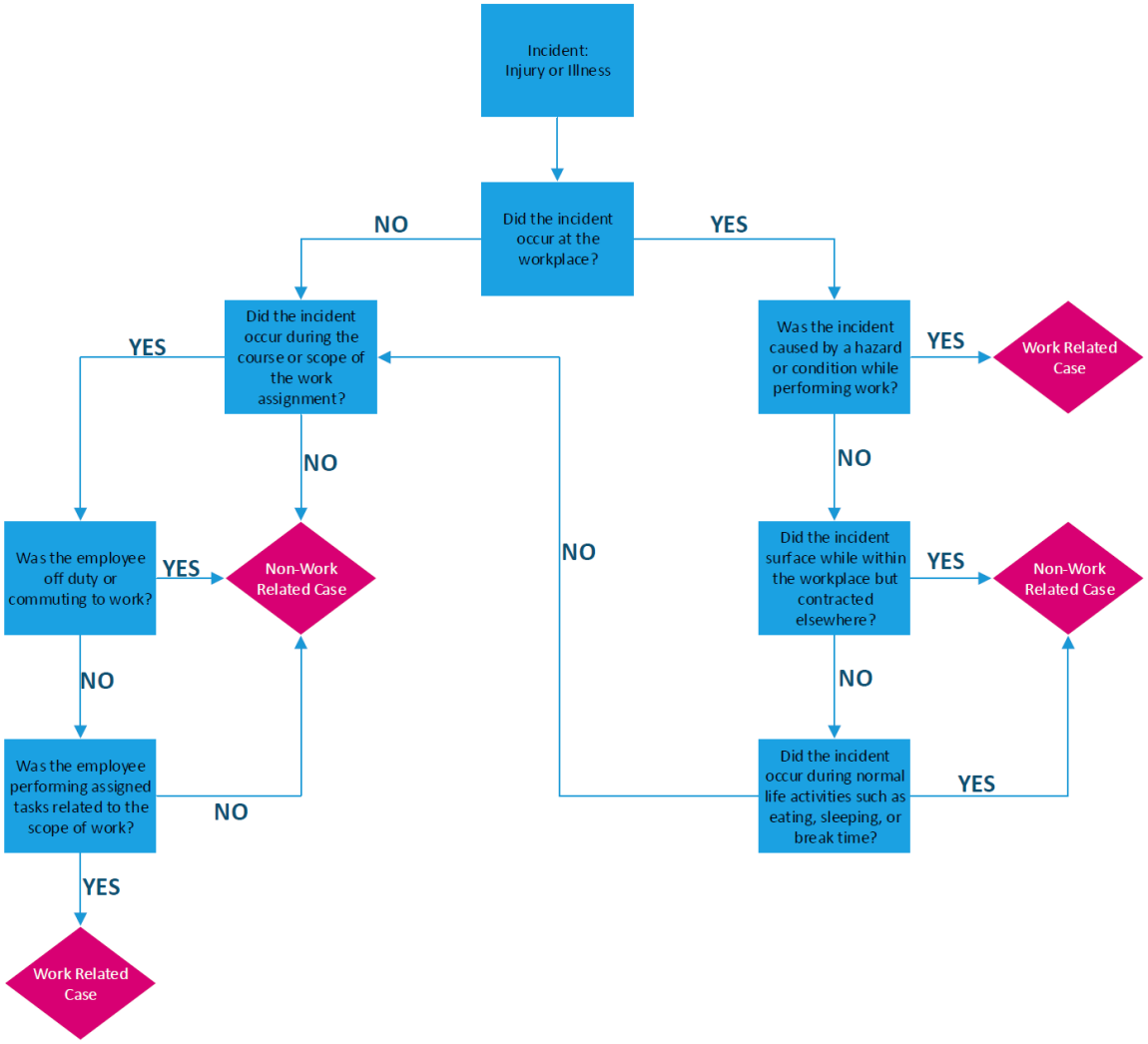
Appendix 22 **Injury / Illness Recording Flowchart**

Injury / Illness Recording Flowchart

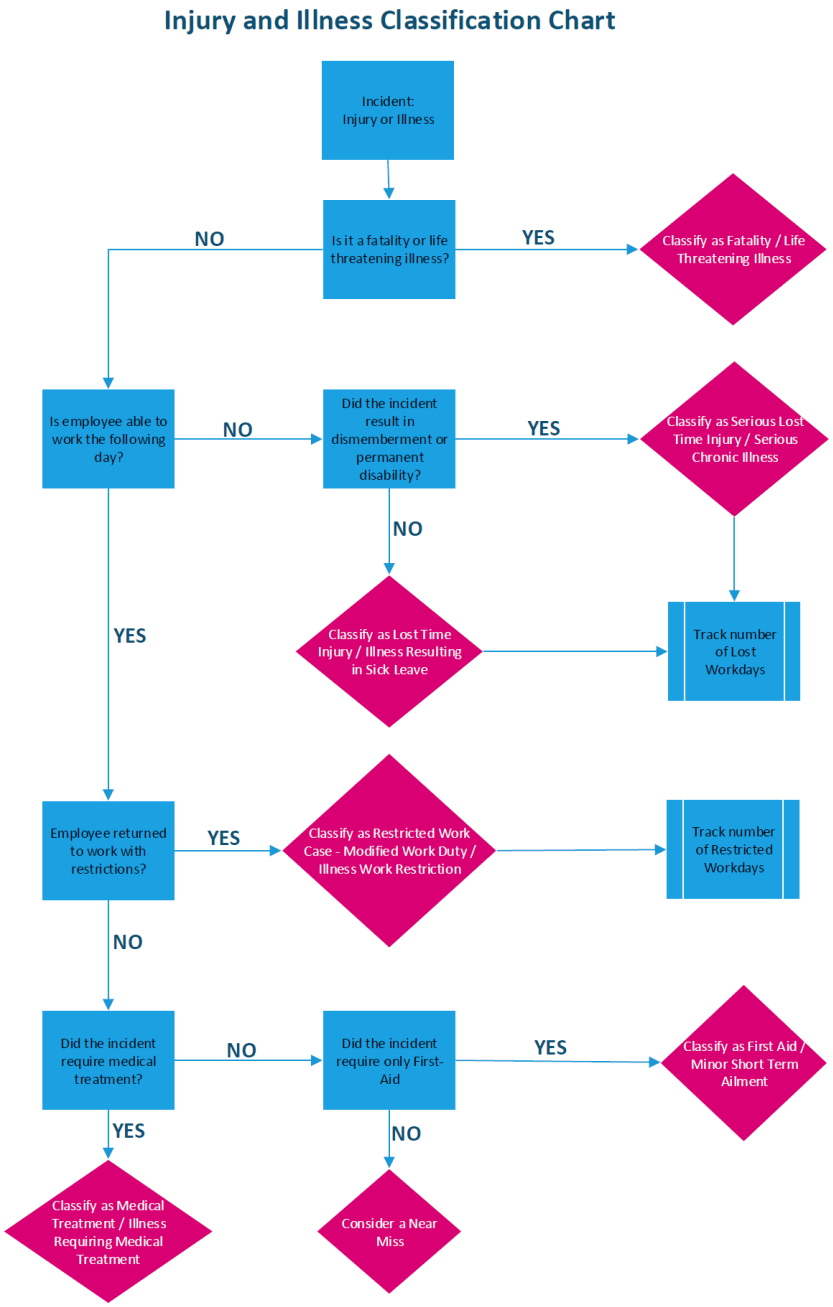


Appendix 23 **Incident Workplace Related Flowchart**

Work Related or Non-Work Related Decision Chart



Appendix 24 Injury and Illness Classification Chart



42. INCLEMENT WEATHER PLAN

1.424 Purpose and Scope

The purpose of this program is to outline the procedures and responsibilities to ensure the safety of our employees and the continuity of essential business functions during severe weather events.

This program applies to all Van Kirk Bros. Contracting employees.

1.425 Inclement Weather Plan

Inclement weather, including lightning and severe storms, can pose significant risks to our employees and company operations.

By implementing this plan, the Company aims to protect the safety of our employees and minimize disruptions to business operations during lightning and severe weather events. Prioritize safety, stay informed, and be prepared for the challenges that inclement weather may bring.

1.426 Weather Monitoring

An employee or team responsible for monitoring weather forecasts and updates must be designated.

Reputable weather alert services for timely information on severe weather conditions must be utilized.

A communication system for disseminating weather-related information to all employees at the specific site must be established.

1.427 Pre-Season Preparation

Inventory and Maintenance of Safety Equipment:

- Inspect and maintain lightning rods, surge protectors, and other safety equipment.
- Ensure adequate stock of flashlights, emergency lighting, and batteries.

Employee Training:

- Regular safety training sessions, including evacuation and shelter procedures, must be conducted.
- Educate employees on lightning safety practices and the dangers of severe weather.

1.428 Lightning Safety

Lightning is a giant spark of electricity in the atmosphere between clouds or between a cloud and the ground. It is a dangerous natural force.

Lightning strikes can severely injure or kill employees whose jobs involve working outdoors.

1.428.1 Causes of Injury

Lightning can cause injuries in several ways:

Direct strike	Victims may sustain a direct strike, which is often fatal.
Contact injury	Occurs when lightning strikes an object the victim is touching.
Side flash	Occurs when lightning splashes or bounces off an object onto the victim.
Ground current	Occurs when lightning strikes the ground near a victim and the ground current passes from the strike point through the ground into the victim.
Streamer	Bursts of energy can come up from objects near the ground; sometimes, these streamers travel through people.
Blast injury	An injury from lightning's blast effect or thunder.

1.428.2 Injuries

Lightning injuries include heart attacks, blunt trauma, temporary neurological syndromes, muscle injuries, eye injuries, skin lesions, and burns.

1.428.3 Exposure

Jobs that could potentially expose employees to lightning include:

- Logging
- Explosives handling or storage
- Heavy equipment operation
- Construction
- Plumbing and pipe fitting

Employees whose jobs involve working outdoors in open spaces, near tall objects, or on or near explosives or conductive materials are more likely to be exposed to lightning.

1.428.4 Training

All employees should be trained on lightning safety. Supervisors and employees should understand lightning risks, characteristics, and precautions to reduce workplace hazards.

Proper planning and safe practices can increase lightning safety when working outdoors.

1.428.5 Emergency Action Plan

The emergency action plan includes a written lightning safety protocol, which includes:

- How supervisors and employees should take action after they hear thunder, see lightning, or notice any other warning signs of an approaching thunderstorm.
- How employees are notified about lightning safety warnings.
- Locations and requirements for safe shelters.
- How to determine when to suspend and resume outdoor work activities.

Supervisors should check NOAA weather reports and radio forecasts for all weather hazards before beginning work.

OSHA recommends that rescheduling jobs should be considered to avoid employees being caught outside in hazardous weather conditions.

When working outdoors, supervisors and employees should continuously monitor weather conditions.

1.428.6 Warning System

Monitor a Reliable Lightning Detection System: Install and regularly monitor a reliable lightning detection system that covers a 10-mile radius. Ensure that it provides accurate and up-to-date information about lightning activity in the area.

Follow Lightning Alerts: Pay attention to lightning alerts or warnings provided by the detection system. These alerts can help you stay informed about the proximity and severity of lightning strikes.

1.428.7 Shelters

Lightning is unpredictable and can strike outside the heaviest rainfall areas or up to 10 miles from any rainfall.

If signs of approaching thunderstorms occur, employees should not begin any task they cannot quickly stop.

Supervisors should know and tell employees which buildings to go to if they hear thunder or see lightning.

NOAA recommends seeking out fully enclosed buildings with electrical wiring and plumbing. If safe building structures are not accessible, employees should go to hard-topped metal vehicles with rolled-up windows.

Remain in the shelter or vehicle for at least 30 minutes after hearing the last sound of thunder.

Do not shelter in sheds, pavilions, tents, or covered porches. They do not provide enough protection.

1.428.8 Safe Practices

After you hear thunder, do not use corded phones unless it is an emergency. Cell phones and cordless phones can be used safely.

Safe practices if you are caught outside during a thunderstorm include:

- Seek shelter immediately.
- Do not lie on the ground or under a tree.
- Avoid open fields.
- Retreat to low-lying areas like valleys and ditches; watch for flooding.
- Stay away from all metal objects, equipment, and surfaces that can conduct electricity.

If you see someone get struck by lightning, immediately call 911 for help.

1.429 Emergency Preparedness and Natural Disasters

Natural disasters can strike anywhere and at any time, putting employees at risk for injuries and illnesses.

The Company and employees may be required to deal with a disaster when they least expect it, making proper planning before an emergency necessary to respond effectively.

Preparing for a natural disaster before one happens is an important part of making sure companies and employees have the necessary equipment, know where to go, and know how to keep themselves safe during disasters, such as:

- Hurricanes
- Floods
- Tornadoes
- Earthquakes

1.429.1 Emergency Action Plan (EAP)

The Company EAP identifies different emergencies that could happen at the workplace and the correct response actions for each of the potential emergencies. The EAP also helps avoid confusion and prevents injuries and property damage.

These plans are in writing, kept at the workplace, and available for review.

Included in the EAP are:

- Conditions that will activate the plan
- Chain of command
- Emergency functions and who will perform them
- Specific evacuation procedures, including routes and exits
- Procedures for accounting for personnel, customers, and visitors

These evacuation plans and procedures shall be practiced on a regular basis and updated as needed.

1.429.2 Precautions Outside the Workplace

In addition to knowing and following the Company's EAP or evacuation plan, there are some additional preparations you should make that can apply outside of the workplace when you are at home.

1.429.3 Hurricanes

If you are in an area that experiences hurricanes, it is important to be familiar with the warning terms used for hurricanes and your local community's emergency plans, warning signals, and shelters.

Warning terms for hurricanes include:

- Hurricane / Tropical Storm watch: hurricane or tropical storm conditions are possible for the watch area within 48 hours.
- Hurricane / Tropical Storm warning: hurricane or tropical storm conditions are expected for the warning area within 36 hours.

Be prepared to follow instructions from the local authorities and evacuate if instructed to do so.

1.429.4 Tornadoes

Preparing for a tornado requires identifying a place to take shelter, being familiar with and monitoring your community’s warning system, and creating procedures to account for personnel.

Underground areas, such as a basement or storm cellar, are the recommended places to shelter from a tornado. If an underground shelter is unavailable, you should:

- Seek a small interior room or hallway on the lowest floor possible.
- Stay away from doors, windows, and outside walls.
- Stay in the center of the room and avoid corners because they attract debris.
- Avoid auditoriums and other buildings that have flat, wide-span roofs.

1.429.5 Floods

If you are in an area that could flood, you should monitor the National Oceanic and Atmospheric Administration (NOAA) Weather Radio or commercial radio and television stations for information about flood watches and warnings.

Be prepared to move to higher ground immediately if you receive information about the potential for flash flooding. You should be prepared to evacuate before water levels rise and potentially cut off evacuation routes.

Do not drive through flooded areas. As little as 6 inches of water can cause a vehicle to lose control or stall. A foot of water is enough to float many cars.

1.429.6 Earthquakes

If you are in an area where earthquakes are a potential threat, you should identify safe places to shelter in your workplace and home, such as under a sturdy table or desk or against an interior wall away from windows or tall objects that could fall on you.

The shorter the distance you must move to get to safety, the less likely you are to be injured.

Practice “drop, cover, and hold on” in each safe place so that they become an automatic response:

- Drop under a sturdy desk or table.
- Hold on to one leg of the table or desk.
- Protect your eyes by keeping your head down.

1.429.7 Disaster Supply Kit

When preparing your household for natural disasters, put together a disaster supply kit to make sure you have the necessary items and supplies in case of an emergency, such as:

- Water – one gallon of water per person per day for at least 3 days for drinking and sanitation.
- Food – at least a 3-day supply of non-perishable food.
- A battery-powered or hand crank radio and a NOAA Weather Radio with tone alert.
- A flashlight and extra batteries.
- A first aid kit.
- A cell phone with chargers and a backup battery.

Store your disaster supply kit items in airtight plastic bags and keep your kit in one or two containers that are easy to carry, such as plastic bins or a duffel bag.

After assembling your kit, remember to maintain it so that it is ready when needed. Replace expired items as needed and re-think your needs every year and update your kit.

1.430 Post-Event Procedures

Damage Assessment:

- After severe weather events, conduct a thorough assessment of the facility for damage or safety hazards.
- Promptly address any safety concerns and initiate repairs as needed.

Employee Accountability:

- Establish procedures for accounting for all employees after severe weather events.
- Designate an individual responsible for checking in with employees and reporting their status.

1.431 Review and Evaluation

- Conduct periodic reviews of the plan to assess its effectiveness.
- Gather feedback from employees to identify areas for improvement.
- Update the plan as necessary to address lessons learned from previous weather-related incidents.

43. Injury / Illness Prevention Program

1.432 Purpose and Scope

The purpose of the program is to define the company injury and illness prevention program to help find and fix workplace hazards before workers are hurt.

This program applies to all Van Kirk Bros. Contracting employees.

1.433 Resources

Number	Title
Cal/OSHA T8 CCR Subchapter 7	General Industry Safety Orders-Injury and Illness Prevention Program
CMS-FM-0031	Workplace Inspection Checklist

1.434 Injury / Illness Prevention Program

The Company shall maintain as safe and healthy an environment as is reasonably feasible for employees by:

- Conducting operations and activities in a safe manner to minimize the risk of injury to people and minimize property damage.
- Complying with applicable regulations, safety and health standards, and generally accepted practices.

1.435 Responsible Person

The Safety Coordinator has the responsibility, authority, and overall accountability of this program.

1.436 Training

Training and instruction shall be provided:

- When the program is first established
- To all new employees
- To all employees given new job assignments for which training has not previously been received
- Whenever new substances, processes, procedures, or equipment are introduced to the workplace and represent a new hazard

- Whenever the company is made aware of a new or previously unrecognized hazard
- For supervisors to familiarize themselves with the safety and health hazards to which employees under their immediate direction and control may be exposed

1.437 Compliance

Every employee shall comply with safe and healthy work practices by incentives, training, re-training programs, and disciplinary programs.

1.438 Communication

Safety meetings, written communications, postings are in place to communicate to affected employees on safety and health matters.

Employees shall report safety and health hazards / problems, no matter how small, without fear of reprimand or reprisal. The system in place for employees to anonymously report safety concerns includes both electronic and paper reporting.

1.439 Employee Access

Employees shall have access to this program and its contents by:

- Providing access in a reasonable time, place, and manner, but in no event later than 5 business days after the request for access is received from an employee or designated representative.
    - Whenever an employee or designated representative requests a copy of the program, the company shall provide the requester a printed copy of the program, unless the employee or designated representative agrees to receive an electronic copy of the program.
    - One printed copy of the program shall be provided free of charge. If the employee or designated representative requests additional copies of the Program within 1 year of the previous request and the program has not been updated with new information since the prior copy was provided, the company may charge reasonable, non-discriminatory reproduction costs (per Section 3204(e)(1)(E)) for the additional copies.
- Providing unobstructed access through a company server or website, which allows an employee to review, print, and email the current version of the program. Unobstructed access means that the employee, as part of their regular work duties, predictably and routinely uses the electronic means to communicate with management or coworkers.

The program provided to the employee or designated representative need not include any of the records of the steps taken to implement and maintain the written program.

For distinctly different and separate operations with distinctly separate and different programs, the company may limit access to the program (or programs) applicable to the employee requesting it.

The company shall communicate the right and procedure to access the program to all employees.

Nothing in this section is intended to preclude employees and collective bargaining agents from collectively bargaining to obtain access to information in addition to that available under this section.

1.440 Hazard Identification

Hazard assessments are in place for identifying and evaluating workplace hazards, including physical and chemical hazards. The Incident Investigation procedure must be followed to investigate occupational injury or illness.

Procedures are in place for correcting unsafe or unhealthy conditions, work practices and work procedures in a timely manner based on the severity of the hazard:

- When observed or discovered; and,
- When an imminent hazard exists, which cannot be immediately abated without endangering employee(s) and/or property, remove all exposed personnel from the area except those necessary to correct the existing condition. Employees necessary to correct the hazardous condition shall be provided the necessary safeguards.

1.441 Inspections

Periodic safety inspections are conducted and documented. Documentation includes the name of the inspector, date of inspection, and any findings.

Inspections shall be made to identify and evaluate hazards:

- When the program is first established
- Whenever new substances, processes, procedures, or equipment are introduced to the workplace that represent a new occupational safety and health hazard
- Whenever the company is made aware of a new or previously unrecognized hazard

1.442 Records

Records of the steps taken to implement and maintain the program shall include:

- Records of scheduled and periodic inspections required to identify unsafe conditions and work practices, including person(s) conducting the inspection, the unsafe conditions and work practices that have been identified and action taken to correct the identified unsafe conditions and work practices. These records shall be maintained for at least 3 years.
- Documentation of safety and health training required for each employee, including employee name or other identifier, training dates, type(s) of training, and training providers. This documentation shall be maintained for at least 3 years.

Appendix 25 **Workplace Inspection Checklist**

General Information			
Name of Inspector:		Date:	
Location Inspected:		Time:	

General	Yes	No	Notes
Floors: clean, dry, free from debris, clutter, and trip hazards			
Sings posted when floors are wet (e.g., when washed, spills)			
Aisles marked, clear, and unobstructed			
Stairs and landings kept clear and unobstructed			
Stairwells adequately lit; steps, treads, etc. in good condition			
Furniture/office equipment secure from tipping, appropriate for work being done			

Exits, Entrances, and Parking Lot	Yes	No	Notes
Doors not blocked			
Routes, signs, and doors clearly marked; exit signs easy to see; outside entrances and parking lot clearly lit			
Walkways and parking lots free from now, ice, water, grease, etc.			
Outdoor stairs made of grading so that water and snow cannot build up			
Environment	**Yes**	**No**	**Notes**
Lighting levels adequate; work areas free from glare			
Air quality adequate			
Temperature and humidity adequate			
Noise levels appropriate, signs indicating hearing protection required where noise levels are high			
Employees trained in use of personal protective equipment (PPE)			

Health and Safety Postings	Yes	No	Notes
Occupational Health and Safety Act and Regulations			
Policies; Health and Safety, Violence and Harassment			
“Prevention Starts Here” poster			
Workers Comp poster			
Employment standards poster			
Name of health and safety representative			
Fire Protection and Warning Signs	**Yes**	**No**	**Notes**
Emergency lighting: adequate lighting, tested, and record of annual inspection			
Portable fire extinguishers: appropriate type, readily available, and inspected			
Fire exit doors: in good repair, unlocked, and free from obstruction (both sides)			
Fire/emergency alarm systems operational, fire exit signs lit			
Fire and evacuation plan posted			
Employees know the plan (ask an employee)			

Hygiene and First Aid	Yes	No	Notes
Washrooms clean (chemicals are stored)			
Washing facility available (soap, warm water)			
First aid kits: supply inventory, treatment log, first aid training manual			
First aid certificates posted/available and valid			
Emergency eyewash (or showers) available and in working order			
Employees know how to get first aid when needed (ask an employee)			
Material Handling and Storage	**Yes**	**No**	**Notes**
Materials neatly and safely stored			
Storage shelves loaded only to capacity and heavy, awkward items on lower shelves			
Steps/ladders have non-slip surfaces and in good condition, secured when stored			
Steps/ladders positions and secured safely when in use (observe employee)			
Work done at heights follows policy and procedures			

Dock boards (bridge plates) used when loading or unloading from dock to truck			
Racks and platforms loaded only within the limits of their capacity			
Forklift operators trained (ask employee)			
Hazardous Substances	**Yes**	**No**	**Notes**
Hazardous substances properly labelled, stored, and disposed of			
Safety data sheet (SDS) for each product available and accessible (ask employee)			
Safe use and storage of hazardous substances			
HAZWOPER training (ask employee)			
Flammable products stored properly			
Personal Protective Equipment (PPE)	**Yes**	**No**	**Notes**
PPE available and worn (observe)			
PPE maintained (ask employee)			
Training in PPE use and care (ask employee)			

Electrical	Yes	No	Notes
Extension cords secured and in good condition (no exposed wired or bent prongs)			
Portable hand tools grounded or double insulated, cord in good condition			
Machines properly grounded			
Clear access to electrical panels and no combustible material stored nearby			
Tools and Machinery	**Yes**	**No**	**Notes**
Guarding and safety devices in place			
Start/stop switches clearly marked and easy to reach			
Safe operating procedures available			
Defective tools tagged and removed from service			
Proper training given in the safe use of tools and machinery			
Manufacturer's manuals available for all tools and machinery			

Security	Yes	No	Notes
Emergency numbers for internal and external contacts easily available			
Visitor/contractor rules in place			
Safety measures in place for anyone working along (ask employee)			
Working with money: safe procedures and emergency procedures in place			
Training on workplace violence and harassment (ask employee)			
Other	**Yes**	**No**	**Notes**

44. Injury / Illness Recordkeeping Program

1.443 Purpose and Scope

The purpose of this program is to define injury and illness recordkeeping requirements.

This program applies to all Van Kirk Bros. Contracting employees.

1.444 Resources

Number	Title
29 CFR 1904	Recording and Reporting Occupational Injuries and Illnesses

1.445 Injury / Illness Recordkeeping Requirements

Recordkeeping and reporting are required and appropriate for developing information regarding the causes and prevention of occupational incidents and illnesses and for maintaining a program of collection, compilation, and analysis of occupational safety and health statistics.

1.446 Records

Records shall be kept of fatalities, injuries, and illnesses that:

- Are work-related
- Are new cases
- Meet one or more of the general recording criteria (death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, a significant injury or illness diagnosed by a physician or other licensed health care professional, needlesticks and sharps injury cases, tuberculosis cases, hearing loss cases, medical removal cases, musculoskeletal cases).

1.447 OSHA 300 Log

Each recordable injury or illness shall be entered on an OSHA 300 Log and 301 Incident Report, or other equivalent form, within 7 calendar days of receiving information that a recordable injury or illness has occurred.

A company executive shall certify that the OSHA 300 Log has been examined and when found to be correct, sign the OSHA 300A Summary.

A copy of the annual summary shall be posted in each establishment in a conspicuous place or places where notices to employees are customarily posted. The posted annual summary shall not be altered, defaced, or covered by other material.

The annual summary shall be posted no later than February 1st of the year following the year covered by the records and the posting kept in place through April 30th.

The OSHA 300 Log, the privacy case list (if one exists), the annual summary, and the OSHA 301 Incident Report forms shall be retained for 5 years following the end of the calendar year that these records cover.

1.448 Restricted Work or Job Transfer

Restricted work occurs when, as the result of a work-related injury or illness:

- The employee is kept from performing one or more of the routine functions of their job, or from working the full workday that they would otherwise have been scheduled to work; or
- A physician or other licensed health care professional recommends that the employee not perform one or more of the routine functions of their job, or not work the full workday that they would otherwise have been scheduled to work.

1.449 Medical Treatment Beyond First Aid

Medical treatment means the management and care of a patient to combat disease or disorder. Medical treatment does not include:

- Visits to a physician or other licensed health care professional solely for observation or counseling,
- The conduct of diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes (e.g., eye drops to dilate pupils), or
- First aid.

1.450 First Aid

First aid means:

- Using a non-prescription medication at nonprescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes).

- Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment).
- Cleaning, flushing, or soaking wounds on the surface of the skin.
- Using wound coverings such as bandages, plastic strip bandages, gauze pads, etc. or using butterfly bandages (other wound closing devices such as sutures, staples, etc., are considered medical treatment).
- Using hot or cold therapy.
- Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes).
- Using temporary immobilization devices while transporting an accident victim (e.g., splints, slings, neck collars, back boards, etc.).
- Drilling of a fingernail or toenail to relieve pressure or draining fluid from a blister.
- Using eye patches.
- Removing foreign bodies from the eye using only irrigation or a cotton swab.
- Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs, or other simple means.
- Using finger guards.
- Using massages (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes).
- Drinking fluids for relief of heat stress.

45. JACKHAMMER SAFETY PROGRAM

1.451 Purpose and Scope

The purpose of this program is to ensure employees are informed, prepared, and protected from potential hazards associated with use of jackhammers.

This program applies to all Van Kirk Bros. Contracting employees that work with or around jackhammers.

1.452 Jackhammer Safety

To reduce the risk of serious injury or death, all operators must read and understand the safety and operating instruction before installing, operating, repairing, maintaining, or changing accessories on jackhammers.

The safety and operating instructions must be posted at work locations, and copies to employees. Employees must read the safety and operating instruction before operating or servicing the machines.

In addition, the operator must assess the specific risks that may be present as a result of each use.

1.453 Qualification and Training

Only qualified and trained persons may operate or maintain the machines. They must be physically able to handle the bulk, weight, and power of the tool. Always use common sense and good judgement.

1.454 Personal Protective Equipment (PPE)

Always use approved protective equipment. Operators and all other persons in the working area must wear protective equipment, including at a minimum:

- Protective helmet
- Hearing protection
- Impact resistant eye protection with side protection
- Respiratory protection when appropriate
- Protective gloves
- Proper protective boots
- Appropriate work overall or similar clothing (not loose-fitting) that covers your arms and legs.

1.455 Drugs, Alcohol, and Medication

Drugs, alcohol, or medication may impair judgment and powers of concentration. Poor reactions and incorrect assessments can lead to severe accidents or death.

- Never use the machine when tired or under the influence of drugs, alcohol, or medication.
- No person who is under the influence of drugs, alcohol or medication may operate the machines.

1.456 Installation Precautions

A compressed air hose that comes loose can lash around and cause personal injury or death.

If the tool retainer on the machine is not in a locked position, the inserted tool can be ejected with force, which can cause personal injury.

An incorrect dimension of the inserted tool's shank can result in that the inserted tool is lost or is slipping out during operation. There is a risk of severe injury or crushed hands and fingers.

The inserted tool is exposed to heavy strains when the machine is used. The inserted tool may break due to fatigue after a certain amount of use. If the inserted tool breaks or gets stuck, there may be sudden and unexpected movement that can cause injuries. Furthermore, losing your balance or slipping may cause injury.

1.457 Operation Precautions

If an insertion tool comes into contact with explosives or explosive gases, an explosion could occur. When working on certain materials and when using certain materials in machine parts, sparks and ignition can occur. Explosions will lead to severe injuries or death.

Dusts and/or fumes generated or dispersed when using the machine may cause serious and permanent respiratory disease, illness, or other bodily injury (for example, silicosis or other irreversible lung disease that can be fatal, cancer, birth defects, and/or skin inflammation).

Failure of the work piece, of accessories, or even of the machine itself may generate high velocity projectiles. During operating, splinters or other particles from the working material may become projectiles and cause personal injury by striking the operator or other persons.

Using the insertion tool as a hand struck tool can result in splinters hitting the operator and can cause personal injury.

There is a risk of slipping or tripping or falling, for example tripping on the hoses or on other objects. Slipping or tripping or falling can cause injury.

When using the machine to perform work-related activities, you may experience discomfort in the hands, arms, shoulders, neck, or other parts of the body.

Normal and proper use of the machine exposes the operator to vibration. Regular and frequent exposure to vibration may cause, contribute to, or aggravate injury or disorders to the operator's fingers, hands, wrists, arms, shoulders and/or nerves and blood supply or other body parts, including debilitating and/or permanent injuries or disorders that may develop gradually over periods of weeks, months, or years. Such injuries or disorders may include damage to the blood circulatory system, damage to the nervous system, damage to joints, and possibly damage to other body structures.

If numbness, persistent recurring discomfort, burning sensation, stiffness, throbbing, tingling, pain, clumsiness, weakened grip, whitening of the skin, or other symptoms occur at any time, when operating the machine or when not operating the machine, stop operating the machine, tell your supervisor and seek medical attention. Continued use of the machine after the occurrence of any such symptom may increase the risk of symptoms becoming more severe and/or permanent.

Operate and maintain the machine as recommended by the manufacturer to prevent an unnecessary increase in vibration.

High noise levels can cause permanent and disabling hearing loss and other problems such as tinnitus (ringing, buzzing, whistling, or humming in the ears).

1.458 Crystalline Silica Dust

The use of a jackhammer or handheld power chipping tools to break or demolish concrete, stone, masonry, or other silica-containing materials can generate respirable crystalline silica dust. When inhaled over time, the small particles of silica can irreversibly damage the lungs.

1.458.1 Dust Control

Two methods for controlling dust when using jackhammers or powered chipping tools are:

- Continuously feed water to the point of impact.
- Use a shroud or cowling with a vacuum dust collection system.

1.458.2 Wet Methods

When jackhammering, wetting must occur with a continuous stream or spray of water at the point where the jackhammer's tip strikes the surface material. Employers may use manual spraying or water- spray systems. Under either approach, water must be applied at a flow rate sufficient to minimize the release of visible dust.

Where water is used to control dust, electrical safety is a particular concern. Use ground-fault circuit interrupters (GFCIs) and watertight, sealable electrical connectors for electric tools and equipment on construction sites.

1.458.3 Manual Spraying

One option for applying water when jackhammering is to have one worker direct a stream or spray of water at the impact point while another worker operates the jackhammer or powered chipping tool. A portable sprayer with a nozzle can be used for this job.

Only wetting the surface is not sufficient. Continuous water application either streamed or sprayed at the point where the jackhammer or handheld powered chipping tool breaks the surface is necessary because as the tool breaks through the surface, dry materials below are disturbed, which can produce dust.

1.458.4 Water Spray Systems

Spray nozzles aimed at the tip of the tool on jackhammers and handheld powered chipping tools can lower silica exposures. Existing equipment can be retrofitted. The National Institute for Occupational Safety and Health (NIOSH) has developed designs for a water-spray retrofit system for jackhammers.

Equipment must be kept in good working condition to minimize dust. Workers must receive training on how to use dust suppression equipment.

- Dust and debris can clog spray nozzles. Check the nozzle frequently. Observe the water spray to be sure it is directed at the point of impact. Clean or change if the nozzle is dripping or spurting.
- Take steps to provide consistent water flow. Make sure there is an adequate supply of water. Prevent kinked hoses, heavy equipment, or other vehicle traffic from running over hoses, and identify other potential blockages and impediments that could cause a drop in water pressure.
- The spray angle is critical. Check the water-spray angle frequently. Make sure the spray is focused on the breakpoint and the spray is wetting the dust before it spreads away from the tip of the hammer. Clean up any slurry produced to prevent the slurry from drying and

releasing silica dust into the air. Wet slurry can be cleaned up using, for example, shovels or a wet vacuum equipped with a HEPA filter.

1.459 Vacuum Dust Collection System (VDCS)

Commercially available VDCSs for jackhammers and handheld powered chipping tools may be used to reduce silica exposure. A VDCS includes a:

- Hood or shroud for the tool that is recommended by the manufacturer.
- Vacuum meeting the specifications recommended by the tool manufacturer, with enough suction to capture dust at the cutting point.
- Dust collector equipped with a filter efficiency of 99% or greater and a filter-cleaning mechanism.
- Vacuum exhaust hose capable of providing the airflow recommended by the tool manufacturer. A 1.5 inch to 2-inch diameter vacuum exhaust hose is typically adequate.

The tool and VDCS must be operated and maintained in accordance with manufacturers' instructions to minimize dust emissions. Focus on the following areas:

- Keep the vacuum hose clear and free of debris, kinks, and tight bends.
- Change vacuum-collection bags as needed or at least as often as the manufacturer recommends. Do not over fill the bag.
- Set a regular schedule for maintenance and filter cleaning of the VDCS.
- Avoid exposure to dust when changing vacuum bags and cleaning or replacing air filters.

1.460 Indoors or in Enclosed Areas

When jackhammers or chipping tools are used indoors or in an enclosed area, wet methods or a VDCS may not reliably keep exposure low. Extra ventilation may be needed to reduce visible airborne dust. Extra ventilation can be supplied by using:

- Exhaust trunks
- Portable exhaust fans
- Air ducts
- Other means of mechanical ventilation

Ensure that air flow is not impeded by the movements of employees during work, or by the opening or closing of doors and windows.

Position the ventilation to move contaminated air away from the workers' breathing zones.

Unless there is a ventilation system that effectively captures the dust cloud, do not use compressed air or blowers to clean surfaces, clothing, or filters because it can increase exposure to silica. Instead, clean with a HEPA filter-equipped vacuum or by wet methods.

1.461 Respiratory Protection

In addition to using wet methods or a VDCS, the use of respiratory protection with a minimum Assigned Protection Factor (APF) of 10 is required whenever jackhammers or handheld powered chipping tools are used indoors or in an enclosed area. APF 10 respirators are also required when jackhammers or handheld powered chipping tools are used outdoors for more than 4 hours per shift.

When respirators are required, a written respiratory protection program must be put in place in accordance with OSHA's Respiratory Protection standard 29 CFR 1910.134.

46. JOBSITE SECURITY PROGRAM

1.462 Purpose and Scope

The purpose of this program is to create a secure work environment by implementing effective security measures and protocols.

This program applies to all Van Kirk Bros. Contracting employees.

1.463 Jobsite Security Program

The company is committed to prevention and reduction of security breaches and incidents.

1.464 Risk Assessment

A risk assessment shall be performed at the company level to address common security risks across all job sites. Security shall also be addressed at each job site during pre-job meetings / toolbox talks / hazard assessments. Affected employees shall be provided an opportunity to participate in the risk assessments.

Using the risk assessments conducted, control measures shall be implemented to reduce or eliminate security incidents. Control measures may include:

- Posted signage
- Restricted access to work areas
- Locked doors
- Keycards
- Security cameras
- Alarms
- Fencing
- Lighting
- Personal protective devices
- Security guards
- Background checks
- Time-lock safes and other robbery prevention measures

1.465 Incidents

Security breaches and incidents shall be reported immediately. If the incident occurred at a client site, the client host shall be notified immediately.

An incident investigation shall be completed when a jobsite security incident occurs. The goal of the investigation is to identify root causes and take corrective action to reduce the potential for future incidents.

1.466 Training

Employees shall be trained on policies, procedures, and workplace arrangements to prevent security incidents, the appropriate response (including how to obtain assistance), and procedures for reporting, investigating and documenting security incidents. Retraining shall be provided any time these policies or procedures are changed or updated.

47. Ladder Safety Program

1.467 Purpose and Scope

The purpose of this program is to establish guidelines for the safe use of ladders to minimize hazards and ensure employee safety.

This program applies to all Van Kirk Bros. Contracting employees that use ladders.

1.468 Resources

Number	Title
29 CFR 1926 Subpart X	Stairways and Ladders-Ladders
29 CFR 1910 Subpart D	Walking Working Surfaces-Ladders

1.469 Ladder Safety Program

Ladders are a very handy tool, both at work and around the home. Ladders are such simple tools that many people forget the dangers involved when using a ladder.

1.470 Ladder Specifications

Ladders shall meet the following OSHA / ANSI specifications:

- Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced, when the ladder is in position for use.
- Rungs, cleats, and steps of portable ladders (except as provided below) and fixed ladders (including individual rung/step ladders) shall be spaced not less than 10 inches apart, nor more than 14 inches apart, as measured between center lines of the rungs, cleats, and steps.
- Rungs, cleats, and steps of step stools shall be not less than 8 inches apart, nor more than 12 inches apart, as measured between center lines of the rungs, cleats, and steps.
- Rungs, cleats, and steps of the base section of extension trestle ladders shall not be less than 8 inches nor more than 18 inches apart, as measured between center lines of the rungs, cleats, and steps. The rung spacing on the extension section of the extension trestle ladder shall be not less than 6 inches nor more than 12 inches, as measured between center lines of the rungs, cleats, and steps.
- The minimum clear distance between the sides of individual rung / step ladders and the minimum clear distance between the side rails of other fixed ladders shall be 16 inches.

The minimum clear distance between side rails for all portable ladders shall be 11 1/2 inches.

- The rungs of individual rung / step ladders shall be shaped such that employees' feet cannot slide off the end of the rungs. The rungs and steps of portable metal ladders shall be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize slipping.

1.471 Load Limits

Ladders are built to hold a limited amount of weight. Ladders shall not be loaded beyond the maximum intended load for which they were built, nor beyond their manufacturer's rated capacity.

Ladder shall be capable of supporting the following loads without failure:

- Each self-supporting portable ladder: At least four times the maximum intended load, except that each extra-heavy-duty type 1A metal or plastic ladder shall sustain at least 3.3 times the maximum intended load. The ability of a ladder to sustain the loads indicated shall be determined by applying or transmitting the requisite load to the ladder in a downward vertical direction. Ladders built and tested in conformance with the applicable provisions of the Appendix of this subpart will be deemed to meet this requirement.
- Each portable ladder that is not self-supporting: At least four times the maximum intended load, except that each extra-heavy-duty type 1A metal or plastic ladder shall sustain at least 3.3 times the maximum intended load. The ability of a ladder to sustain the loads indicated shall be determined by applying or transmitting the requisite load to the ladder in a downward vertical direction when the ladder is placed at an angle of 75 1/2 degrees from the horizontal. Ladders built and tested in conformance with the applicable provisions of the Appendix will be deemed to meet this requirement.
- Each fixed ladder: At least two loads of 250 pounds each, concentrated between any two consecutive attachments (the number and position of additional concentrated loads of 250 pounds each, determined from anticipated usage of the ladder, shall also be included), plus anticipated loads caused by ice buildup, winds, rigging, and impact loads resulting from the use of ladder safety devices. Each step or rung shall be capable of supporting a single concentrated load of at least 250 pounds applied in the middle of the step or rung. Ladders built in conformance with the applicable provisions of the Appendix will be deemed to meet this requirement.

1.472 Ladder Usage

Ladders shall be used only for the purpose for which they were designed. Never use a ladder in a horizontal position or as scaffolding. Do not place ladders on top of boxes, barrels, crates, etc.

1.473 Inspection

Ladders shall be inspected by a competent person for defects that can be seen and after any event that could make them unsafe to use. Ladders shall be inspected before initial use in each work shift and more frequently, as necessary, to identify any visible defects that could cause employee injury. Documentation shall be maintained.

Portable and fixed ladders that are unsafe to use shall be immediately marked to show they are unsafe to use or be tagged with "Do Not Use" or similar language. They shall be taken out of service until they are repaired or replaced.

Examples of problems that make a ladder unsafe to use include:

- Broken or missing rungs, cleats, or steps.
- Broken or split rails, corroded components.
- Other faulty or defective components.

1.474 Safe Work Practices

When portable ladders are used to reach a surface above the employee, the ladder side rails shall extend at least 3 feet above the surface the employees will be stepping onto. A ladder that cannot be extended shall be secured to a rigid support that will not cause it to slip or move and a grasping device, such as a grabrail, shall be provided to assist employees in mounting and dismounting the ladder.

A ladder that does not support itself shall be placed at an angle that is safe. This angle is defined by OSHA as being about one-quarter of the working length of the ladder, which is usually known as a 4:1 ratio. This means the ladder shall be 1 foot from the wall for every 4 feet it reaches up.

Employees shall face the ladder when climbing up or down, using at least one hand to grasp the ladder. Employees shall not carry any object or load that could cause the employee to lose balance and fall while climbing up or down the ladder.

Ladders shall only be used on stable and level surfaces unless they are secured or stabilized to prevent accidental displacement.

Appendix 26 Guideline for Ladder Loading and Strength Requirements

This appendix serves as a non-mandatory guideline to assist in complying with the ladder loading and strength requirements. A ladder designed and built in accordance with the applicable national consensus standards, as set forth below, will be considered to meet the OSHA requirements:

- Manufactured portable wood ladders:

  American National Standards Institute (ANSI) A14.1-1982 - American National Standard for Ladders-Portable Wood-Safety Requirements.

- Manufactured portable metal ladders:

  ANSI A14.2-1982 - American National Standard for Ladders - Portable Metal - Safety Requirements.

- Manufactured fixed ladders:

  ANSI A14.3-1984 - American National Standard for Ladders - Fixed - Safety Requirements.

- Job-made ladders:

  ANSI A14.4-1979 - Safety Requirements for Job-Made Ladders.

- Plastic ladders:

  ANSI A14.5-1982 - American National Standard for Ladders - Portable Reinforced Plastic - Safety Requirements

48. Light Plant Safety Program

1.475 Purpose and Scope

The purpose of this program is to protect the well-being of employees, contractors, and other individuals involved in light plant operations while promoting a culture of safety and compliance.

This program applies to all Van Kirk Bros. Contracting employees that work with light plants.

1.476 Light Plant Safety

Light plants are essentially diesel-driven generators combined with a lighting element. In most cases, the light plant has a means for auxiliary power, in addition to the power it uses to run the lights. This turns most light plants into multi-functional pieces of equipment, allowing operators to use them as small generators.

1.477 Safe Work Practices

No employee should attempt to set up, operate, or work on the light plant unless they have read and studied the operator's manual and the engine and generator manuals carefully.

Follow all manufacturer's operating instructions.

The light plant should not be placed where those working under the light are either:

- Forced to look into the light regularly
- Forced to work with their backs to the light (shadows will block the light from the work area)

The area where the plant is positioned should be relatively level.

The light plant should be located on the same level or on ground higher than the area being lighted (higher light) (mounting heights reduce the shadow length).

Unit should be level to ensure smooth trouble-free tower telescoping.

When unhitching from the towing vehicle engage the trailer braking system, especially if trailer is not on level ground. If electrical or manual braking system is not supplied, chock the wheels instead.

1.478 Fueling

Always handle fuel with care. It is highly flammable. Always stop engine before refueling. Fill fuel tank outdoors. Be sure the fuel supply has a positive shutoff valve.

Do not replace fuel lines with materials different from those supplied as original equipment.

Prevent fires by keeping the light plant and its surrounding area clean.

Do not refuel while smoking or when near open flame or sparks.

Do not refuel the engine when it is hot. Allow to cool for several minutes before refueling.

Do not spill fuel inside the engine compartment. If fuel has leaked, wipe it up and have leak repaired before next use.

Have a fire extinguisher nearby. Be sure the extinguisher is properly maintained and be familiar with its use. Extinguishers rated ABC by the NFPA are appropriate for all applications.

1.479 Preventing Electric Shock

Equipment produces high voltage electricity (up to 480 volts) that can produce a fatal shock to a person who accidentally places their self in the electrical circuit. Use every precaution to avoid contact with the high voltage electrical circuit.

Beware of a cut or damaged power cord. Have a qualified electrician replace immediately.

Take extra precautions when troubleshooting electrical problems. When troubleshooting indicates a malfunction in the high voltage AC system, pass the troubleshooting task on to a qualified and trained electrician.

Disconnect electrical power and turn off engine before removing protective covers on high voltage enclosures.

Understand that the electrical circuits in the light plant complete their paths back to the generator within the equipment.

The neutral conductor at the generator is bonded to the equipment frame. Ground wires within the system are also bonded to the equipment frame.

Only use a multimeter (or voltmeter) with two well-insulated probes rated for 750 volts each. Keep one hand in your pocket when touching the multimeter probe to hot conductors. This will prevent electricity from passing into one hand and out the other, a path that takes the electricity across the heart.

Always disconnect power from the circuit being measured before connecting test leads to high voltage points. Do not try to position both probes at once. Instead, clamp the common insulated

alligator clip to a neutral wire and then probe for voltages with the other probe. Never clamp to a hot wire since a severe shock could be received by contact with the other probe.

Inspect the ground cable between the generator set and the frame. If damaged, replace immediately.

Treat all conductors as potentially hot, especially when troubleshooting malfunctioning equipment. Jewelry should be removed before working around live conductors.

Proceed through the circuitry systematically, operating only one section at a time.

Use tools with insulated handles when working within the reach of live conductors.

Maintain a good footing. If you slip, or a tool drops, do not grab for it if live conductors are within reach.

Concentrate on the task until the danger from high voltage is removed.

49. LOCKOUT TAGOUT PROGRAM

1.480 Purpose and Scope

This program outlines safeguards to prevent the unexpected energization or startup of machinery and equipment or release of hazardous energy or material that could cause injury to personnel.

This program applies to all Van Kirk Bros. Contracting employees working with or around hazardous energy.

1.481 Resources

Number	Title
29 CFR 1910 Subpart J	General Environmental Controls-The Control of Hazardous energy (lockout/tagout)
Cal/OSHA T8 CCR Subchapter 7	General Industry Safety Orders-Safe Practices and Personal Protection
CMS-FM-0033	Lockout Tagout Form
CMS-FM-0035	LOTO Certification of Inspection

1.482 Lockout / Tagout (LOTO) Program

Energy sources including electrical, mechanical, hydraulic, pneumatic, chemical, thermal, steam, tension, gravity, or other sources in machines and equipment can be hazardous to employees. During the servicing and maintenance of machines and equipment, the unexpected startup or release of stored energy can result in serious injury, including electrocution, burns, being crushed, lacerations, amputations, fracture limbs, or death.

Management is responsible for the implementation of the LOTO program.

1.483 Requirements

LOTO devices shall indicate the identity of the employee applying the device(s) and shall be durable, standardized, substantial, and identifiable.

LOTO shall be performed only by the authorized employees who are performing the servicing or maintenance.

A hazard risk assessment must be conducted to identify potential hazards associated with machinery and equipment, and appropriate control measures must be implemented to minimize risks. Alternative procedures must be considered and addressed and controls implemented to provide adequate protection of hazardous energy sources when LOTO or tagout is not feasible.

1.484 Training

Training shall be provided to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees.

Accomplishment of employee training shall be certified and kept up to date. The certification shall contain each employee's name and dates of training.

Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures. Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever the Company has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

Employee training must be accomplished and kept up to date. The certification shall contain each employee's name and dates of training.

1.485 Inspection

A periodic inspection of the energy control procedure shall be conducted at least annually to ensure the procedure is being followed. The periodic inspection shall be performed by an authorized employee other than the ones(s) utilizing the energy control procedure being inspected. The periodic inspection shall be conducted to correct any deviations or inadequacies identified.

Where lockout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.

Where tagout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure.

Performance of periodic inspections shall have certification. The certification shall identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person performing the inspection.

1.486 Shutdown Procedures

Before an authorized or affected employee turns off a machine or equipment, the authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the methods or means to control the energy.

The machine or equipment shall be turned off or shutdown using the procedures established for the machine or equipment. An orderly shutdown shall be utilized to avoid any additional or increased hazard(s) to employees as a result of the equipment stoppage.

1.487 Isolation

Zero Energy State means the hazard has been eliminated; thus, no hazardous energy exists. A state of zero energy must be verified after a lockout device is installed.

Verification of a zero energy state must be accomplished prior to the operation.

Attempt to re-start the equipment to verify that the energy sources have been de-energized. Turn on switches, open valves, push start buttons, etc. If an energy release occurs during this verification, work cannot proceed until this source is located, isolated, and verified as de-energized. Turn switches off and close valves once de-energized state is verified.

All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).

If maintenance, cleaning, or adjustments will be performed on a piece of equipment while it is in operation, safe work procedures must be in place that include how to complete the job safely. Employees must be trained on these safe work procedures and the procedures must be easily accessible.

1.488 Application

LOTO devices shall be singularly identified and affixed to each energy isolating device by authorized employees.

Lockout devices, where used, shall be affixed in a manner that will hold the energy isolating devices in a safe or off position.

Tagout devices, where used, shall be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the safe or off position.

Tagout only procedures must have additional means of hazardous energy control.

Where tagout devices are used with energy isolating devices designed with the capability of being locked, the tag attachment shall be fastened at the same point at which the lock would have been attached.

Where a tag cannot be affixed directly to the energy isolating device, the tag shall be located as close as safely as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.

1.489 Stored Energy

Following the application of LOTO devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, or otherwise rendered safe. If there is a possibility of re-accumulation of stored energy, verification of isolation shall be continued until the servicing or maintenance is completed or until the possibility of such accumulation no longer exists.

1.490 Verification

Prior to starting work on machines or equipment that have been locked or tagged out, the authorized employee shall verify that isolation and de-energization of the machine or equipment have been accomplished.

1.491 Removal without Authorized Employee

The device may be removed under the direction of the Company, provided that specific procedures and training for such removal have been developed, documented, and incorporated into the energy control program. First, verify the authorized employee is not at the facility, make reasonable efforts to contact the authorized employee to inform them of removal, and ensure that the authorized employee has this knowledge before they resume work at the facility.

1.492 Notification

Affected employees shall be notified by the Company or authorized employee of the application and removal of LOTO devices. Notification shall be given before the controls are applied and after they are removed from the machine or equipment.

1.493 Safety Testing

The following sequence of actions shall be followed to safety test machines when the LOTO devices must be temporarily removed:

1) Clear away tools,
2) Remove employees,

3) Remove the LOTO device,
4) Energize and proceed with testing,
5) De-energize and reapply control measures.

1.494 Group LOTO

Primary responsibility is vested in an authorized employee. The authorized employee ascertains the exposure status of group members.

Each employee shall affix a personal LOTO device to the group LOTO device before engaging in the servicing and maintenance operation. The supervisor in charge of the group LOTO shall not remove the group LOTO device until each employee in the group has removed the personal device. When more than one crew, craft, department, etc. is involved, overall job associated LOTO control shall be assigned.

1.495 Shift or Personnel Changes

Specific procedures shall be utilized during shift or personnel changes to ensure the continuity of LOTO protection including provision for the orderly transfer of LOTO device protection between off going and oncoming employees to minimize exposure to hazards from the unexpected energization or startup of the machine or equipment or the release of stored energy.

1.496 Outside Personnel / Contractors

Outside personnel / contractors shall be advised that the Company has and enforces the use of LOTO procedures. They shall be informed of the use of locks and tags and notified about the prohibition of attempts to restart or re-energize machines or equipment that are locked out or tagged out.

The company shall obtain information from the outside personnel / contractor about their LOTO procedures and advise affected employees of this information.

The outside personnel / contractor shall be required to sign a certification form. If outside personnel / contractor has previously signed a certification that is on file, additional signed certification is not necessary.

Appendix 27 **Lockout Tagout Form**

Compliance
All employees are required to comply with the restrictions and limitations imposed upon them during the use of LOTO. Authorized employees are required to perform equipment isolation in accordance with procedure. Disciplinary action will be taken against all violators.

General Information	
Department:	
Equipment / System Name:	
Location of Equipment:	
Reason for Isolation:	

Authorized Personnel	Affected Personnel

Hazard Assessment (check all that apply)			
☐	Electrical	☐	Thermal (cryogenic)
☐	Chemical	☐	Radiation, ionizing
☐	Pressure (hydraulic, pneumatic)	☐	Radiation, non-ionizing
☐	Mechanical	☐	Stored Energy

☐	Thermal (heat)	☐	Other:

LOTO Sequence
Step 1 – Notify affected employees that servicing will take place under LOTO.
Step 2 – Shut down (i.e., turn off) the equipment or system following the normal stopping or shut down procedures.
Step 3 – Follow the steps below to properly isolate each energy source, apply LOTO device, and verify that the equipment is in a zero-energy state.

Hazard	Magnitude	Method of Isolation	Verification Check

☐ Addendum – Procedure steps continued on separate page.

Step 4 – Release / control stored energy (list):

Step 5 – Attempt to restart equipment; verify that equipment will not start. Return operating control(s) to neutral of “off” position after verifying the isolation of the equipment.

Return equipment to Service
Step 1 – Check the equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
Step 2 – Check the work area to ensure that all employees have been safely positioned or removed from the area.
Step 3 – Verify that the controls are in neutral or “off” position.
Step 4 – Remove the lockout devices and reenergize the machine or equipment.
Step 5 – Notify the affected employees that the servicing or maintenance is complete, and the machine or equipment is ready to use.

Document Review and Approval				
Authorized Employee Signature:		Date:		Next Review Due:
Supervisor Signature:		Date:		

Appendix 28 **LOTO Certification of Inspection**

General Information			
Authorized Employee:		Supervisor:	
Item or Equipment:		Date:	
Location:			

Inspection			
Equipment Inspected	**Inspector Signature**	**Date**	**Authorized Employee**

Comments / Corrective Actions Taken:

Signatures			
Employee Signature:		Date:	

Van Kirk Bros. Contracting **Lockout Tagout Program**

Supervisor Signature:		Date:	

50. Noise Awareness, Exposure, and Hearing Conservation Program

1.497 Purpose and Scope

The purpose of this program is to provide requirements to minimize employee hearing loss caused by excessive occupational exposure to noise.

This program applies to all Van Kirk Bros. Contracting employees working in or near high noise areas.

1.498 Resources

Number	Title
29 CFR 1910 Subpart G	Occupational Health and Environmental Control-Occupational Noise Exposure
29 CFR 1926 Subpart D	Occupational Health and Environmental Control-Occupational Noise Exposure
Cal/OSHA T8 CCR Subchapter 7	General Industry Safety Orders-Occupational Noise and Ergonomics

1.499 Definitions

Acronym/Term	Definition
Audiometric Testing	Detection by the person being tested of a series of pure tones. For each tone, the person indicates the lowest level of intensity that they are able to perceive.
Decibels	The sound energy measured by a sound level meter using the “A” scale. The “A” scale is electronically weighted to simulate the response of the human ear to high and low frequency noise.
Standard Threshold Shift	A change in hearing threshold relative to the baseline audiogram of an average of 10 dB (corrected for age) at 2000, 3000 and 4000 Hz in either ear.

1.500 Noise Awareness, Exposure, and Hearing Conservation Program

Occupational hearing loss is a cumulative result of repeated or continued absorption of sound energy by the ear; employee protection is based on reduction of the noise level at the ear or limiting the employee’s exposure time.

A continuing effective hearing conservation program shall be administered when employees are exposed to sound levels greater than 85 decibels on an 8-hour time-weighted average (TWA) basis.

Employees exposed to noise at or above 85 dBA as an eight-hour time weighted average must be included in the company's hearing conservation program.

Whenever practical, noise levels identified as exceeding 85 decibels shall be reduced by means of engineering or administrative controls, including isolation, enclosure, and application of noise-reduction materials.

1.501 Training

A training program shall be provided for all employees who are exposed to noise at or above an 8-hour TWA of 85 decibels. The training shall be provided initially and repeated annually for each employee. Employees shall be trained and have access to information and training materials regarding hearing protection.

Training shall include:

- The effects of noise on hearing,
- The purpose of hearing protection,
- The advantages and disadvantages and attenuation of various types of protection,
- Instruments on selection, fitting, use, and care of protection, and
- Techniques for selection, use, and the purpose of audiometric testing along with an explanation of the test procedures.
- The company is required to provide affected company workers exposed to the action level of the Occupational Safety and Health Administration's (OSHAs) of 85dBA of noise as calculated as an eight-hour time-weighted average (TWA), with appropriate hearing protectors at no cost to the company employees

Training shall be updated to stay current with any changes in processes.

1.502 Hearing Protection

Hearing protection shall be available to and worn by all employees exposed to an 8-hour TWA of 85 decibels or greater at no cost to the employee. Hearing protection shall be replaced, as necessary.

Each company employee who is exposed to noise at or above 85dBA as calculated as an eight-hour time weighted average (TWA) must be included in the hearing conservation program.

Hearing protection shall be evaluated for the specific noise environments in which the protection will be used.

Employees shall be given the opportunity to select their hearing protection from a variety of suitable hearing protectors provided by the Company.

Hearing protection shall be worn by any employee that has been provided hearing protection. Employees shall wear hearing protection in signed areas while at a host facility.

Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, the following steps shall be taken:

- Employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them.
- Employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.
- Employees shall be referred for a clinical audiological evaluation or an ontological examination, as appropriate, if additional testing is necessary or if it is suspected that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.

The company is responsible for ensuring proper initial fitting of hearing protection and for supervising the correct use of all hearing protection.

1.503 Monitoring

Noise measuring shall be done to see if employees are being exposed to noise that is 85 decibels or louder on an 8-hour TWA. This measuring can be either sampling performed when needed or monitoring performed all the time.

Monitoring shall be repeated whenever a change in production, process, equipment, or controls increases noise exposures to the extent that additional employees may be exposed at or above the action level or the attenuation provided by hearing protectors being used by employees may be rendered inadequate.

1.504 Audiometric Testing

Employees who are exposed to noise that is 85 decibels or louder on an 8-hour TWA shall have hearing tests (also called audiograms or audiometric testing) available to them at no cost to the employees. These tests help by showing any hearing loss that might be happening and shall be done every year after the baseline test.

A baseline, or initial, hearing test shall be done within 6 months if an employee has been exposed to noise that is 85 decibels or louder on an 8-hour TWA. Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protection may be used to meet the requirement. Employees shall be notified of the need to avoid high levels of noise.

If a mobile testing van for hearing tests is used, the baseline can be established within one year.

At least annually after obtaining the baseline audiogram, a new audiogram shall be obtained for each employee exposed at or above an 8-hour TWA of 85 decibels. Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the employee shall be informed of this fact in writing within 21 days of the determination.

1.505 Signage

Equipment or areas with noise levels equal to or exceeding 85 decibels shall be identified with labels or signs, which are posted on the individual pieces of equipment (whether owned or leased) or at the entrance to noisy areas. The sign or label shall state either “Hearing Protection Is Required While the Equipment Is Operating” or “Hearing Protection Is Required While Working in the Area” or similar wording, as appropriate.

Equipment typically requiring labels includes but is not limited to compressors, forklifts, generators, and pneumatic tools.

Labels shall be placed where the operator can readily see the warning, such as next to power switches.

1.506 Recordkeeping

Accurate records of all employee exposure and audiometric measurements shall be maintained as required by the regulation. The record shall include:

- Name and job classification of the employee.
- Date of the audiogram.
- The examiner’s name.
- Date of the last acoustic or exhaustive calibration of the audiometer.
- Employee’s most recent noise exposure assessment.

Noise exposure measurement records shall be retained for 2 years. Audiometric test records shall be retained for the duration of the affected employee’s employment.

All records shall be provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary.

If the company ceases to do business, all records shall be transferred to the successor company for retention.

51. OSHA Inspections Program

1.507 Purpose and Scope

The purpose of this program is to provide information on types of OSHA inspections and procedures followed.

This program applies to all Van Kirk Bros. Contracting employees.

1.508 OSHA Inspections

OSHA inspectors, or compliance safety and health officers (CSHOs), are experienced, well-trained industrial hygienists and safety professionals. Their goal is to:

- Make sure companies are compliant with OSHA requirements.
- Help companies and employees reduce hazards and prevent injuries, illnesses, and deaths in the workplace.

OSHA typically conducts inspections without giving a company advance notice.

1.509 Hazard Focus

OSHA focuses its inspection resources on the most hazardous workplaces in the following order of priority:

1. Imminent danger situations
2. Severe injuries and illnesses
3. Worker complaints
4. Referrals
5. Targeted inspections
6. Follow-up inspections

1.509.1 Imminent Danger Situations

Imminent danger situations are hazards that could cause serious physical harm or death. These situations are a top priority for OSHA inspections.

Compliance officers will ask companies to correct these hazards immediately or remove the employees in danger.

1.509.2 Severe Injuries and Illnesses

Severe injuries and illnesses are also a top priority for OSHA inspections.

Companies must report:

- All work-related fatalities within 8 hours
- All work-related inpatient hospitalizations, amputations, or losses of an eye within 24 hours

1.509.3 Worker Complaints

Worker complaints of hazards or violations are another high priority for OSHA. Workers may request anonymity when they file complaints.

1.509.4 Referrals

Referrals of hazards from federal, state, or local agencies, individuals, organizations, or the media are considered for inspection.

1.509.5 Targeted Inspections

Targeted inspections aimed at specific high hazard industries or individual workplaces that have experienced high rates of injuries and illnesses also receive priority.

1.509.6 Follow-up Inspections

Follow-up inspections checking for abatement of violations cited during previous inspections are also conducted by the agency in certain circumstances.

1.510 Onsite Inspections

Onsite inspections have several distinct parts, starting with the presentation of the compliance officer's credentials, which include both a photograph and a serial number.

Companies have the right to require compliance officers to have an inspection warrant before entering the worksite.

1.510.1 Opening Conference

During the opening conference, the compliance officer will:

- Explain why OSHA selected the workplace for inspection.
- Describe the scope of the inspection, walkaround procedures, employee representation, and interviews.

At this time, the company will select a representative to go along with the compliance officer during the inspection. Workers also have the right to have an authorized representative go on the inspection.

1.510.2 Walkaround

After the opening conference, the compliance officer and the representatives will conduct a walkaround of the workplace, inspecting for hazards that could lead to worker injuries or illnesses.

During the walkaround, compliance officers may point out violations that can be corrected immediately. These hazards still have to be cited, but quick correction is a sign of good faith on the company's part.

The compliance officer will also review worksite injury and illness records and the posting of the official OSHA poster.

1.510.3 Closing Conference

After the walkaround, the compliance officer will hold a closing conference with the company and the worker representatives to discuss the findings.

1.510.4 Citations and Fines

When a compliance officer finds violations of OSHA standards or serious hazards, OSHA may issue citations and fines. Citations:

- Describe the OSHA requirements allegedly violated
- List any proposed penalties
- Give a deadline for correcting the alleged hazards

OSHA must issue a citation and proposed penalty within 6 months of when the violation occurred. OSHA and the company may work out a settlement agreement to resolve the matter and to eliminate the hazard.

Companies may formally contest the alleged violations and penalties by sending written notice to the OSHA Area Director within 15 working days of receiving them.

If the company does not settle or contest the citations, penalties, and abatement dates, they become final order.

52. Personal Protective Equipment (PPE) Program

1.511 Purpose and Scope

The purpose of this program is to establish minimum requirements to protect employees through the use of personal protective equipment (PPE).

This program applies to all Van Kirk Bros. Contracting employees.

1.512 Resources

Number	Title
29 CFR 1910 Subpart I	Personal Protective Equipment
29 CFR 1926 Subpart E	Personal Protective and Life Saving Equipment
Cal/OSHA T8CCR Subchapter 7	General Industry Safety Orders-Safe Practices and Personal Protection
CMS-FM-0047	Personal Protective Equipment (PPE) Hazard Assessment Form

1.513 Personal Protective Equipment (PPE) Program

Personal Protective Equipment (PPE) is equipment worn to minimize exposure to serious workplace injuries and illnesses. These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.

PPE shall be provided at no cost to the employee with the exception of non-specialty safety-toe footwear and non-specialty prescription safety eyewear if permitted to be worn off the jobsite.

1.514 Training

Training shall be provided to each employee who is required to use PPE. Proper training includes at least:

- When PPE is necessary.
- What PPE is necessary.
- How to properly don, doff, adjust, and wear PPE.
- The limitations of PPE.
- The proper care, maintenance, useful life, and disposal of PPE.

Training shall be documented including the employee name, the dates of training, and the training content.

Retraining is required when the workplace changes, making the earlier training obsolete, the type of PPE changes, or when the employee demonstrates lack of use, improper use, or insufficient skill or understanding. The certification must include the employee's name, the dates of training, and the certification subject.

1.515 PPE Maintenance

PPE shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards, of processes, or environment to protect body parts from inhalation, absorption, or physical contact. This applies to Company issued PPE or employee-owned PPE, if employee-owned PPE is allowed based on jurisdiction.

1.516 Hazard Assessment

A workplace hazard assessment shall be conducted to determine if hazards are present or are likely to be present, which necessitate the use of PPE. Verification shall be conducted to ensure the required workplace hazard assessment has been performed through a written certification that identifies the workplace evaluated, the person certifying that the evaluation has been performed, the date(s) of the hazard assessment, and identification of assessment documents.

If hazards are present, or likely to be present, the Company shall select and have each affected employee use the type of PPE necessary, communicate selection decisions, and select PPE that properly fits each affected employee.

Consideration shall be given to comfort and fit. PPE that fits poorly will not afford the necessary protection. Continued wearing of the PPE is more likely if it fits the wearer comfortably. PPE is generally available in a variety of sizes. Care should be taken to ensure that the right size is selected.

1.517 PPE Inspection

All PPE shall meet the appropriate safety standards and regulations.

PPE shall be inspected regularly to identify any defects, damage, or signs of wear that may compromise its effectiveness.

Any damaged, defective, or expired PPE shall be immediately removed from service and replaced with new or properly functioning equipment.

1.517.1 Initial Inspection

Upon receipt of new PPE, it shall be inspected to ensure it is in good condition and free from defects.

Inspections should include checking for any visible damage, missing components, or signs of wear.

1.517.2 Pre-Use Inspection

Before using any PPE, employees shall inspect it for any visible damages or defects.

Inspections should include checking straps, buckles, lenses, shields, or any other components for proper functionality.

If any issues are identified during the pre-use inspection, the PPE should not be used, and the employee shall report it to their supervisor.

1.517.3 Routine Inspections

Regular inspections of PPE shall be conducted at predetermined intervals.

The frequency of routine inspections may vary depending on the type of PPE and the nature of the work environment.

Inspections should be documented, and records of inspections shall be maintained for future reference.

1.517.4 Post-Incident Inspections

Following any incident or accident where PPE was involved, the PPE shall be inspected to determine its integrity and effectiveness.

Damaged or compromised PPE shall be immediately removed from service and replaced.

1.518 Defective PPE

Defective or damaged PPE shall not be used. PPE that is in disrepair shall be discarded or removed from service until repaired.

1.519 Employee-Owned PPE

Employee-owned PPE is allowed, and the Company is responsible for the assurances of its adequacy, maintenance, and sanitation.

1.520 Types of Protection

The correct level of PPE determined by the assessment, shall be worn at all times. PPE may include:

- Coveralls
- Flame Resistant Clothing (FRC)
- Hand Protection (gloves-chemical resistant, anti-impact, leather, rubber)
- Foot Protection (steel toe boots, shoes, toe covers)
- Head Protection
- Eye and Face Protection (safety glasses, shields)
- Hearing Protection
- Respiratory Protection
- Fall Prevention and Protection

Van Kirk Bros. Contracting

Personal Protective Equipment (PPE) Program

Appendix 29 Personal Protective Equipment (PPE) Hazard Assessment Form

General Information			
Employee Name:		Date:	
Location:			

Instructions

1) *Complete this form for each task to document evaluation of the workplace hazards that necessitate the use of PPE.*
2) *Provide training and document on the training roster.*
   NOTE: These PPE controls should be used in conjunction with other controls (engineering, administrative, and work practices).

Hazard Assessment		
Task	**Hazard**	**PPE Required**
		☐ Eye / Face:
		☐ Body:
		☐ Hand:
		☐ Foot:
		☐ Other:
		☐ Eye / Face:
		☐ Body:
		☐ Hand:

		☐ Foot:
		☐ Other:
		☐ Eye / Face:
		☐ Body:
		☐ Hand:
		☐ Foot:
		☐ Other:
		☐ Eye / Face:
		☐ Body:
		☐ Hand:
		☐ Foot:
		☐ Other:

Certification

By signing this form, the individual certifies that a workplace hazard assessment has been performed in accordance with OSHA requirement.

Employee Signature:		Date:	

53. Rigging Program

1.521 Purpose and Scope

The purpose of this program is to provide requirements and guidance to support safe rigging and handling of loads.

This program applies to all Van Kirk Bros. Contracting employees involved with rigging operations.

1.522 Resources

Number	Title
29 CFR 1926 Subpart H	Material Handling, Storage, Use, and Disposal-Rigging Equipment for Material Handling
29 CFR 1910 Subpart N	Materials Handling and Storage-Slings
29 CFR 1926 Subpart CC	Cranes and Derricks in Construction
Cal/OSHA T8 CCR Subchapter 7	General Industry Orders-Cranes and Other Hoisting Equipment

1.523 Rigging Program

The following requirements apply to slings used in conjunction with other material handling equipment for the movement of materials by hoisting.

1.524 Inspection

Each day and on each shift before being used, the slings and all fastenings and attachments shall be inspected for damage or defects by a qualified person. Additional inspections shall be performed during sling use, where service conditions warrant.

Slings and hooks that are damaged or defective shall not be used. Defective rigging equipment shall be removed from service.

1.525 Qualification

Only qualified riggers may be used during hoisting activities.

A rigger is anyone who attaches or detaches lifting equipment to loads or lifting devices. In order to be considered a qualified rigger, the person shall be qualified by the employer to perform specific rigging tasks and possess a recognized degree, certificate, or professional standing, or has extensive knowledge, training, and experience, and can successfully demonstrate the ability to solve problems related to rigging loads.

1.526 Rated Capacity and Identification

Rigging equipment shall have permanently affixed and legible identification markings as prescribed by the manufacturer that indicate the recommended safe working load. Rigging shall not be loaded in excess of its recommended safe working load as prescribed on the identification markings by the manufacturer; and shall not be used without affixed, legible identification markings.

Chains, wire ropes, synthetic or metal web slings, shackles or any other lifting attachments without permanently affixed and legible identification markings prescribed by the manufacturer shall not be used.

1.527 Safe Use of Rigging

Rigging equipment, when not in use, shall be removed from the immediate work area so as not to present a hazard to employees.

Tag lines shall be used unless their use creates an unsafe condition.

Hooks used in the connection between the hoist line and the personnel platform (including hooks on overhaul ball assemblies, lower load blocks, bridle legs, or other attachment assemblies or components) must be:

- Of a type that can be closed and locked, eliminating the throat opening.
- Closed and locked when attached.

Suspended loads shall be kept clear of all obstructions and all employees shall be kept clear of loads about to be lifted and of suspended loads.

Shock loading is prohibited.

Chain or wire rope slings shall not be shortened with knots or bolts or other makeshift devices. Slings shall not be kinked or knotted.

Slings used in a basket hitch shall have the loads balanced to prevent slippage.

Slings shall be padded or protected from the sharp edges of their loads.

Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.

A sling shall not be pulled from under a load when the load is resting on the sling and damage to the sling may result.

Slings shall be set to avoid slippage.

Rigging shall be used and maintained in accordance with manufacturer's recommendations.

Hooks and shackles shall only be used in a manner recommended by the manufacturer.

Proof coil steel chain, also known as common or hardware chain, or other chain not recommended for slinging or hoisting by the manufacturer, shall not be used for hoisting purposes.

Wrought iron chains in constant use shall be annealed or normalized at intervals not exceeding 6 months when recommended by the manufacturer. The chain manufacturer shall be consulted for recommended procedures for annealing or normalizing. Alloy chains shall not be annealed. Deformed hooks or rings shall be replaced or repaired and reshaped under proper metallurgical control and proof tested. Proper annealing or normalizing procedures done only in accordance with the chain manufacturer's specifications shall be followed.

1.527.1 Proof Testing

Special custom design grabs, hooks, clamps, or other lifting accessories for such units as modular panels, prefabricated structures and similar materials, shall be marked to indicate the safe working loads and shall be proof-tested to 125% of the rated load prior to use.

54. Risk Assessment Program

1.528 Purpose and Scope

The purpose of this program is to identify hazards and evaluate any associated risks to health, safety, and the environment arising from work activities, enabling informed decisions to be made to eliminate or minimize any risk of harm to those affected.

This program applies to all Van Kirk Bros. Contracting employees.

1.529 Risk Assessment

Risk assessments do not have to be complicated; the level of detail contained in them should be relevant to the level of the risks involved with the activity. Risk assessments may lead to clarification of procedures, identifying efficiencies in existing processes, and identification of training and supervision required for the activity.

1.530 Hazard Identification

Risk assessments shall be conducted prior to the beginning of work to formally identify and assess hazards and correct them in a timely manner. This can be accomplished through Job Safety Analysis (JSA), daily hazard assessments, pre-job hazard assessments, or hazard workplace inspection.

A site safety inspection must be conducted in a timely manner and the form must be signed, dated with site name, as required.

A JSA shall be developed for all routine tasks. Formal workplace inspections for safety hazards of all operations, equipment, work areas, and facilities shall be performed on a regular basis. Risk assessments and JSAs shall be updated whenever changes occur to processes, equipment, work areas, and facilities.

Information shall be collected, organized, and reviewed with employees to determine what types of hazards may be present and which employees may be exposed or potentially exposed. Information available in the workplace may include:

- Equipment and machinery operating manuals.
- Safety Data Sheets (SDS).
- Inspection reports.
- Records of previous injuries and illnesses.
- Incident investigation reports.
- Results of JSAs.

Employees shall be actively involved in the risk identification process. If subcontractors are performing work at the location, they should be included. Identified hazards and risks shall be reviewed with all affected employees.

Additional hazards from workers performing tasks with other trades or crafts must be evaluated.

1.530.1 Health Hazards

Identification of health hazards shall include chemical hazards, physical hazards, biological hazards, and ergonomic risk factors by conducting qualitative exposure assessments and reviewing employee medical records.

1.531 Training

All employees shall be trained on the hazard identification in the workplace, the risk assessment process, and how to report and control hazards using the hierarchy of controls.

1.532 Roles and Responsibilities

Those who lead and perform active roles in this process play a crucial role in identifying and mitigating potential hazards. Following are the key roles and responsibilities for individuals involved in the Hazard Identification process:

Hazard Identification Team Leader:

Overall Responsibility: The team leader is responsible for overseeing the entire Hazard Identification process and ensuring its effectiveness including:

- Planning
- Team Coordination
- Data Collection
- Risk Assessment
- Mitigation Planning
- Documentation
- Review and Continuous Improvement

Hazard Identification Team Members:

- Data Gathering
- Hazard Analysis
- Reporting
- Recommendations
- Follow-up

Subject Matter Experts (SMEs):

- Technical Expertise
- Risk Assessment
- Mitigation Strategies

Safety Officers:

- Compliance
- Training
- Auditing

Management and Leadership:

- Support
- Decision-Making
- Review

Workers and Employees:

- Reporting
- Participation
- Compliance

1.533 Incident Investigations

Workplace incidents including injuries, illnesses, near misses, and stop work interventions shall be investigated to identify the root cause in order to prevent future occurrences.

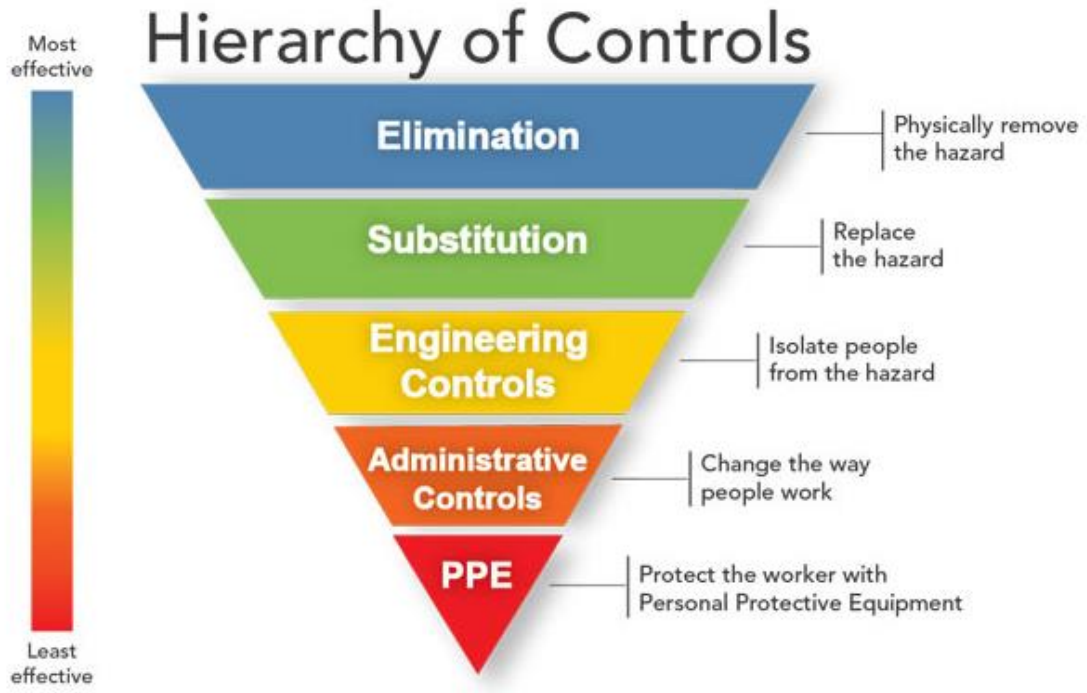
1.534 Hazard Classification and Rank

A formal system for classifying and ranking hazards according to risk shall be followed. Risk shall be determined by analyzing the probability of the hazard causing harm, the frequency the hazard is encountered, and the potential consequences of impact with the hazard. A risk matrix shall be followed to assist with the risk assessment.

Evaluation of each hazard by considering the severity of potential outcomes, the likelihood that an event or exposure will occur, and the number of employees who might be exposed shall be conducted to prioritize the hazards so that those presenting the greatest risk are addressed first.

1.535 Hierarchy of Controls

The hierarchy of controls shall be used to mitigate hazards before employees are exposed. When a hazard is identified, first attempt to eliminate the hazard. If elimination is not practicable, use engineering controls. If engineering controls are not practicable, implement administrative controls. If the hazard cannot be adequately controlled using engineering and/or administrative controls, employees shall use Personal Protective Equipment (PPE). A combination of engineering controls, administrative controls, and PPE is usually best.



1.536 Risk Evaluation and Estimation

1.537 Likelihood and Severity

Once hazards associated with activities have been identified, the likelihood of a hazardous event occurrence and the severity of that occurrence shall be estimated using the levels below:

Likelihood:
1. **Improbable** (unlikely to occur)
2. **Remote** (unlikely, though possible)
3. **Occasional** (likely to occur occasionally during standard operations)
4. **Probable** (not surprised, will occur in given time)
5. **Frequent** (likely to occur, to be expected)

Severity:
1. **Negligible** (the hazard will not result in serious injury or illness, or has a remote possibility of damage)
2. **Marginal** (the hazard could cause illness, injury, or equipment or environmental damage, but its effects would not be serious)
3. **Moderate** (the hazard can result in serious injury or illness, property, or equipment or environmental damage)
4. **Critical** (the hazard can result in serious injury, illness, property, or equipment or environmental damage)
5. **Catastrophic** (the hazard is capable of causing death or illness)

1.538 Risk Matrix

Multiply the hazard's probability and severity to calculate the level of risk. Use the following risk matrix to determine the level of risk. Reduce risk as described in the table below.

	Catastrophic: 5	Critical: 4	Moderate: 3	Marginal: 2	Negligible: 1
Frequent: 5	High – 25	High – 20	Serious – 15	Serious – 10	Medium – 5
Probable: 4	High – 20	Serious – 16	Serious – 12	Medium – 8	Medium – 4
Occasional: 3	Serious – 15	Serious – 12	Medium – 9	Medium – 6	Low – 3
Remote: 2	Serious – 10	Medium – 8	Medium – 6	Medium – 4	Low – 2
Improbable: 1	Medium – 5	Medium – 4	Low – 3	Low – 2	Low - 1

Low	The risk is tolerable, assuming all control measures are fully identified and effectively implemented.
Medium	The risk is tolerable assuming the risk levels have been reduced to as low as reasonably practicable (ALARP).
Serious	The risk is likely tolerable. Reduce to ALARP. May be acceptable where consequences are potentially high, but the likelihood has been reduced significantly.
High	The risk is intolerable. The risk must be reduced to medium or low before work begins.

1.539 Continuous Improvement

A continuous improvement process for lessons learned to be incorporated into hazard controls such as plan-do-check-act (PDCA) or other similar continuous improvement process must be used.

55. Road Safety for Moving Heavy Equipment Program

1.540 Purpose and Scope

The purpose of this section is to promote and ensure the safe transportation of heavy equipment on public roads. By implementing comprehensive safety measures and providing training to operators and drivers, this program aims to minimize the risk of accidents, injuries, and property damage associated with moving heavy machinery.

This document applies to all Van Kirk Bros. Contracting employees that work with heavy equipment.

1.541 Training

Training will be provided for employees whose job activities involve the use of heavy equipment and all terrain vehicles (ATVs).

1.542 General Operation Procedures

All employees must obtain and keep current the proper operator license for each type of vehicle that is operated.

The Company will provide adequate training on vehicle operation, maintenance, and safety to the employees performing such work.

Before using heavy equipment, test and check it to be sure it is in proper operating condition as per manufacturer specifications.

When leaving heavy equipment, lower suspended equipment, shut off the power, and set the brakes.

Make sure to stop a safe distance from other trucks or pedestrians.

Always give pedestrians the benefit of the doubt, as they may be deaf or wearing hearing protection.

Only authorized maintenance and repairmen are allowed to work on the equipment mechanism.

When transporting a load, always keep it as low as possible and tilted toward the body of the equipment.

All equipment left unattended at night, adjacent to a highway in normal use, or adjacent to construction areas where work is in progress, must have appropriate lights or reflectors, or barricades equipped with appropriate reflectors, to identify the location of the equipment.

Where traffic is diverted on to dusty surfaces, good visibility must be maintained by the suppression of dust, through the periodic application of brine or water to the grade surface, as required.

Do not operate heavy equipment, a vehicle or power tools, within 10 feet of any power line or electrical distribution.

Personnel must not get on or off the machine while the machine is in motion.

Riders, except mechanics and persons in training to operate equipment, must not be allowed on equipment unless a seat with a seatbelt is provided and used.

1.543 Road Safety

The following must be in place before road travel:

- All equipment must have visible flashing lights, reflective tape, slow moving vehicle signs or banners, etc.
- Mowers ahead/slow moving vehicle signs must be posted at both the arrival and departure sights before moving equipment.
- An ATV lead vehicle with escort following at a safe distance must proceed all heavy equipment movements on public roads.

1.544 ATV Hazard Prevention

The following should be in place to address the hazards:

- Employees must complete a job safety analysis (JSA) before use.
- Employee training on the ATV owner's manual. Operating and maintenance policies that follow the manufacturer's guidelines. Employees must perform pre- and post-ride safety checks.
- Hazards that might be present, such as excavations, trenches, and guy wires must be identified, marked, and removed.
- Check state or local laws before ATVs are operated on roads or highways. Licensing and training requirements vary from state to state.

1.545 ATV Safe Use Practices

Practice braking and shifting gears slowly. If something is not right, do not ride until you have notified your supervisor and any issues have been corrected.

Wear the appropriate PPE when operating or riding on an ATV which includes:

- Certified helmet (hard hats are not acceptable for ATV operation)
- Safety glasses or goggles
- Long sleeves
- Long pants
- Over the ankle boots
- Gloves

Always keep both hands and feet on the ATV.

Never allow passengers on the ATV unless the vehicle has an additional seat specifically designed to carry them.

When operating an ATV, do not:

- Engage in piggybacking
- Engage in side-riding
- Overload the ATV

Drive at speeds safe for the weather and terrain.

Bumpy, rocky, muddy, rugged, uneven, and hilly terrain mixed with increased speeds can cause rollovers or you could be thrown from the vehicle.

Do not operate an ATV while under the influence of drugs or alcohol.

Put away any distractions while operating an ATV. This includes:

- Cell phones
- Eating and drinking
- Maps or global positioning systems (GPSs)
- Radios

1.546 Heavy Equipment Safe Use Practices

All vehicles must have:

- A service brake system, an emergency brake system, and a parking brake system.
- Working headlights, taillights, and brake lights
- An audible warning device (horn).
- Intact windshield with working windshield wipers.

Ensure that all operators have been trained on the equipment they will use.

Check vehicles at the beginning of each shift to ensure that the parts, equipment, and accessories are in safe operating condition. Repair or replace any defective parts or equipment prior to use.

Do not operate vehicle in reverse with an obstructed rear view unless it has a reverse signal alarm capable of being heard above ambient noise levels or a signal observer indicates that it is safe to move.

Vehicles loaded from the top (e.g., dump trucks) must have cab shields or canopies to protect the operator while loading.

Ensure that vehicles used to transport workers have seats, with operable seat belts, firmly secured and adequate for the number of workers to be carried.

Equipment should have roll-over protection and protection from falling debris hazards as needed.

Prior to permitting construction equipment or vehicles onto an access roadway or grade, verify that the roadway or grade is constructed and maintained to safely accommodate the equipment and vehicles involved.

Do not modify the equipment's capacity or safety features without the manufacturer's written approval.

Where possible, do not allow debris collection work or other operations involving heavy equipment under overhead lines.

1.547 Traffic Safety

Wear high-visibility clothing and site required personal protective equipment (PPE) when working around heavy mobile equipment.

Ensure access to orange cones or barrels and appropriate warning signs.

Employees must avoid positioning themselves in a blind spot or riding on moving equipment.

Be aware of your location to traffic including motor vehicle heavy equipment, cyclists, and pedestrians.

Be aware of the visibility of approaching drivers. Check to see if there are any curves, crests of hills, trees and bushes, or parked vehicles.

Take note of any overhead cables, railway crossings, or right-of-way.

Be aware that larger vehicles are often wider than normal vehicles and may have protruding side mirrors.

Be aware of vehicles traveling faster than the speed limit.

Be aware of delivery vehicles, buses, or other vehicles that may periodically block signage or reduce road width.

Identify any traffic entering or exiting nearby commercial premises that could block signage or obstruct visibility of you or your co-workers.

Consider any police, ambulance, or fire stations you should be aware of.

Be aware of other roadside work or traffic control going on nearby.

Be aware of any pedestrian traffic near your work site.

Be aware of any children in the vicinity. Identify nearby schools, parks, playgrounds, etc.

Consider if the weather may impact the visibility of drivers (e.g., fog, heavy rain).

Be aware of the condition of the roads.

Be aware of any light conditions or location of the sun that may affect the drivers' visibility.

Consider how hazards may change over the course of the work (e.g., rush-hour traffic flows, school traffic and parking, special events).

Make eye contact with and alert the operator—and ensure the operator sees you—before approaching a vehicle.

Do not assume that drivers will see and avoid you or your co-workers.

56. ROADWORK SAFETY PROGRAM

1.548 Purpose and Scope

The purpose of this program is to safeguard the well-being of our employees, contractors, and the traveling public by establishing and promoting a culture of safety and adherence to best practices in road construction and maintenance.

This program applies to all Van Kirk Bros. Contracting employees.

1.549 Roadwork Safety

Every year ground workers are injured or killed by heavy mobile equipment. Many of these incidents are the result of rollovers or by individuals being struck or crushed by equipment. For the purposes of this program, motor vehicle heavy mobile equipment traffic includes vehicles on roadways near work sites and moving equipment within work sites.

Taking some time to understand and follow safety rules and staying alert while on the job can help employees stay safe.

1.550 Safe Work Practices

A hazard assessment for the work site and job classifications required in the activity area must be conducted prior to the start of work.

After conducting the hazard assessment, the hazards must be communicated to construction / street works / civil works prior to beginning work. This must be documented.

Planning the internal work activity area to minimize backing-up maneuvers of heavy equipment should be considered to minimize the exposure to risk.

Wear high-visibility clothing and site-required personal protective equipment (PPE) when working around heavy mobile equipment.

Ensure access to orange cones or barrels and appropriate warning signs.

Plan an escape route in case a vehicle crosses into the work zone.

Employees must avoid positioning themselves in a blind spot or riding on moving equipment.

Avoid setting up the work area near heavy mobile equipment when possible. Be aware that equipment operators may not see other employees if they are bending over to work or grab a tool.

Be aware of your location to traffic including motor vehicle heavy equipment, cyclists, and pedestrians.

Be aware of the visibility of approaching drivers. Check to see if there are any curves, crests of hills, trees and bushes, or parked vehicles.

Take note of any overhead cables, railway crossings, or right-of-way.

Be aware that larger vehicles are often wider than normal vehicles and may have protruding side mirrors.

Be aware of vehicles traveling faster than the speed limit.

Be aware of delivery vehicles, buses, or other vehicles that may periodically block signage or reduce road width.

Identify any traffic entering or exiting nearby commercial premises that could block signage or obstruct visibility of you or your co-workers.

Consider any police, ambulance, or fire stations you should be aware of.

Be aware of other roadside work or traffic control going on nearby.

Be aware of any pedestrian traffic near your work site. Is there a clear path for pedestrians to travel safely, including those with mobility issues such as the elderly or disabled?

Be aware of any children in the vicinity. Identify nearby schools, parks, playgrounds, etc.

Consider if the weather may impact visibility of drivers (e.g., fog, heavy rain).

Be aware of the condition of the roads. Are they slick or slippery?

Be aware of any light conditions or location of the sun that may affect the drivers' visibility.

Consider how hazards may change over the course of the work (e.g., rush-hour traffic flows, school traffic and parking, special events).

Avoid walking or working under a suspended load.

Make eye contact with and alert the operator—and ensure the operator sees you—before approaching a vehicle.

Do not stand in a roadway or traffic path if the work can be completed without doing so.

When working near a roadway, stay back as far as possible from the edge.

Avoid turning away from oncoming traffic when possible. Equipment noise and hearing protection work can prevent hearing approaching vehicles.

Do not assume that drivers will see and avoid you or your co-workers.

1.551 Training

All employees, including flaggers and spotters, must be trained on how to work next to motor vehicle traffic in a way that minimizes their vulnerability. Employees having specific responsibilities should be trained in the proper techniques, device usage, and placement.

57. Safety Committee Program

1.552 Purpose and Scope

The purpose of this program is to ensure the safety of our employees and to comply with health, safety, and environmental regulations set out by the clients. The purpose of the safety committee is to bring employees and management together on a regular basis in a cooperative effort to promote safety and health in the workplace.

This program applies to all Van Kirk Bros. Contracting employees.

1.553 Roles

Managers, supervisors, and employees will all be represented on the committee. The Safety Committee will not have more than the designated number of people on it at any one time.

Management / Supervisors: A representative is needed with authority to act on all major expenditures or procedural matters. The management representative should be familiar with corporate objectives and be aware of insurances costs and the need to control loss. The management team of the organization should be responsible for encouraging selected employees to join the Safety Committee.

Safety Director: If applicable, the Safety Director should attend all safety committee meetings and be as involved as is appropriate for the organization.

Employees: Only employees working at least one year at the company may participate as a member of the committee. The number of employees on the Safety Committee should reflect the need and size of the organization. Employees should make every effort to attend and participate in each meeting.

Chairperson: This is an elected position by the safety committee. The chairperson should work with committee members to plan meeting agendas. One member should be appointed as Secretary and record all minutes at the meetings. Minutes of the meetings should be provided to all committee members and accessible to all field supervisory personnel within a reasonable amount of time.

1.554 Meetings

The Committee shall meet on a regular basis as is necessary and efficient for the organization. A written agenda should be provided to all members by the committee chairman prior to the meetings.

Minutes should be taken at all Committee meetings, distributed to members and supervisors, accessible for employees, and retained for future use.

Safety Committee responsibilities may include at least the following:

- Planning and directing corporate loss education activities
- Create, review, update, and implement areas of the safety manual and other safety programs
- Review all accidents and losses
- Follow-up on employee suggestions
- Conduct OSHA and self-inspections and monitor safe behavior
- Implement workers' compensation carrier loss prevention recommendations and safety programs
- Conduct training sessions
- Complete Job Safety Analyses (JSA) on safety-sensitive and non-routine tasks
- Non-safety issues can be addressed such as: production, process, quality, etc.

58. Safety Meeting Program

1.555 Purpose and Scope

The purpose of this program is to cultivate a proactive safety culture by fostering awareness, communication, and continuous improvement through regular and mandatory safety meetings.

This program applies to all Van Kirk Bros. Contracting employees.

1.556 Safety Meeting Program

The primary goal of this safety program is to create a safe and secure work environment for all employees. Regular safety meetings will be conducted to address potential hazards, promote a safety culture, and ensure compliance with safety regulations.

During these meetings, we discuss various safety topics relevant to our work environment, ensuring that everyone is up-to-date on best practices and aware of any recent changes or concerns. These monthly gatherings serve as a valuable forum for team members to share their experiences, ask questions, and collaborate on ways to maintain and improve safety standards in our workplace.

1.557 Safety Meeting Schedule

Regular safety meetings will be scheduled on a monthly basis at a minimum. The schedule will be communicated to all employees in advance. Attendance is mandatory for all employees unless excused by their supervisor due to operational requirements.

1.558 Meeting Topics

Each safety meeting will focus on specific safety topics relevant to the workplace. Topics may include, but are not limited to:

- Hazard identification and mitigation
- Emergency response procedures
- Proper use of personal protective equipment (PPE)
- Safe housekeeping
- Reporting near misses and incidents

1.559 Meeting Format

Safety meetings can take various formats, including presentations, demonstrations, discussions, toolbox talks, or training sessions. The format will be determined based on the specific safety topic and the most effective means of communication.

1.560 Documentation

Records of safety meetings, including attendance and topics covered, will be maintained. These records will be accessible for review by relevant personnel, regulatory authorities, or auditors.

1.561 Employee Participation

Active participation and engagement of employees during safety meetings are encouraged. Employees are encouraged to share their observations, concerns, and suggestions related to safety.

1.562 Reporting Unsafe Conditions

Employees are encouraged to report any unsafe conditions, hazards, or incidents to their immediate supervisor or the designated safety officer promptly. Reporting can be done anonymously if preferred.

1.563 Consequences for Non-Compliance

Non-compliance with mandatory safety meetings may result in disciplinary action. The severity of the action will be determined based on the frequency and nature of non-compliance.

1.564 Continuous Improvement

This safety program will be subject to regular review and improvement. Feedback from employees, incident reports, and changes in regulations will be considered to enhance the effectiveness of the program.

1.565 Communication

Information about safety meetings, topics, and updates will be communicated through various channels, including notice boards, email, and verbal announcements.

59. SCAFFOLDS PROGRAM

1.566 Purpose and Scope

The purpose of this program is to provide training, guidance, and resources to ensure the safe and efficient use of scaffolds, reduce the risk of falls, and prevent accidents and injuries.

This program applies to all Van Kirk Bros. Contracting employees that work with or around scaffolds.

1.567 Resources

Number	Title
29 CFR 1926 Subpart L	Scaffolds
29 CFR 1910 Subpart J	General Environmental Controls – Specifications for Accident Prevention Signs and Tags
29 CFR 1926 Subpart G	Signs, Signals, and Barricades – Accident Prevention Signs and Tags
Cal/OSHA T8 CCR Subchapter 4	Construction Safety Orders – General Requirements – Injury and Illness Prevention – Safety Instructions for Employees
Cal/OSHA T8 CCR Subchapter 7	General Industry Safety Orders – Accident Prevention Tags

1.568 Definitions

Acronym/Term	Definition
Competent Employee / Person	A person who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
Guardrail System	A vertical barrier, consisting of, but not limited to, toprails, midrails, and posts, erected to prevent employees from falling off a scaffold platform or walkway to lower levels.
Lower Levels	Areas below the level where the employee is located and to which an employee can fall. Such areas include, but are not limited to, ground levels, floors, roofs, ramps, runways, excavations, pits, tanks, materials, water, and equipment.
Maximum Intended Load	The total load of all persons, equipment, tools, materials, transmitted loads, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time.
Personal Fall Arrest System	A system used to arrest an employee's fall. It consists of an anchorage, connectors, a body belt, or body harness and may include a lanyard, deceleration device, lifeline, or combinations of these.

Acronym/Term	Definition
Platform	A work surface elevated above lower levels. Platforms can be constructed using individual wood planks, fabricated planks, fabricated decks, and fabricated platforms.
Qualified	One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems related to the subject matter, the work, or the project.
Rated Load	The manufacturer's specified maximum load to be lifted by a hoist or to be applied to a scaffold or scaffold component.
Supported Scaffold	One or more platforms supported by outrigger beams, brackets, poles, legs, uprights, posts, frames, or similar rigid support.

1.569 Scaffolds Program

Scaffolding has a variety of applications. It is used in new construction, routine maintenance, renovation, painting, repairing, removal, and performing arts activities. Scaffolding offers a safer and more comfortable work arrangement compared to leaning over edges, stretching overhead, and working from ladders. Scaffolding provides employees safe access to work locations, level and stable working platforms, and temporary storage for tools and materials for performing immediate tasks. Scaffolding accidents mainly involve personnel falls and falling materials caused by equipment failure, incorrect operating procedures, and environmental conditions. Additionally, scaffolding overloading is a frequent single cause of major scaffold failure.

1.570 Training and Qualification

Each employee who performs work while on a scaffold shall be trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards.

Employees who work on scaffolds shall be trained on:

- The nature of electrical hazards, fall hazards, and falling object hazards.
- The correct procedures for dealing with electrical hazards.
- The correct procedures for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used.
- Proper use and proper handling of materials on the scaffold.
- The maximum intended load and the load-carrying capacities of the scaffolds used.
- Any other pertinent information under the OSHA regulation.

In addition, employees involved in erection, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold shall be trained by a competent person to recognize any hazards associated with the work in question. They shall also be trained in the correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question.

Only qualified and competent personnel shall modify scaffolding systems.

1.570.1 Retraining

When there is reason to believe an employee lacks the skill or understanding of the safe erection, use or dismantling of scaffolds, the employee shall be re-trained.

Retraining is required in at least the following situations:

- Where changes at the worksite present a hazard about which an employee has not been previously trained.
- Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained.
- Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.

1.571 Competent Person Responsibilities

The competent person's responsibilities include (but are not limited to):

- Design and preplanning of the scaffold including weight limitations, scaffold type, fall protection, tie-offs, supports, etc.
- Overseeing the erection of the scaffold. Final inspection of the scaffold prior to initial occupation for use.
- Overseeing disassembly of the scaffold.

1.572 Inspection

Scaffolds and scaffold components shall be inspected for visible defects by a competent person before each work shift and after any occurrence which could affect a scaffold's structural integrity. Any part of a scaffold damaged or weakened shall be immediately repaired or replaced, braced, or removed from service until repaired.

Unsafe equipment or conditions shall be tagged out by a competent person. Employees shall comply with tagging of unsafe equipment or conditions.

1.573 Safe Working Capacity and Load Ratings

Each scaffold and scaffold component shall be capable of supporting, without failure, its own weight and at least four times the maximum intended load applied or transmitted to it.

Scaffolds and scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

The design load of all scaffolds shall be calculated on the basis of:

- Light - designed and constructed to carry a working load of 25 pounds per square foot.
- Medium - designed and constructed to carry a working load of 50 pounds per square foot.
- Heavy - designed and constructed to carry a working load of 75 pounds per square foot.

The load limit must be on the scaffold itself.

1.574 Scaffold Platforms

Each platform on all working levels of scaffolds shall be fully planked or decked between the front uprights and the guardrail supports. All planking or platforms shall be overlapped (minimum 12 inches) or secured from movement.

The maximum work level height shall not exceed three times the least base dimension below the platform. Where the basic mobile unit does not meet this requirement, outrigger frames shall be employed to achieve this least base dimension, or provisions shall be made to guy or brace the unit against tipping.

1.575 Supported Scaffolds

Supported scaffolds with a height to base width (including outrigger supports, if used) ratio of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means.

Supported scaffold poles, legs, posts, frames, and uprights shall bear on base plates and mud sills or other adequate firm foundation. Footings shall be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement. Unstable objects shall not be used to support scaffolds or platform units.

Wheels or casters shall be properly designed for strength and dimensions to support four times the design working load. All scaffold wheels, casters, and swivels shall be provided with a positive locking device or other effective means to prevent movement of the scaffold.

Where leveling of the elevated work platform is required, screw jacks or other similar means for adjusting the height shall be provided in the base section of each mobile unit. The screw jack shall extend into its leg tube at least 1/3 its length but in no case shall the exposed portion of the screw jack exceed 12 inches.

1.576 Work Levels

All scaffold work levels 6 feet or higher above the ground or floor shall have a toe board at locations where persons are required to work or pass under the scaffold.

All scaffold work levels 30 inches or higher above the ground or floor shall have guardrail protection.

1.577 Access

When scaffold platforms are more than 2 feet above or below a point of access, portable ladders, hook-on ladders, attachable ladders, stair towers (scaffold stairways / towers), stairway-type ladders (such as ladder stands), ramps, walkways, integral prefabricated scaffold access, or direct access from another scaffold, structure, personnel hoist, or similar surface shall be used. Cross braces shall not be used as a means of access.

1.578 Power Lines

Scaffolds shall not be erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might come closer to exposed and energized power lines than as follows:

- Less than 50 kv- 10 feet.
- More than 50 kv- 10 feet plus 0.4 inches for each 1 kv over 50 kv.

1.579 Environmental Conditions

Employees shall not work on scaffolds covered with snow, ice, or other slippery material except as necessary for removal of such materials.

Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system or wind screens.

1.580 Fall Protection

Each employee on a scaffold more than 10 feet above a lower level shall be protected from falling to that lower level. Each employee shall be protected by the use of personal fall arrest systems or guardrail systems.

1.581 Falling Object Protection

In addition to wearing hardhats, each employee on a scaffold shall be provided with additional protection from falling hand tools, debris, and other small objects through the installation of toe boards, screens, or guardrail systems, or through the erection of debris nets, catch platforms, or canopy structures that contain or deflect the falling objects. When the falling objects are too large, heavy, or massive to be contained or deflected by any of the above-listed measures, such potential falling objects shall be placed away from the edge of the surface from which they could fall and shall be secured as necessary to prevent their falling.

1.582 Guardrail Systems

Guardrail systems shall be installed along all open sides and ends of platforms. Guardrail systems shall be installed before the scaffold is released for use by employees other than erection / dismantling crews.

60. Silica Exposure Program

1.583 Purpose and Scope

The purpose of this program is to provide information about silica, the potential health effects associated with exposure, and safety procedures that should be followed to reduce exposure and protect the health of employees.

This program applies to all Van Kirk Bros. Contracting employees.

1.584 Resources

Number	Title
29 CFR 1910 Subpart Z	Toxic and Hazardous Substances – Respirable Crystalline Silica
29 CFR 1926 Subpart Z	Toxic and Hazardous Substances – Respirable Crystalline Silica

1.585 Definitions

Acronym/Term	Definition
Action Level	A concentration of airborne respirable crystalline silica of 25 µg/m^3, calculated as an 8-hour (time weighted average) TWA.
Competent Employee / Person	A person who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
High-Efficiency Particulate Air (HEPA) Filter	A filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter.
Objective Data	Information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.
Respirable Crystalline Silica	Quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality—Particle Size Fraction Definitions for Health-Related Sampling.

1.586 Silica Exposure

Silica is the compound formed from the elements silicon (Si) and oxygen (O) and has a molecular form of SiO_2. Silica is the second most common mineral on earth, found in the common form as sand and rock. The three main forms or polymorphs of silica are alpha quartz, cristobalite, and tridymite. The polymer most abundant and most hazardous to human health is alpha quartz and is commonly referred to as crystalline silica.

The health hazards of silica come from breathing in the dust. If crystalline silica becomes airborne through industrial activities, exposures to fine crystalline silica dust (specifically exposure to the size fraction that is considered to be respirable) can lead to disabling, sometimes fatal disease called silicosis.

No employee shall be exposed to an airborne concentration of respirable crystalline silica in excess of 50µg /m^3, calculated as an 8-hour time weighted average (TWA).

1.587 Training

All employees who are exposed to action level respirable crystalline silica at or above the action level (8-hour TWA of 25µg/m^3) shall be provided with training initially and refresher training periodically.

The training shall ensure that employees covered by the written exposure control plan can demonstrate knowledge and understanding of at least the following:

- The health hazards associated with respirable crystalline silica.
- The specific tasks in the workplace that could result in exposure to respirable crystalline silica.
- The specific measures taken to protect employees from exposure to crystalline silica.
- The contents of the respirable crystalline silica rule.
- The designated competent person.
- The purpose of the medical surveillance program.
- The appropriate use of respiratory protection related to respirable crystalline silica. Appropriate respirators, approved by the National Institute for Occupational Safety and Health (NIOSH) and based upon the measured exposure levels of workers and the assigned protection factors (APF) of the respirators must be selected.

1.588 Assessments

The exposure of each employee who is or is expected to be exposed to respirable crystalline silica at or above the action level (8-hour TWA of 25 µg/m³) shall be assessed. This assessment can be performed by monitoring employees individually or taking a representative sample from employees.

Exposures shall be reassessed whenever there is a change in the production, process, control equipment, personnel, or practices that may reasonably be expected to result in new or additional exposures at or above the action level, or when there is any reason to believe that new or additional exposures at or above the action level have occurred.

Each affected employee shall be individually notified in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees. Whenever an exposure assessment indicates that employee exposure is above the permissible exposure limit (PEL), the corrective action being taken to reduce employee exposure to or below the PEL shall be described in the written notification.

1.589 Respiratory Protection

Appropriate respirators shall be provided to employees who are or will be exposed to actionable levels of respirable crystalline silica. Table 1 of 1926.1153 (c) shall be referenced for specified exposure control methods. If an employee is performing a task listed in Table 1 that does not require the use of a respirator, then they are not required. All other tasks not covered by Table 1 shall be accounted for by providing respirators if necessary.

Respiratory protection is required:

- Where exposures exceed the PEL when installing or implementing engineering and work practice controls.
- During tasks for which engineering and work practice controls are not feasible.
- When all feasible engineering and work practice controls are not sufficient to reduce exposures to or below the PEL.
- During periods when the employee is in a regulated area.

1.590 Regulated Area

A regulated area shall be established wherever an employee's exposure to airborne concentrations of respirable crystalline silica is, or can reasonably be expected to be, in excess of the PEL.

1.591 Controls

Engineering and work practice controls shall be used to reduce and maintain employee exposure to respirable crystalline silica to or below the PEL. Wherever such feasible engineering and work practice controls are not sufficient, the Company shall use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection.

1.592 Exposure Control Plan

A written exposure control plan that contains at least the following elements shall be established and implemented:

- Description of the tasks in the workplace that involve exposure to respirable crystalline silica.
- Description of the engineering controls, work practices, and respiratory protection used.
- Description of the housekeeping measures.

The effectiveness of the written exposure control plan shall be reviewed and evaluated at least annually. The written exposure control plan shall be readily available for examination and copying upon request. Copies may be available electronically or physically, depending on location needs and requirements.

A competent person shall be designated to make frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan.

Exposure tasks may include but are not limited to activities such as:

- Sawing
- Drilling
- Jackhammering
- Grinding

Any changes in task shall be communicated to affected employees.

Situations where reevaluation may be necessary include regulatory updates, changes in equipment, and exposure incidents. Any changes resulting from this process shall be communicated to affected employees.

1.593 Housekeeping

A description of housekeeping measures used to limit exposure to respirable crystalline silica shall be in place. Some examples of these measure include:

- HEPA-filtered vacuuming
- Wet sweeping
- Wetting
- Any other techniques used to limit the amount of respirable crystalline silica exposure during housekeeping activities.

Compressed air shall be used to clean clothing or surfaces where doing so could contribute to employee exposure to respirable crystalline silica.

Dry sweeping or dry brushing shall not be allowed where such activity could contribute to employee exposure to respirable crystalline silica unless wet sweeping.

1.594 Medical Surveillance

A medical surveillance program shall be established for employees who are exposed to the action level of 8-hour TWA of 25µg/m³ of respirable crystalline silica at no cost to the employee, at a reasonable time and place.

A baseline medical assessment shall be available to exposed employees within 30 days of initial assignment unless they have previously received a suitable medical examination in the past 3 years. This applies to employees who would be required to wear a respirator more than 30 days per year or who are exposed to action level respirable crystalline silica for more than 30 days per year. A suitable prescreen that meets the same requirements is also acceptable.

1.595 Recordkeeping

An accurate record shall be made available and maintained of all exposure measurements taken to assess employee exposure to respirable crystalline silica, all objective data relied upon to comply with the requirements, and accurate records for each employee covered by medical surveillance.

This record of exposure measurements shall include at least the following information:

- The date of measurement for each sample taken.
- The task monitored.
- Sampling and analytical methods used.
- Number, duration, and results of samples taken.
- Identity of the laboratory that performed the analysis.
- Type of personal protective equipment, such as respirators, worn by the employees monitored.
- Name and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

This record of objective data shall include at least the following information:

- The crystalline silica-containing material in question.
- The source of the objective data.
- The testing protocol and results of testing.
- A description of the process, task, or activity on which the objective data were based.
- Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

The record of medical surveillance shall include the following information about the employee:

- Name and social security number.
- A copy of the physician or other licensed health care professionals’ and specialists' written medical opinions.
- A copy of the information provided to the physician or other licensed health care professionals and specialists.

61. Skid Steer Safety Program

1.596 Purpose and Scope

The purpose of this program is to minimize the risk of accidents, injuries, and property damage associated with skid steer operations by providing comprehensive training, guidelines, and safety protocols.

This program applies to all Van Kirk Bros. Contracting employees that operate or work near skid steers.

1.597 Skid Steer Safety

Skid steer loaders can be dangerous if you do not observe certain safety precautions. Injuries and death are preventable. The most commonly reported causes of serious injury and death using skid steer loaders are:

- Crushed by moving parts
- Rollover accidents

1.598 Safety Messages and Signs

Manufacturers put important safety messages on equipment and in the operator's manual. It is critical to read, understand, and follow all safety messages.

The triangle shape is the symbol for caution. The exclamation mark in the center means Pay Attention. In some instances, the triangle-shaped sign will show a picture. Other times, words explain why the sign is used.

Many safety messages use the words Caution, Warning, and Danger to get your attention. Following are safety messages and their meanings. Each of these signs will have a written message, and perhaps a picture, about an unsafe condition.

CAUTION means you need to be careful. Follow the directions on the sign or you could get hurt.

WARNING is more serious and means you need to follow the directions on the sign, or you could be badly hurt or killed.

DANGER is the most serious safety message. If you do not follow the directions, you will be seriously injured or killed.

1.599 Pre-Start Inspection

Safety starts before the engine. Every day, walk around the loader to see that it is ready for safe operation. Alert supervision before starting the loader if anything is found wrong during the daily check.

1.599.1 Tires

Proper maintenance is important because good tires allow a skid steer loader to perform well on different types of surfaces. Proper tire inflation information will be printed on the sidewall of the tire.

1.599.2 Cab

Some loaders are factory-equipped with side screens, to keep from getting crushed by moving parts outside the cab. Some cabs are also designed to protect the operator if the loader rolls over or if material falls onto the cab. If the cab frame or side screens are damaged or appear to have been altered, tell supervision, and do not operate the loader until a qualified person has determined it is safe.

1.599.3 Safety Belt and Bar

The safety belt and safety bar work together to keep the operator securely in the driver's seat during operation. Damage to either of these safety devices can lead to serious injury.

1.599.4 Grab Handles

Hands can easily slip off worn-out grips causing workers to fall or lose control of the loader.

1.599.5 Steps

Slips and falls on steps are common and can cause controls inside the cab to engage if workers fall on them. Keep the steps free of ice, mud, and debris. When the non-slip step surface becomes worn, it can become slick and should be replaced.

1.599.6 Attachments - Front and/or Rear

Many different attachments are used on skid steer loaders, including buckets, backhoes, augers, chippers, trenchers, and pallet forks. Make sure attachments are mounted and fastened correctly. The sudden release of an attachment can cause a load to drop, making the loader unstable and possibly injuring bystanders.

1.599.7 Fluid Leaks

Leaks can cause the loader to break down. Fluids can also be a fire hazard. Puddles of fluid under the loader indicate something is leaking. Report signs of leaking fluid to supervision immediately.

1.600 Safe Start Up and Shut down

1.600.1 Entering

Workers are crushed and killed by moving parts when they do not climb into the skid steer loader safely. To prevent accidents, enter according to the manufacturer's instructions.

- Enter only with the engine off, lift arms down and attachments on the ground.
- Face the seat with both hands on the grab bars.
- Never use the control levers as grab bars.
- Use the steps made for entering.

1.600.2 Safe Start Up Practices

- Fasten safety belt.
- Lower the safety/restraining bar (if so equipped).
- Make sure controls are in neutral and the parking brake is set.
- Clear the area of people.
- Start the engine.
- Test all controls.
  - Steering
  - Forward
  - Reverse
  - Raise and lower lift arms
  - Attachment controls
- Check the brakes.
- Check the horn and backup alarm (if so equipped).

Never try to start a loader from outside the cab.

Never operate the machine if any safety device is missing or damaged.

Never climb out of a loader with the engine running.

Never start the engine by shorting across the starter terminals.

Refer to the operator's manual for instructions on jump-starting if necessary.

1.600.3 Safe Shut Down and Exit

Many operators are killed trying to climb out of the cab without observing safe shut down procedures. Protect yourself by always following these precautions.

- Park on a level surface.
- Lower the lift arms and attachments to the ground.
- Place the controls in neutral.
- Set the parking brake.
- Turn the engine off.
- Cycle the controls to relieve hydraulic pressure.
- Make sure the controls are locked (if so equipped).
- Remove the ignition key.
- Unbuckle the safety belt and raise the safety bar.
- Exit according to manufacturer's instructions using the steps on the loader and the grab handles for support.
- Block the wheels if there is a chance the loader will roll.

1.601 Moving Parts

Being crushed by moving parts is the most commonly reported cause of death when operating a skid steer loader. Crushing accidents happen while entering and exiting, during operation, and when performing maintenance. Even when the loader is equipped with interlocks, those interlocks are not fool proof. People are killed in ways that cannot be prevented by interlock systems.

1.601.1 How to Avoid Being Crushed

- Never enter or exit under a raised attachment because it could fall.
- Never start the engine or operate controls from outside of the cab. The loader or lift arm attachments can move and crush workers when the controls are engaged.
- Always fasten the safety belt and lower the safety bar when in the operator's seat to stay securely in the cab, protected from being crushed.
- Never climb into or out of the cab while the engine is running.
- Workers can be crushed if the controls are bumped.
- Never lean out of the cab while the engine is running. Keep head, arms, and legs inside or workers can be crushed by moving lift arms or attachments.
- Never lift an attachment above a person. Loads can shift or fall out, or the attachment can drop unexpectedly, crushing anyone under it.
- Never lift loads so high or roll attachments back so far that material dumps into the cab, landing on workers.
- Never work under a raised attachment, unless the lift arms are secured in the "up" position using approved lift arm supports. Contact the manufacturer for information if the loader does not have lift arm supports.
- Whenever possible, perform maintenance work with the engine off, key removed, parking brake set, wheels blocked, and attachments lowered or supported by an approved lift arm support.

1.602 Prevent Rollovers

When a skid steer loader becomes unstable or out of balance, it tips over. Overloading, carrying loads too high, operating on rough or uneven surfaces, adding attachments, or driving too fast for conditions cause the loader to become unstable.

Human reaction time is too slow to stop a rollover once it starts. Avoid rollovers by recognizing dangerous situations and taking action to avoid them.

Rollover protective structures (ROPS) and seatbelts must be installed on skid steers.

1.602.1 Avoid Rollover Accidents

- Do not overload the attachment. Check the capacity label, data plate, or operator's manual for the maximum load limit. Exceeding that limit may cause the loader to become unstable and roll over.
- Evenly distribute the load on the attachment so the loader does not tip over.
- Secure unstable loads so they will not shift or fall. When securing is necessary, lower the lift arms, shut off the engine, climb out, chain the load in place, climb back in the cab, start the loader, and proceed with the job.
- Lift loads slowly and evenly to keep the loader stable.
- Carry loads close to the ground, yet high enough to clear obstacles. When a load is carried too high, skid steer loaders are more likely to tip. It is especially important to carry the load as low as possible when turning, carrying a heavy load, travelling on a slope, or operating on rough surfaces.
- Keep the attachment level while moving lift arms or driving up and down hills, otherwise the load could shift and make the loader out of balance.
- Operate at a speed that is appropriate for conditions, so control of the loader is not lost.
- Operate the controls smoothly to prevent jerking or bucking.
- Operate on level, stable surfaces. Load, unload, and turn on solid, level ground.
- Drive up and down hills, not across them. Drive slowly on slopes.
- Keep the heavy end of the loader pointed uphill. When fully loaded, skid steer loaders should be driven with the load uphill. When unloaded, the rear of the loader is heavier, so the back of an empty loader should be pointed up hill. If unsure of which end is heaviest because of added attachments, check the operator's manual.
- Do not make sharp turns on hills or the loader may roll over. Stay away from steep hills entirely. The operator's manual defines the maximum slope for the loader.
- Avoid holes, large bumps, soft spots, and weak floors. All can make the loader unstable.
- If railroad tracks, ditches, curbs or similar rough surfaces must be crossed, cross at an angle and drive slowly.
- Stay away from steep edges on loading docks, ramps, ditches, retaining walls, and near trenches; otherwise, workers could fall over the edge, or the bank could cave in.

1.603 Other Operational Hazards

Deadly accidents involving skid steer loaders are not limited to crushing and rollovers. Other dangers include running over yourself or others, running into obstacles, traffic accidents, electrocution, and poisoning caused by carbon monoxide, fuels, or fluids.

1.603.1 Steer Clear of Runover Accidents

- Wear the safety belt and use the safety bar to stay safely inside the cab.
- Know where coworkers are. Check all around before moving the loader. Keep other people away while operating and never let anyone get close enough to be crushed by unexpected loader movements.
- Drive forward when on level ground unless the load blocks the view, or the attachment is designed to be used with the loader in reverse. When a load blocks the view, either drive in reverse (if the loader is designed to see behind) or have a coworker guide. Work out hand signals in advance. Make sure coworker stays a safe distance from the loader.
- Watch for traffic and pedestrians when crossing or working near roads, driveways, parking lots, building corners, shrubs, trees, and other blind spots. People, animals, and traffic move quickly and may not realize they are in the path of danger. Be aware of surroundings at all times. Look in the direction driving.
- Operate the loader smoothly to maintain control to not injure yourself or others nearby.
- Do not ram the attachment into materials. Risks include:
    - Running into an object hidden by the material.
    - Running through the pile and hitting someone or something on the other side.
    - Losing control of the loader.
- Never allow riders. The cab is built for one person and attachments are not for carrying people.

- Prevent the loader from moving unexpectedly during maintenance:
  - Park on a level surface.
  - Lower the attachment(s).
  - Place the controls in neutral.
  - Set the parking brake.
  - Turn the engine off.
  - Cycle through the controls to relieve hydraulic pressure.
  - Follow safe shut down procedures so controls are locked.
  - Block the wheels so that loader will not roll.

1.603.2 Stay Away from Obstacles

- Check the work area before starting. Note all potential obstacles (e.g., tree branches, pipes, or any object) that could come through the cab. Make sure there is adequate clearance through aisles, doorways, and other openings.
- Maintain a clear line of sight. Keep the windshield and the back window clean if the loader has them.
- Keep attachments and loads as close to the ground as possible so they do not block the view.
- Use extra caution indoors. Loaders respond quickly to their controls. It is easy to run into walls, overhead doors, or pipes.

1.603.3 Beware of Undercutting

Digging into the bottom of a material pile is called undercutting. The overhang created by an undercut can collapse.

- Do not work with material piles that are taller than the raised attachment.
- Work from the top down, shaving material from the front of the pile so it will not collapse.

1.603.4 Dangers of High-Pressure Hydraulic Fluid

Hydraulic fluid flows through hoses under very high pressure. Leaks from a thin, high-pressure stream that quickly cuts through skin can cause serious injury. Never use hands to check for a hydraulic fluid leak. If there may be a leak, have it checked by someone who is qualified to check for hydraulic fluid leaks.

1.603.5 Carbon Monoxide Kills

Indoor work sites require fresh air ventilation. Gasoline, diesel, and LP gas powered loaders produce carbon monoxide (CO), a deadly, odorless, colorless gas. CO can poison workers before realizing it. Symptoms of CO poisoning include headache, nausea, weakness, dizziness, and loss of consciousness. When working indoors, if anyone has these symptoms, shut down the loader, get everyone out of the building, and call 911.

1.603.6 Use Caution Near Gasoline and Fuels

Gasoline and other fuels are flammable.

- Always shut off the engine before refueling.
- Never smoke or allow open flames near fuel.
- Check the operator's manual for correct fueling guidelines.
- Touch the fuel nozzle to the loader before opening the fuel cap to reduce the chance that a static spark will ignite the fuel. Keep the nozzle in contact with the filler neck while fueling. Replace the cap as soon as finished.
- Use only approved fuel containers.
- Never clean hands or machine parts with gasoline. Use a nonflammable solvent instead.
- Fill fuel containers correctly. To reduce the chance of static sparks, do not fill containers (plastic or metal) in a car or the bed of a pickup.
    - Always shut off the engine before refueling.
    - Touch the fuel nozzle to the container before removing the container lid.
    - Keep the nozzle in contact with the container while filling.
    - Do not fill to the brim. Leave room for expansion. Containers and gas tanks should be filled 3/4 full.

1.603.7 Guard Against Electrocution

High voltage electricity can jump several feet away from a power line and travel through metal, wood, vegetation, and many other materials. Talk with supervision before starting on a job that requires work near any electric power source.

- Call the state's one-call utility location hotline to identify buried lines before digging.
- Do not carry tall loads near power lines.
- Keep the attachment as low as possible when working near overhead lines.
- Do not drive over downed or exposed power lines.

If the loader contacts an electrical source:

- Remain calm.
- Follow safe shutdown procedures.
- Stay in the seat or risk being electrocuted.
- Shout for someone to call the power company.
- Keep people away from the machine or they too could be electrocuted.
- Wait until the power has been disconnected to get out of the loader.

1.603.8 Prevent Accidents Near Traffic

A skid steer loader is not made for street or highway travel. To be safe, load it onto a trailer and pull it to job sites. When the loader must be moved short distances on a public roadway, keep the following safety tips in mind.

- Lock attachments in the transport position.
- Observe all traffic signals, signs, and rules.
- Mount a Slow-Moving Vehicle (SMV) emblem on the back to indicate the loader is moving at a speed less than 25 m.p.h.
- Use caution at intersections. Allow faster moving vehicles to go first. Make sure you have enough time to get through safely, without interrupting traffic flow.
- Do not drive at night unless the loader is equipped with lights as required by state law.
- Use a flagger and highly visible warning cones to alert oncoming traffic when working near a public roadway. Locate flaggers and cones far enough ahead of the work site so drivers have time to slow down.

- The skid steer operator and the flagger should wear highly visible, reflective clothing.
- Do not park the loader on a public roadway. It creates a hazard for the operator and motorists. Park away from the road on a level surface if the loader must be left at a job site.
- Check the operator's manual for instructions before hauling the loader on a trailer.

Safely drive a loader on a Trailer:

- Keep bystanders at a safe distance while loading.
- Select a level surface.
- Block the wheels of the transport vehicle and the trailer.
- Use a ramp that can safely accommodate a skid steer loader.
- Back the loader up the ramp to keep the heavy end uphill. This helps prevent rollovers.
- Drive forward down the ramp.
- Set the parking brake, chain, and block the loader so it will not move during transport.

62. Spill Prevention and Response Program

1.604 Purpose and Scope

The purpose of this program is to outline the procedures and training necessary to ensure adequate and efficient control, containment, and management of materials and equipment that may be accidentally released during operations.

This program applies to all Van Kirk Bros. Contracting employees.

1.605 Spill Prevention and Response

The ultimate goal of a spill prevention and response plan is to prevent or reduce pollutants from operations and to promote good housekeeping practices.

1.606 Best Management Practices

Chemical substances shall be stored in proper containers to minimize the potential for a spill. Whenever possible, chemicals shall be kept in closed containers and stored so they are not exposed to stormwater.

Other best management practices include but are not limited to:

- Material compatibility of the chemicals with the containers and the container with its environment.
- Keeping substances in closed containers and away from potential receiving waters.
- Good housekeeping including neat and orderly storage of chemicals and prompt removal of spillage.

1.607 Inventory

A material inventory identifying hazardous substances and toxic chemicals shall be part of the risk identification and assessment plan needed to determine the potential for spills.

1.608 Spill Response Materials

A proper spill kit shall contain the appropriate supplies for materials that may be spilled. Supplies shall be easily accessible when required, and considerations shall be made for both the type and quantity of materials.

1.609 Training

Employees shall be instructed on the proper response procedures for spilled materials. The training shall include materials and processes available for use, proper waste disposal, safety hazards, practices for preventing spills, communication procedures, and procedures for responding properly and rapidly to toxic and hazardous materials incidents.

1.610 Reporting

Environmental spills shall be reported to environmental authorities as required. Reporting procedures must be based on type and quantity of materials spilled.

Reporting procedures shall include notification of a discharge to appropriate personnel to initiate immediate action, formal written reports for review and evaluation by management, and notification as required by law to governmental and environmental agencies.

63. Steep Slope Safety Program

1.611 Purpose and Scope

The purpose of this program is to minimize the risk of accidents, injuries, and property damage associated with working on steep terrain by providing guidelines and safety protocols.

This program applies to all Van Kirk Bros. Contracting employees.

1.612 Steep Slope Safety

Steep slopes and other types of terrain may be hazardous and have the potential to greatly impact the safety of personnel and equipment, as well as quality and production if not appropriately identified, evaluated, and addressed.

1.613 Hazard Assessment

Perform steep slope hazard assessments prior to commencement of the applicable work / operations. The hazard assessment should identify steep slope-related exposures, prescribe appropriate remedies or mitigating controls, and lead into the creation of work plans (or equivalent project documents).

Review and update the hazard assessment prepared for steep slopes when:

- There is a change in how a task is performed.
- Modifications are made to equipment, tools, or the product being installed.
- Any time there is a change or modification to the composition of the crews / personnel.
- Changes in work site conditions occur, (e.g., weather, extreme temperatures).
- A specific need or concern is identified, (i.e., as needed to protect the safety of personnel or property).

1.614 Equipment and Supplies

Follow manufacturer guidelines and visually inspect equipment and devices prior to use and at least daily when in use.

Attachments or modifications to equipment, rigging, chokers, and winch line size should be in accordance with industry best practices and manufacturer's guidelines or designed and/or reviewed by an appropriate Professional Engineer prior to use on a steep slope.

1.615 Hazard Mitigation

Installation locations with steep slopes should be identified by the Project Owner and confirmed and refined (as needed) by the company responsible for construction.

Access routes to the top and bottom of steep slopes should be clearly defined and restricted to personnel trained for and equipment designated for work in steep slope areas.

All slopes should be inspected prior to beginning work each day. If slope conditions change during the shift, (e.g., due to weather conditions, newly exposed rock) work should be interrupted and the JSA modified to reflect the changed condition.

Only essential personnel and equipment should be present while work is taking place on steep slopes.

1.616 Steep Slope Identification, Assessment, and Evaluation

For purposes of these guidelines, steep slopes are typically categorized as having a measured gradient of 30% (16.7 degrees), or greater. Some shorter length or lower gradient slopes may meet the criteria and require the same qualifications and mitigation measures due to other conditions (e.g., soil types, environmental factors).

For each location identified as a steel slope, a safe work planning meeting should be held to formulate a plan based on site-specific conditions.

Steep Slope Identification and Assessment should be conducted before and during the clearing process, at many locations along the right-of-way as possible, and after clearing to confirm or adjust the site-specific measurements.

The purpose of the Steep Slope Identification and Assessment is to:

- Identify slopes that may be hazardous.
- Assess the slope and conditions contributing to potentially hazardous terrain.
- Determine locations, gradients, lengths, and other relevant conditions.
- Determine access requirements.
- Designate required control measures.
- Designate the appropriate equipment and rigging.
- Establish procedures and methods for safe execution.

To establish appropriate safety measures, the following general factors should be considered:

- Degree of slope(s) that exists (as noted in topographical maps, LiDAR, fly overs, and/or job walks) and length of slope(s) present. Do not average slope gradient and the slope length.
- Soil conditions, general moisture content, presence of rock and if so the condition of the rock and underlying material.
- Roughness or irregularity of the terrain, including the presence of boulders or stumps.
- Terrain and formations off slope that may reveal conditions not detectable along the slope.
- Environmental conditions at the site, such as weather (e.g., snow, heavy rainfall), water, and the possibility of flash floods (e.g., storm runoff). Consider current weather conditions, and near future weather conditions, as related to the work task.
- Anticipated duration of exposure.
- The nature of the tasks to be performed and equipment and rigging to be used.
- Equipment connection points (point on machine) and factors that could affect traction and/or rolling resistance.
- The experience of the Operators on the crew (e.g., previous experience working in the same area or in similar conditions).
- Project Owner's specific requirements.
- When analyzing steep slopes, it must be recognized that soil types, other slope conditions, and specific equipment being used can greatly affect traction on steep slopes.
- Take into account the requirements of the machine and base-mounted hoist to be used.

1.617 Communication and Signage

Methods of communication and verification can include, but are not limited to:

- Use of Spotters at crest of hill.
- Signage placed at the crest and toe designating the presence of hazardous terrain locations and/or a blind crest or break over.
    - Signage should include slope percentage / degrees and could include list or pictograms of what equipment is not permitted to proceed any further.
    - Signage should be installed notifying workers of approach to the blind crest and identifying its location. This allows for effective communication over two-way radio (e.g., Pickup travelling up slope to 7+300 crest.).
- Radio checks and channel to use, prior to approaching the break over.

- Use of safety antennas (i.e., “buggy whips”) on UTVs and vehicles during designated slope projects. Where applicable, a safety antenna may be fastened to equipment / pipe.
- Operator visual ground verification prior to cresting.

The most effective communication devices available should be used by equipment operators, spotters, etc. while working on hazardous terrain installations. Device types to consider include, but are not limited to, hands free (e.g., voice activated two-way radios), remote microphone, or handheld.

A designated person with an air horn should be put in place to warn of falling debris or other hazards. Warning signals shall only be sounded if there is an immediate danger (dislodged rock, sliding equipment, material slide, broke winch line, etc.).

1.618 Emergency Response

Site-Specific Emergency Response information should be included in the Site-Specific Steep Slope Plan.

The following considerations should be addressed, as applicable:

- Response to equipment upsets, cable breaks, winch breakdowns.
- Response to slope / terrain failure.
- High angle rescue protocol.
- Medevac helicopter extraction, or other extraction plans if helicopter access is not possible.
- First aid / CPR personnel plan.
- Response protocol in the case of any personal injuries on the slope or any areas around the hazardous terrain that are difficult to access.

1.619 Personal Protective Equipment (PPE)

Always wear appropriate and approved gloves when handling or pulling cable and grasp the end ring.

Use other PPE identified by the hazard assessment process and in work plans (e.g., fall protection).

1.620 Full Body Harness

Workers are required to don a full body harness attached to a lifeline on any slope of 40 degrees.

1.620.1 Personal Fall Arrest

The full body harness is used as a component of a personal fall arrest system. Personal fall arrest systems typically include a full body harness and a connecting subsystem (energy absorbing lanyard). Maximum arresting force must not exceed 900 lbs, for fall arrest applications connect the fall arrest subsystem (example: lanyard, energy absorber, etc.) to the D-ring or attachment element on the users back, between the shoulder blades.

1.620.2 Restraint

The full body harness is used as a component of a restraint system to prevent the user from reaching a fall hazard. Restraint systems typically include a full body harness and a lanyard or restraint line.

1.620.3 Rescue

The full body harness is used as a component of a rescue system. Rescue systems are configured depending on the type of rescue. For limited access (confined space) applications, harnesses equipped with D-rings on the shoulders may be used for entry and egress into confined spaces where worker profile is an issue.

1.620.4 Safe Use Practices

Full Body Harnesses are intended to be used with other components of a Personal Fall Arrest system that limit maximum arrest forces to 1800 pounds or less.

- Employees shall be trained in accordance with the requirements of OSHA 29 CFR 1910.66 in the safe use of the system and its components before using a full body harness.
- Inspect all equipment for wear, damage, and other deterioration prior to each use. Remove defective equipment from service immediately.

- Thoroughly evaluate and plan all elements of Fall Protection System(s) before using this equipment. Make sure that the Personal Fall Arrest System is appropriate for the needs and facility. Calculate fall clearance and swing fall clearance. The clearance required is dependent on the type of connecting subsystem, the anchorage location, and other factors. When calculating distance, be sure to consider:
    - Deceleration Distance and Free-Fall Distance
    - Movement of Harness Attachment (D-Ring)
    - Worker Height (how tall is the worker?)
    - Elevation of Anchorage Connector
    - Connecting Subsystems Length and D-Ring Connector Length
    - Length of Full Body Harness Stretch
- Swing fall occurs when the anchorage point is not directly above the point where a fall occurs. The force of striking an object in a swing fall may cause injury or death. Minimize potential swing falls by working as closely to the anchorage point as possible. Swing falls significantly increase the amount of clearance required.
- Users must have a written rescue plan and the means to implement it. This plan must provide prompt employee rescue or ensure employees have the ability to rescue themselves in the event of a fall.
- Store this equipment in a cool, dry, and clean environment that is out of direct light when not in use to prevent UV degradation.
- This equipment must be removed from service immediately if a fall is incurred or if any part of the load indicator warning is showing.
- Use only with compatible components. Substitutions or replacements made with non-approved components or subsystems may jeopardize compatibility of equipment and may affect the safety and reliability of the complete system.
- Use only with structures capable of supporting static loads required for Personal Fall Arrest Systems (PFAS). Anchorages used for PFAS must be capable of sustaining static loads in the direction permitted by the PFAS of at least 3,600 pounds with certification of a qualified person, or 5,000 pounds without it. When more than one PFAS is attached to an anchorage, the strengths stated above must be met independently at and for each anchorage location.
- Do not expose equipment to chemicals or harsh solutions that may have a harmful effect.

- User must not use or install equipment before receiving proper training from a competent person.
- Only the manufacturer shall make repairs or alterations to the equipment.
- All synthetic material must be protected from slag, hot sparks, open flames, or other heat sources. The use of heat-resistant materials is recommended in these applications.

1.620.5 Anchorage Requirements

In accordance with ANSI Z359.1, anchorage selected for Personal Fall Arrest Systems must meet all anchorage strength requirements. Anchorage and anchorage strength requirements are dependent on the full body harness application. All anchorages for Personal Energy Absorbers and Absorbing Lanyards shall meet OSHA 29 CFR 1910.66 and ANSI Z359.1-2007 requirements. OSHA states: Anchorages to which personal fall arrest equipment is attached shall be capable of supporting at least 5,000 pounds per employee attached, or shall be designed, installed, and used as part of a complete personal fall arrest system which maintains a safety factor of at least two, under the supervision of a qualified person.

ANSI Z359.1-2007 states: Anchorages in a personal fall arrest system must have strength capable of sustaining static loads applied in all directions permitted by the system of at least a.) two times the maximum arrest force permitted on the system with certification or, b.) 5,000 pounds without it. When more than one personal fall arrest system is attached to an anchorage, the strength in (a) and (b) must be multiplied by the number of personal fall arrest systems attached.

Per ANSI Z359.4-2007: Anchorages used in rescue systems and controlled descent must be capable of supporting loads of 3,100 ft-lb. for non-certified anchorages, or a 5:1 safety factor for certified anchorages. Per ANSI Z359.2-2007: Anchorages used in restraint systems must be capable of supporting loads of 1,000 ft-lb. for non-certified anchorages or two times the foreseeable force for certified anchorages. Per ANSI Z359.2-2007: Anchorages used in work positioning systems must be capable of supporting loads of 3,000 ft-lb. for non-certified anchorages or two times the foreseeable force for certified anchorages.

Anchorages shall be located above the user’s head in a vertical position, or they should be positioned as to not exceed the maximum allowable free-fall for the system.

1.620.6 Inspection

Harness must be inspected by a competent person at a minimum of twice per year (every six months). If the harness is exposed to extreme or severe conditions, more frequent formal inspections may be required. Record the results of each formal inspection in the inspection log. Remove harness from service immediately after a fall has occurred.

Full body harness should be inspected by the user before each use with the following inspection. In addition, the unit should be fully examined to ensure:

- Markings are legible.
- All connectors and buckles engage securely.
- Metal parts are free from corrosion, bending, cracks, dents, or deformity.
- Webbing shows no evidence of rips, tears, frayed edges, broken fibers, pulled stitches, cuts, burns, and chemical damage.
- Harness is clean and free of dirt, oil, mold, mildew, and other contaminants.
- Load indicator warning must be checked. If any part of the fall indicator warning (located on the webbing below the dorsal D-Ring pass) is showing, the harness must be removed from service.

1.620.7 Cleaning and Maintenance

Wipe off all surface dirt. Store in clean, dry space, away from heat and areas where chemical vapors may exist. Avoid storing in direct light to prevent UV degradation.

Do not attempt to disassemble or repair. Only the manufacturer or entities authorized by the manufacturer shall make repairs, authorize maintenance, or make alterations to the equipment.

1.621 Employees Working on Steep Slopes

No unnecessary ground personnel should be allowed on the slope or near the operation when equipment is moving, or winch lines / rigging are under load.

The Foreman will communicate and train his crew on the plan through a daily Job Safety Analysis (JSA).

Information to address in the site-specific hazardous terrain JSA include:

- Gradient of Slope (degree, %)
- Environmental Concerns (types of soil, weather, etc.)
- Length of the Slope
- Soil Conditions (wet, dry, frozen, etc.)
- Scope of Work
- Qualifications and Experience of the Operator(s)
- Equipment being used and corresponding safety measures

- Slope-specific emergency response and communication protocols

When the work activity requires that personnel or equipment work beneath others (at a lower elevation along the same slopes), site-specific procedures should be developed and identified in the JSA.

- Workers should never be positioned below active equipment operations unless suitable barriers have been established to protect the workers from falling debris.
- Where equipment operations include winching, workers must never be below or near active winching.

Temporary equipment activities can take place on a slope where workers below that activity retreat to an established and identified safe zone during these activities.

Hazardous terrain procedures may include, but not be limited to, additional watchmen, barriers, exclusion zones, and rescheduling of nonessential work.

Always have an escape route.

Never position yourself between two pieces of equipment.

Employees will not cross over or under cables when under load, no exceptions.

1.622 Employee Selection / Qualification

The slope working skill / experience of each operator is very important in determining successful operations.

- The Project Owner and/or Construction Management Team should define competency processes, training requirements, and slope work plans.
- Evaluate the crew on their level of experience working on similar hazardous terrain conditions, (i.e., identification of “hill crews”.)
- Only Operators trained on specific equipment and with prior experience performing the task in similar conditions should be used.

Due to the increased risks associated with hazardous terrain installations, the skills of Operators new to a crew should be demonstrated or otherwise verified prior to performing the task.

All workers involved in winching operations should be experienced and understand the principles relating to safe winching practices.

1.623 Vehicle and Equipment Specific Guidelines

Equipment should never be operated beyond the maximum slope limitations established by the manufacturer. Note: This may require consideration of special lubrication requirements such as additional fluids.

Communication with the Operator must occur prior to anyone approaching the equipment. Only approach after the Operator acknowledges your presence and purpose.

In the event there are blind spots, Operators should not proceed without being given directions from a Spotter who is on the ground having a clear view of the equipment's surroundings.

When a machine is moving pipe (or other material / equipment) on hazardous terrain, ground personnel should always stay to the side of the slope until the pipe is in place and the machine has stopped.

Inspect each piece of equipment at least daily and after any upset / unexpected operation. Give special attention to slings, winches, cables, pins, shackles, fuel, and oil levels.

Always err on the side of safety regarding equipment operating limits. Do not operate near the maximum stated limits.

When operating equipment on a hillside, all motions should be deliberate and conducted at the proper rate of speed (proper rate of speed to maintain center of gravity of the machine).

Use tracked machinery to increase stability and traction.

When parking and leaving vehicles or equipment:

- Park on level areas, whenever practical.
- Engage emergency brake, "chock" or "block" the tires and leave the vehicle in park.
- Turn the front tires in a direction that will prevent unintentional movement (e.g., at an angle or perpendicular to the incline, against a berm, placing buckets or blades on the ground, setting parking brake) and/or where if the brakes / wheel chocks fail, the vehicle will roll away from the direction of the workers (e.g., angled into spoil and off slope).

64. Stop Work Authority Program

1.624 Purpose and Scope

The purpose of this program is to provide employees with the responsibility and obligation to stop work when a perceived unsafe condition or behavior may result in damage to the environment, equipment, or people.

This program applies to all Van Kirk Bros. Contracting employees.

1.625 Stop Work Authority (SWA) Program

No activity is so urgent or important that health, safety, or the environment (HSE) may be compromised. Stop work actions take precedence over all other priorities and procedures.

All employees have the authority and obligation to stop any task or operation where concerns or questions regarding the control of HSE risk exist.

Work shall not resume until all stop work concerns have been addressed and the designated individual with restart authority determines that the imminent risk does not exist or no longer exists.

Any form of retribution or intimidation directed at any individual or company for exercising their right to issue a stop work authority in good faith shall not be tolerated, even if deemed unnecessary.

1.626 Training

Employees shall receive Stop Work Authority training before initial assignment. The training shall be documented including the employee name, the dates of training, and subject.

1.627 Roles and Responsibilities

Senior management shall be responsible for creating a culture that promotes SWA and supports use of SWA without potential for retribution.

Supervisors and managers shall be responsible for honoring SWA requests and resolution before resuming operations.

The HSE department is responsible for providing training, support, and documentation and monitoring compliance of the SWA program.

Employees and contractors are responsible for initiating stop work and supporting stop work initiated by others.

1.628 SWA Steps

SWA is a several step process.

1) Stop - When an employee perceives conditions or behaviors that pose imminent danger, a stop work intervention shall be initiated immediately.
2) Notify - Affected personnel and supervision shall be notified of the stop work action.
3) Investigate - Affected personnel shall discuss the situation and come to an agreement on the stop work action.
4) Correct - Corrective actions shall be made according to the corrections agreed upon in the investigation.
5) Resume - All affected employees shall be notified of what corrective actions were implemented and work shall recommence by personnel with restart authority.
6) Follow Up - A root cause analysis to the stop work shall be completed to identify any potential opportunities for improvement.

1.629 Corrective Action

All stop work interventions shall be documented for lessons learned and corrective measures to be put into place.

1.630 Follow-Up

Stop work reports shall be reviewed by a supervisor or manager in order to measure participation, determine quality of interventions and follow-up, trend common issues, identify opportunities for improvement, and facilitate sharing of learnings.

It is the desired outcome of any stop work intervention that the identified safety concern(s) has been addressed to the satisfaction of all involved persons prior to the resumption of work. Most issues can be adequately resolved in a timely manner at the job site. Occasionally additional investigation and corrective actions may be required to identify and address root causes.

65. Track Hoe (Excavator) Safety Program

1.631 Purpose and Scope

The purpose of this program is to minimize the risk of accidents, injuries, and property damage associated with track hoe operations by providing guidelines and safety protocols.

This program applies to all Van Kirk Bros. Contracting employees that operate or work near track hoes (excavators).

1.632 Track Hoe (Excavator) Safety

Studies show that excavation work is one of the most hazardous types of work. Injuries from excavation work tend to be of a very serious nature and often result in fatalities.

The primary concern in excavation-related work is a cave-in. Cave-ins are much more likely to be fatal to the employees involved than other related accidents.

OSHA has emphasized the importance of excavation safety through outreach and inspection efforts based upon data which clearly establishes the significant risk to employees working in and around excavations. Furthermore, a high rate of injuries has continued to occur in and around excavations.

1.633 Pre-Shift Inspection

As with all heavy equipment, an operator using an excavator must be aware of their surroundings at all times. They must also follow all safety precautions and protocols established for the site. This is essential for excavator safety and remaining accident free on the work site.

Prior to starting the excavator, a visual inspection should be performed as part of an excavator safety program. This inspection should include testing the horn and audible reverse alarm. It should also include an inspection for loose or broken parts that should be fixed prior to use.

Some excavators may have additional attachments used to perform specific tasks. The excavator should be inspected by the operator prior to being used. The following list of items should be included in the pre-shift check.

- All safety devices: Horns, lights, guards and shields, fire extinguish, glass and wipers
- Engine and hydraulic fluid levels
- Boom, stick, and bucket
- Hydraulic leaks

- All controls for proper function
- A more thorough inspection should be conducted on a periodic basis typically; this is on a monthly basis but depending on the amount of time the machine is being used and under what conditions more or less frequent inspections may be necessary. The operator's manual should be consulted to identify any additional inspection requirements.

1.634 Frame and Rotation Bearing

The frame of the excavator needs to be inspected for cracked welds and loose bolts. This will require crawling under the machine to perform this inspection. Often because of wet or muddy conditions, these inspections are overlooked.

As the machine gets older, the potential for failed welds or fasteners increases. One half of the bearing is attached to the frame and the other half is attached to the upper structure. The only thing holding the two halves of the bearing together are the ball bearings. When digging and lifting with the excavator, this bearing experiences tremendous loads and therefore needs to be lubricated regularly. Excessive bearing wear can be detected by first observing the relative location of the two bearing halves with each other with the bucket off the ground.

Place the bucket on the ground and slightly lift the tracks off the ground with the boom. Observe the relative location of the two bearing halves. If the bearing halves separate more than .060 of an inch, the manufacturer should be consulted to determine the amount of allowable play.

Inspect the drive sprocket for worn or cracked teeth. A broken tooth on the sprocket will cause excessive wear to the pad sockets. Check the drive seals for leaks. The front idler needs to be checked for wear and flat spots. Depending on the type of material the excavator has been working in, the perimeter of the idler can be chipped or nicked which can result in wear to the pad sockets.

At the beginning of every shift the level of all fluids should be checked. Depending on the condition of the engine, it may be necessary to check fluids throughout the shift. Check belts for proper tension and wear. A broken belt can result in a project being shut down for several hours.

Check radiator and other hoses for cracks.

The engine compartment, especially the radiator, can become very dirty. Frequent cleaning may be necessary to keep dirt from building up in the radiator and on the engine itself. Excessive dirt can cause the engine to run hotter than normal which will reduce its life.

1.635 Cab

The operator's cab needs to be kept clean of dirt, grease and objects which could interfere with the safe operation of the machine. It is recommended that basic housekeeping items be kept on the machine to facilitate keeping it clean. The glass in the machine needs to free of cracks that would impair the vision of the operator. Clean the glass regularly to increase visibility and to avoid reflection in sunlight. The windshield wipers need to work, and the blade should be replaced periodically to avoid streaking.

All controls need to be properly labeled with their function and direction of motion. Test each control before starting work to confirm they are in proper working order.

The cab should have a fire extinguisher that has a current inspection label.

1.636 Boom and Stick

Inspect the boom and stick for dents and bends. Significant dents need to be evaluated by a competent individual to determine if the structural strength has been compromised. This is especially critical when the excavator is being used for lifting. All welded joints need to be inspected for cracks.

The hinge joints need to be greased regularly according to the manufacturer's recommendations.

After greasing, excessive grease should be wiped away with a rag. Keeping these components free of excessive grease will reduce the buildup of grit which can accelerate wear. Check the hydraulic hoses at the hinge points for wear.

1.637 Bucket Inspection and Maintenance

Inspect the bucket for cracked welds, particularly where the hinge gussets are attached.

Inspect bucket hinge pins and linkages for excessive wear, missing keeper pins and other damage.

Make sure the pins or bolts used to attach the teeth to the bucket are in place and not excessively worn.

Also, evaluate the wear on the teeth for planning the next change out.

If the excavator is fitted with a thumb, inspect the hinge pin and associated linkages for wear and damage.

The frequency of greasing the bucket hinge pins is dependent on weather conditions and the type of material being excavated. In sandy or powdery material, it may be necessary to grease

these components two to three times a shift. The fine material will have a tendency to work their way into the hinges and accelerate wear.

Frequent greasing will keep pushing this material out. Buckets that will be digging below water need frequent greasing to keep it fresh. At the end of the shift where the machine will sit overnight, grease all these areas again to prevent corrosion. After greasing, exercise the bucket to distribute the grease.

1.638 Operator's Manual

The operator's manual is required to be on the machine or readily available to the operator.

The operator is also responsible for having read and understood the manual. The Company must ensure the operator has read the manual before allowing them to operate the machine.

The manual contains important information about the operation and maintenance of the excavator. Though very similar, not all excavators are the same, particularly with respect to maintenance. The manual will contain operating information and load capacity charts that must be used when the machine is utilized for lifting.

1.639 Seatbelts

Seatbelts are a safety device and as such must be kept in operating condition.

Worn or damage belts need to be replaced.

When moving the machine over rough terrain or on steep slopes, the seat belt will help keep the operator in the seat allowing them to maintain control of the machine.

Some manufactures recommend replacing the whole seat belt assembly every 3 years regardless of appearance.

1.640 Climbing On and Off the Machine

One of the prime causes of ankle and back injuries to operators is the improper method to climbing on and off the excavator. The standard three-point method is recommended. This method is simply keeping two feet and a hand or two hands and foot in contact with the machine while moving the remaining hand or foot. Enter and exit the machine while facing it. This will allow the operator to use all the handrails provided. Avoid jumping from the machine.

Cleaning footwear of excessive mud or grease will help prevent slipping.

1.641 Operator Responsibilities

The operator of an excavator is responsible for safe operation of the machine and the safety of those working in the vicinity of it.

Several factors can affect an operator's ability to stay focused on operating their machine.

- Fatigue and Hunger: Fatigue can result from working too many hours, lack of sleep, hunger, or monotonous, repetitive work. When an operator shows signs of fatigue, they should be relieved to get rest or exercise to refresh their alertness.
- Weather: Some excavators are open to the elements. An operator needs to dress appropriately for the weather to prevent stress on their body.
- Emotional Level: Operators under emotional stress may not be able to stay focused. It may be necessary at times to remove such an operator from a machine until emotional equilibrium is restored.
- Physical Health: Operators suffering from health problems affecting their machine operating ability should not be allowed on a machine. Even workers taking cold medicine may have their alertness compromised.
- Working Conditions: Some worksites that have many activities occurring simultaneously can distract an operator. Operators must be able to block out such distractions while operating a machine.
- Other People: People should not attempt to talk to or in any way distract an operator who is operating a machine. Wait until they are finished with an operation before approaching or talking to the individual.

1.642 Danger Area

Before excavating work begins, access to the worksite by unauthorized persons needs to be controlled. Barriers of cones, barrels, or other structures can establish the work area perimeter. Caution tape, barricade safety fencing, or other well-marked material should be placed between the vertical barriers to prevent people from accidentally entering the work area.

1.643 Power Line Contact

When the excavator comes in contact with a live power line, the whole machine becomes electrified. Due to the different current paths that the electricity can follow, parts of the machine could be at different voltages. If the operator touches different parts of the machine, their body could create a current path which could result in electrocution.

The ground around the excavator can also become electrified. The voltage in the soil nearest the machine will be greater than that further away from it. When moving away from the excavator, individuals should shuffle to avoid creating a current path from one foot to the other.

The operator should remain with the excavator if at all possible until the power company indicates it is safe to leave the machine. This is because the excavator components could be at different voltages and touching parts of the machine could result in being electrocuted.

No one should be allowed to approach the excavator or to touch it. If the operator is unconscious, no attempt should be made to rescue them until the power Company indicates it is safe to do so.

If the operator must leave the excavator due to fire, they should move slowly to the edge of the cab without touching it and carefully jump to the ground. Once on the ground, they should shuffle away from the machine.

1.644 Excavating

Before starting to excavate, assess the situation.

Before beginning work, the operator and those working with the operator should take a moment to assess the site to plan how the work will progress. An assessment of soil conditions is important to ensure that the excavator will be stable throughout the project. When excavating a large site, taking time to plan out the excavation process can save time and money. Things to consider are:

- Will the spoil be placed along the excavation or need to be removed?
- If material is to be moved away from the excavation by truck, what type will be used and how will they access the site for loading?
- To check the depth and grade of an excavation, will the grade checker be required to enter the excavation, and can it be done safety?

Besides excavating, the excavator is often used to perform other tasks at the job site. If the machine will be used for lifting, the type and size of the lift load needs to be considered to ensure the excavator is adequate:

- Is the work site on a slope?
- What other work will be taking place in the area of the excavation?
- If compaction is required, how will it be done?
- Will the excavator be required to place objects in the excavation?

1.644.1 Call Before You Dig

Excavating in an area where utilities are present is always a challenge and can be deadly. Before starting an excavation of any type, it is important to determine if there are any underground utilities in the area. Planning the site work will allow time for the utility providers to send out representatives to locate and mark their underground utility.

Most areas have a One-Call number which will contact local utilities companies of your location. Representatives from these companies will come to your work site and mark the location of these utilities.

1.644.2 Avoid Undercutting

When excavating, the operator must always be alert to where the machine is in relationship to the edge of the excavation.

Even if no undercut is made, the edge of the excavation may not be strong enough to support the weight of the machine.

1.645 General Trench Precautions

Material excavated from a trench should be placed a minimum of 2 feet from the edge of the trench. This distance may need to be greater depending on soil type. The slope of the spoil pile should be flat enough to prevent material from sliding into the trench.

1.646 Excavator Stability

For riders on a teeter totter to be in balance, the leverage created by one rider has to equal that of the other rider. The leverage of each rider is the result of the rider's weight times their distance from the tipping point. If one rider is heavier than the other, then they will have to be closer to the tipping point than the other rider.

For an excavator, the tipping point is the point of the tracks which is under the boom. This could be at the end of the tracks or at the side of the tracks.

The excavator's leverage is the weight of that part that is behind the tipping point times the distance from the tipping point to its center of gravity. This leverage is basically fixed. The load's

leverage is the weight of the load and that portion of the boom, stick, and bucket plus the load attached to the bucket. The load's leverage is not fixed. When the boom and excavator's stick extend the load away from the machine, the load's leverage increases due to its increased leverage arm. Based on the dimensions of the excavator's tracks, the machine typically will have more lifting capacity over the ends of the tracks than over the side.

1.647 Operator Training

Operators having previous experience operating the excavator need only demonstrate the competency skills listed below in order to complete evaluation.

The operator must demonstrate, at a minimum, knowledge of the following operations:

- Demonstrate the safe operation of equipment including observation of surroundings.
- Perform pre-start checks, start-up/shutdown procedures, and monitor performance of the equipment.
- Perform daily maintenance tasks.

Perform basic moves with equipment including:

- Move forward, stop, back up, stop (flat elevation).
- Apply parking brake, lock out transmission.
- Shift transmission.
- Raise and lower boom (making sure to observe for wires).
- Extend and retract stick.
- Curl and dump bucket.
- Swing left and right.
- Lower bucket to the ground for lockout procedures.
- Identify that you must call before you dig (Check for underground utilities).
- Excavate simple trench 10 foot long by 2 feet deep. Keep trench straight. Place materials from dig no less than 2 feet from edge of dig area.
- Backfill trench using the materials taken from the excavated site.
- Use bucket to flatten and compress the dig site.
- Show ability to split functions to operate tracks and digging functions simultaneously (i.e., pulling up steep grades, clearing obstacles, push up turns, etc.).

66. Traffic Control Program

1.648 Purpose and Scope

The purpose of this program is to minimize the risk of accidents, injuries, and traffic congestion by providing guidelines and safety protocols for the control and regulation of vehicular and pedestrian traffic.

This program applies to all Van Kirk Bros. Contracting employees working near vehicular and pedestrian traffic through and adjacent to the project area.

1.649 Traffic Control Program

This section includes identifying safety hazards and then furnishing all necessary labor, materials, tools, and equipment including, but not limited, to signs, barricades, traffic drums, cones, flashers, construction fencing, flag persons, variable message boards, uniformed police officers, warning devices, temporary pavement markings, temporary sidewalk, delineators, etc., to maintain vehicular and pedestrian traffic through and adjacent to the project area.

These measures and actions must be taken to safely maintain the accessibility of public and construction traffic by preventing potential construction hazards.

All materials, work, and incidental costs related to maintenance of traffic will be paid for at the contract lump sum price.

Individuals must be certified or properly trained to create traffic control plans, to place channeling devices, and or warning or traffic control signs and devices.

The program must adhere to all the requirements set forth in the Manual on Uniform Traffic Control Devices, in addition to localized traffic control requirements, including appropriate traffic control devices and traffic control signs.

1.650 Requirements

Pre-work site assessments shall be conducted to identify potential hazards in and around the work zone.

Training shall be provided to workers involved in the planning, setup, operation, maintenance, or removal of traffic control to the level of their responsibility.

All affected employees will receive training on this program upon hire, and regular refresher training as required, and corresponding training documentation will be retained.

The Traffic Control Plan must conform to the following standards:

- Sequence the work in a manner that will minimize disruption of vehicular and pedestrian access through and around the construction area.
- Traffic planning and control for the maintenance and protection of pedestrian and vehicular traffic affected by this Company's work includes, but is not limited to:
    - Construction and maintenance of any necessary detour equipment and facilities.
    - Providing necessary facilities for access to residences and businesses.
    - Furnishing, installing, and maintenance of traffic control and safety devices (e.g., signage, barricades, barriers, message boards, etc.), and flag persons as appropriate during construction.
    - Control of water runoff, dust, and any other special requirements for safe and expeditious movement of traffic.
- Planning, maintenance, and control of traffic must be provided at the Company's expense. The Company will bear all expenses of maintaining the vehicle and pedestrian traffic throughout the work area.
- The Company will remove temporary equipment and facilities when no longer required, restore grounds to original, or to specified conditions.
- Before employees begin work in the vicinity of vehicular or pedestrian traffic that may endanger them, warning signs or flags and other traffic-control devices must be placed in conspicuous locations to alert and channel approaching traffic.

1.651 Submittals

Submit at Contractor's own expense a Traffic Control Plan for approval by the controlling roadway agency (DOT, County Public Works, or other local government) having jurisdiction over the road for approval.

The Traffic Control Plan will detail procedures and protective measures proposed by the Company to provide for protection and control of traffic affected by the work consistent with the following applicable standards:

- Standard Specifications for Road and Bridge Construction, latest edition including all subsequent supplements issued by the Department of Transportation (DOT Spec.).
- Manual of Traffic Control and Safe Practices for Street and Highway Construction, Maintenance and Utility Operations, DOT.
- Right-of-Way Utilization Regulations, latest edition.

All references to the respective agencies in the above referenced standards must be construed to also include the municipality as applicable for this work.

The Traffic Control Plan will be signed and sealed by a Professional Engineer registered and must include proposed locations and time durations of the following, as applicable:

- Pedestrian and public vehicular traffic routing.
- In all instances on the work site, pedestrian traffic has the right-of-way.
- Lane and sidewalk closures, other traffic blockage, and lane restrictions and reductions anticipated to be caused by construction operations. Show and describe the proposed location, dates, hours and duration of closure, vehicular and pedestrian traffic routing and management, traffic control devices for implementing pedestrian and vehicular movement around the closures, and details of barricades.
- Location, type, and method of shoring to provide lateral support to the side of an excavation or embankment parallel to an open travel-way.
- Allowable on-street parking within the immediate vicinity of worksite.
- Access to buildings immediately adjacent to worksite.
- Driveways blocked by construction operations.
- Temporary traffic control devices, temporary pavement striping and marking of streets and sidewalks affected by construction
- Temporary commercial and industrial loading and unloading zones.
- Construction vehicle reroutes, travel times, staging locations, and number and size of vehicles involved.

Obtain and submit prior to erection, or otherwise impacting traffic, all required permits from all authorities having jurisdiction, including County Public Works, if applicable required for traffic control and the use of barricades.

1.652 Materials and Equipment

The Company must furnish, erect, and maintain all necessary traffic control devices, including flag person, in accordance with the Manual of Uniform Traffic Control Devices for Streets and Highways published by the U.S. Department of Transportation, Federal Highway Administration.

1.652.1 Flag Persons

All flag persons used will adhere to the following requirements:

- Any person acting as a flag person will have attended a training session taught by a Contractor's qualified trainer before the start date.
- The Company's qualified trainer will have completed a "Flag Person Train the Trainer Session" in the 5-years previous or before the start date and will be on file as a qualified flag person trainer.
- The flag person trainer's name and qualification number will be furnished by the Company at the pre-construction meeting. The Company will provide all flag persons with the Flag Person Handbook and will observe the rules and regulations contained therein. This handbook will be in the possession of all flag persons while flagging.
- Flag persons will not be assigned other duties while working as authorized flag persons.
- Any person replacing flag person for break must have the same training.

1.653 Execution Notifications

The Company will notify individual owners, owner's agents, and tenants of buildings affected by the construction, with copies to the county, 72-hours in advance of any construction activities.

The Company must notify residents and pedestrians via variable message boards no later than 10 days prior to the closure of any road, lane, or pedestrian thoroughfare.

The Company must notify Emergency Management Services agencies no less than 7 days prior to such closures or whenever roads are impassable.

Implement closing of vehicle or pedestrian thoroughfare in accordance with the construction drawings and the approved Traffic Control Plan.

The Company will immediately notify the County of any vehicular or pedestrian safety or efficiency problems incurred as a result of the construction.

1.654 General Traffic Control

The Company will sequence and plan construction operations and will generally conduct work in such a manner as not to unduly or unnecessarily restrict or impede normal traffic.

Unless otherwise provided, all roads within the limits of the work will be kept open to all traffic. The Company will keep the portion of the project being used by public traffic, whether it is through or local traffic, in such condition that traffic will be adequately accommodated.

The Company will be responsible for installation and maintenance of all traffic control devices and requirements for the duration of the construction period. Necessary precautions for traffic control will include, but not be limited to, warning signs, signals, lighting devices, markings, barricades, canalizations, and hand signaling devices.

The Company will provide and maintain in a safe condition temporary approaches or crossings and intersections with trails, roads, streets, businesses, parking lots, residences, garages, and farms.

The Company will provide emergency access to all residences and businesses at all times. Residential and business access will be restored and maintained at all times outside of normal working hours.

Traffic is to be maintained on one section of existing pavement, proposed pavement, or a combination thereof. Alternating one-way traffic may be utilized and limited to a maximum length of 500-feet during construction hours. Lane width for alternating one-way traffic will be kept to a minimum width of 10-feet, or as directed by the County.

Travel lanes and pedestrian access will be kept reasonably smooth, dry, and in a suitable condition at all times.

The Company will make provisions at all "open cut" street crossings to allow for free passage of vehicles and pedestrians, either by bridging or other temporary crossing structures. Such structures will be of adequate strength and proper construction and will be maintained in such a manner as not to constitute an undue traffic hazard.

The Company will keep all signs in proper position, clean, and legible at all times. Care will be taken so that weeds, shrubbery, construction materials, equipment, and soil are not allowed to obscure any sign, light, or barricade. Signs that do not apply to construction conditions should be removed or adjusted so that the legend is not visible to approaching traffic.

The County may determine the need for, and extent of, additional striping removal and restriping.

Excavated material, spoil banks, construction materials, equipment, and supplies will not be located in such a manner as to obstruct traffic, as practicable. The Company will immediately remove from the site all demolition material, exercising such precaution as may be directed by the County. All material excavated must be disposed of so as to minimize traffic and pedestrian inconvenience and to prevent damage to adjacent property.

During any suspension, the Company will make passable and open to traffic such portions of the project and/or temporally roadways as directed by the County for accommodation of traffic during the anticipated period of suspension. Passable conditions will be maintained until issuance of an order for the resumption of construction operations. When work is resumed, the

Company will replace or renew any work or materials lost or damaged because of such temporary use in every respect as though its prosecution had been continuous and without interferences.

1.655 Temporary Shoring

Use shoring to maintain traffic when it is necessary to provide lateral support to the side of an excavation or embankment parallel to an open travel-way.

Provide shoring when a theoretical 2:1 or steeper slope from the bottom of the excavation or embankment intersects the existing ground line closer than 5-feet (1.5 m) from the edge of pavement of the open travel-way.

The Company will furnish, install, and remove sheeting, shoring, and bracing necessary to maintain traffic at locations shown on the Traffic Control Plan and other locations determined during construction.

Barricades shall be used where additional employee protection is necessary, Excavated areas shall be protected with barricades and warning lights prominently displayed at night.

1.656 Qualifications for Flaggers

Because flaggers are responsible for public safety and make the greatest number of contacts with the public of all highway workers, they should be trained in safe traffic control practices and public contact techniques.

When work activity occurs on or adjacent to a surface being used by the public, the Company shall provide flagger(s) to direct traffic.

Flaggers should be able to satisfactorily demonstrate the following abilities:

- Ability to receive and communicate specific instructions clearly, firmly, and courteously
- Ability to move and maneuver quickly in order to avoid danger from errant vehicles
- Ability to control signaling devices (such as paddles and flags) in order to provide clear and positive guidance to drivers approaching a project zone in frequently changing situations
- Ability to understand and apply safe traffic control practices, sometimes in stressful or emergency situations
- Ability to recognize dangerous traffic situations and warn workers in sufficient time to avoid injury

1.657 High-Visibility Safety Apparel

For daytime and nighttime activity, flaggers shall wear high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107–2004/107-1999 publication entitled “American National Standard for High-Visibility Apparel and Headwear” (see Section 1A.11) and labeled as meeting the ANSI 107-2004 standard performance for Class 2 or 3 risk exposure.

The apparel background (outer) material color shall be fluorescent orange-red, fluorescent yellow-green, or a combination of the two as defined in the ANSI standard.

The retroreflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1,000 feet in any direction.

The retroreflective safety apparel shall be designed to clearly identify the wearer as a person.

For nighttime activity, high-visibility safety apparel that meets the Performance Class 3 requirements of the ANSI/ISEA 107–2004\107-1999 publication entitled “American National Standard for High-Visibility Apparel and Headwear” and labeled as meeting the ANSI 107-2004 standard performance for Class 3 risk exposure should be considered for flagger wear.

When uniformed law enforcement officers are used to direct traffic within a zone, they shall wear high-visibility safety apparel as described in this section.

In lieu of ANSI/ISEA 107-2004 apparel, law enforcement personnel within the zone may wear high-visibility safety apparel that meets the performance requirements of the ANSI/ISEA 207-2006 publication entitled “American National Standard for High-Visibility Public Safety Vests” and labeled as ANSI 207-2006.

1.658 Hand Signaling Devices

The STOP/SLOW paddle should be the primary and preferred hand-signaling device because the STOP/SLOW paddle gives road users more positive guidance than red flags. Use of flags should be limited to emergency situations.

The STOP/SLOW paddle shall have an octagonal shape on a rigid handle. STOP/SLOW paddles shall be at least 18 inches wide with letters at least 6 inches high. The STOP face shall have white letters and a white border on a red background. The SLOW face shall have black letters and a black border on an orange background. When used at night, the STOP/SLOW paddle shall be retro-reflectorized.

The STOP/SLOW paddle should be fabricated from light semi-rigid material.

The optimum method of displaying a STOP or SLOW message is to place the STOP/SLOW paddle on a rigid staff that is tall enough that when the end of the staff is resting on the ground, the message is high enough to be seen by approaching or stopped traffic.

The STOP/SLOW paddle may be modified to improve conspicuity by incorporating either white or red flashing lights on the STOP face, and either white or yellow flashing lights on the SLOW face. The flashing lights may be arranged in any of the following patterns:

- Two white or red lights, one centered vertically above and one centered vertically below the STOP legend; and/or two white or yellow lights, one centered vertically above and one centered vertically below the SLOW legend
- Two white or red lights, one centered horizontally on each side of the STOP legend; and/or two white or yellow lights, one centered horizontally on each side of the SLOW legend
- One white or red light centered below the STOP legend; and/or one white or yellow light centered below the SLOW legend
- A series of eight or more small white or red lights no larger than 1/4 inch in diameter along the outer edge of the paddle, arranged in an octagonal pattern at the eight corners of the border of the STOP face; and/or a series of eight or more small white or yellow lights no larger than 1/4 inch in diameter along the outer edge of the paddle, arranged in a diamond pattern along the border of the SLOW face
- A series of white lights forming the shapes of the letters in the legend

If flashing lights are used on the STOP face of the paddle, their colors shall be all white or all red. If flashing lights are used on the SLOW face of the paddle, their colors shall be all white or all yellow.

If more than eight flashing lights are used, the lights shall be arranged such that they clearly convey the octagonal shape of the STOP face of the paddle and/or the diamond shape of the SLOW face of the paddle.

If flashing lights are used on the STOP/SLOW paddle, the flash rate shall be at least 50, but not more than 60, flashes per minute.

Flags, when used, shall be red or fluorescent orange/red in color, shall be a minimum of 24 inches square, and shall be securely fastened to a staff that is approximately 36 inches in length.

The free edge of a flag should be weighted so the flag will hang vertically, even in heavy winds.

When used at nighttime, flags shall be retro reflectorized red.

When flagging in an emergency situation at night in a non-illuminated flagger station, a flagger may use a flashlight with a red glow cone to supplement the STOP/SLOW paddle or flag.

When a flashlight is used for flagging in an emergency situation at night in a non-illuminated flagger station, the flagger shall hold the flashlight in the left hand, shall hold the paddle or flag

in the right hand as shown in Figure 1, and shall use the flashlight in the following manner to control approaching road users:

- To inform road users to stop, the flagger shall hold the flashlight with the left arm extended and pointed down toward the ground, and then shall slowly wave the flashlight in front of the body in a slow arc from left to right such that the arc reaches no farther than 45 degrees from vertical.
- To inform road users to proceed, the flagger shall point the flashlight at the vehicle's bumper, slowly aim the flashlight toward the open lane, then hold the flashlight in that position. The flagger shall not wave the flashlight.
- To alert or slow traffic, the flagger shall point the flashlight toward oncoming traffic and quickly wave the flashlight in a figure eight motion.

1.659 Flagger Procedures

The use of paddles and flags by flaggers is illustrated in Figure 1.

Flaggers shall use a STOP/SLOW paddle, a flag, or an Automated Flagger Assistance Device (AFAD) to control road users approaching a zone. The use of hand movements alone without a paddle, flag, or AFAD to control road users shall be prohibited except for law enforcement personnel or emergency responders at incident scenes.

The following methods of signaling with paddles shall be used:

- To stop road users, the flagger shall face road users and aim the STOP paddle face toward road users in a stationary position with the arm extended horizontally away from the body. The free arm shall be held with the palm of the hand above shoulder level toward approaching traffic.
- To direct stopped road users to proceed, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body. The flagger shall motion with the free hand for road users to proceed.
- To alert or slow traffic, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body.

To further alert or slow traffic, the flagger holding the SLOW paddle face toward road users may motion up and down with the free hand, palm down.

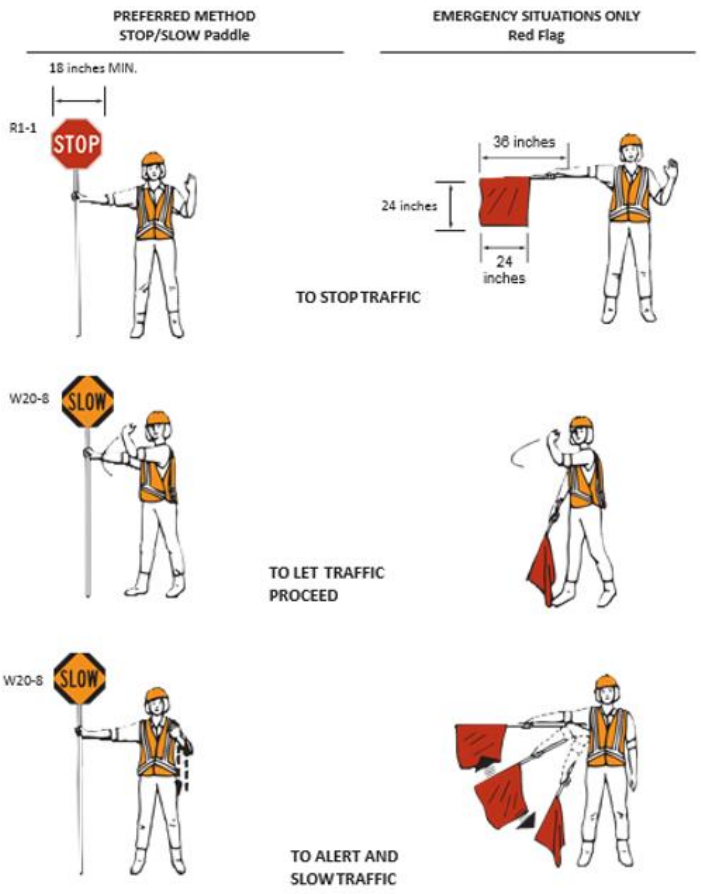
The following methods of signaling with a flag shall be used:

- To stop road users, the flagger shall face road users and extend the flag staff horizontally across the road users' lane in a stationary position so that the full area of the flag is visibly hanging below the staff. The free arm shall be held with the palm of the hand above shoulder level toward approaching traffic.
- To direct stopped road users to proceed, the flagger shall face road users with the flag and arm lowered from the view of the road users and shall motion with the free hand for road users to proceed. Flags shall not be used to signal road users to proceed.
- To alert or slow traffic, the flagger shall face road users and slowly wave the flag in a sweeping motion of the extended arm from shoulder level to straight down without raising the arm above a horizontal position. The flagger shall keep the free hand down.

The flagger should stand either on the shoulder adjacent to the road user being controlled or in the closed lane prior to stopping road users. A flagger should only stand in the lane being used by moving road users after road users have stopped. The flagger should be clearly visible to the first approaching road user at all times. The flagger also should be visible to other road users. The flagger should be stationed sufficiently in advance of the workers to warn them (for example, with audible warning devices such as horns or whistles) of approaching danger by out-of-control vehicles. The flagger should stand alone, away from other workers, work vehicles, or equipment.

At spot lane closures where adequate sight distance is available for the reasonably safe handling of traffic, the use of one flagger may be sufficient.

Figure 1 Use of Hand-Signaling Devices by Flaggers



When a single flagger is used, the flagger should be stationed on the shoulder opposite the spot lane closure or workspace, or in a position where good visibility and traffic control can be maintained at all times.

1.660 Flagger Stations

Flagger stations shall be located such that approaching road users will have sufficient distance to stop at an intended stopping point.

The distances shown in Table 1, which provides information regarding the stopping sight distance as a function of speed, may be used for the location of a flagger station. These distances may be increased for downgrades and other conditions that affect stopping distance.

Flagger stations should be located such that an errant vehicle has additional space to stop without entering the workspace. The flagger should identify an escape route that can be used to avoid being struck by an errant vehicle.

Except in emergency situations, flagger stations shall be preceded by an advance warning sign or signs. Except in emergency situations, flagger stations shall be illuminated at night.

Table 1 Stopping Sight Distance as a Function of Speed

Speed	Distance
20 mph	115 feet
25 mph	155 feet
30 mph	200 feet
35 mph	250 feet
40 mph	305 feet
45 mph	360 feet
50 mph	425 feet
55 mph	495 feet
60 mph	570 feet
65 mph	645 feet
70 mph	730 feet
75 mph	820 feet

*Posted speed, off-peak 85th percentile speed prior to work starting, or the anticipated operating speed.

1.661 Temporary Traffic Control (TTC) Zone Devices

The design and application of TTC devices used in TTC zones should consider the needs of all road users (motorists, bicyclists, and pedestrians), including those with disabilities.

All roadside appurtenances such as traffic barriers, barrier terminals and crash cushions, bridge railings, sign and light pole supports, and work zone hardware used on the National Highway System meet the crashworthy performance criteria contained in the National Cooperative Highway Research Program (NCHRP) Report 350, “Recommended Procedures for the Safety Performance Evaluation of Highway Features.” The FHWA website at “http://safety.fhwa.dot.gov/programs/roadside_hardware.htm” identifies all such hardware and includes copies of FHWA acceptance letters for each of them. In the case of proprietary items, links are provided to manufacturers’ websites as a source of detailed information on specific devices. The website also contains an “Ask the Experts” section where questions on roadside design issues can be addressed.

Various sections of the MUTCD require certain traffic control devices, their supports, and/or related appurtenances to be crashworthy. Such MUTCD crashworthiness provisions apply to all streets, highways, and private roads open to public travel. Also, State Departments of Transportation and local agencies might have expanded the NCHRP Report 350 crashworthy criteria to apply to certain other roadside appurtenances.

Crashworthiness and crash testing information on devices described are found in AASHTO’s “Roadside Design Guide”.

“Crashworthy” is a characteristic of a roadside appurtenance that has been successfully crash tested in accordance with a national standard such as the NCHRP Report 350, “Recommended Procedures for the Safety Performance Evaluation of Highway Features”.

Traffic control devices shall be defined as all signs, signals, markings, and other devices used to regulate, warn, or guide road users, placed on, over, or adjacent to a street, highway, private roads open to public travel, pedestrian facility, or bikeway by authority of a public body or official having jurisdiction.

All traffic control devices used for construction, maintenance, utility, or incident management operations on a street, highway, or private road open to public travel shall comply with the applicable provisions of this Manual.

1.662 General Characteristics of Signs

Employees struck by vehicles or mobile equipment account for many work zone injuries or fatalities. Work zones should be marked by traffic control devices such as signals, message boards, cones, barrels, barricades, and delineator posts.

TTC zone signs convey both general and specific messages by means of words, symbols, and/or arrows and have the same three categories as all road user signs regulatory, warning, and guide.

The colors for regulatory signs shall follow the Standards for regulatory signs. Warning signs in TTC zones shall have a black legend and border on an orange background, except for the Grade Crossing Advance Warning (W10-1) sign which shall have a black legend and border on a yellow background, and except for signs that are required or recommended to have fluorescent yellow-green backgrounds. Colors for guide signs shall follow the Standards, except for guide signs as otherwise provided.

Where the color orange is required, the fluorescent orange color may also be used.

1.662.1 Support:

The fluorescent version of orange provides higher conspicuity than standard orange, especially during twilight.

Existing warning signs that are still applicable may remain in place.

In order to maintain the systematic use of yellow or fluorescent yellow-green backgrounds for pedestrian, bicycle, and school warning signs in a jurisdiction, the yellow or fluorescent yellow-green background for pedestrian, bicycle, and school warning signs may be used in TTC zones.

Standard orange flags or flashing warning lights may be used in conjunction with signs.

When standard orange flags or flashing warning lights are used in conjunction with signs, they shall not block the sign face.

The sizes for TTC signs and plaques shall be as shown in the Standard. The sizes in the minimum column shall only be used on local streets or roadways where the 85th-percentile speed or posted speed limit is less than 35 mph.

The dimensions of signs and plaques may be increased wherever necessary for greater legibility or emphasis.

Deviations from standard sizes as prescribed in this Manual shall be in 6-inch increments.

Sign design details are contained in the “Standard Highway Signs and Markings” book.

The Standard contains additional information regarding the design of signs, including an option allowing the development of special word message signs if a standard word message or symbol sign is not available to convey the necessary regulatory, warning, or guidance information.

All signs used at night shall be either retroreflective with a material that has a smooth, sealed outer surface or illuminated to show the same shape and similar color both day and night.

Warning lights shall be displayed prominently at night.

The requirement for sign illumination shall not be considered to be satisfied by street, highway, or strobe lighting.

Sign illumination may be either internal or external.

Signs may be made of rigid or flexible material.

1.663 Sign Placement

Signs should be located on the right-hand side of the roadway unless otherwise provided in this Manual.

Where special emphasis is needed, signs may be placed on both the left-hand and right-hand sides of the roadway. Signs mounted on portable supports may be placed within the roadway itself. Signs may also be mounted on or above barricades.

The provisions of this Section regarding mounting height apply unless otherwise provided for a particular sign elsewhere in this Manual.

The minimum height measured vertically from the bottom of the sign to the elevation of the near edge of the pavement, of signs installed at the side of the road in rural areas shall be 5 feet.

The minimum height, measured vertically from the bottom of the sign to the top of the curb, or in the absence of curb, measured vertically from the bottom of the sign to the elevation of the near edge of the traveled way, of signs installed at the side of the road in business, commercial, or residential areas where parking or pedestrian movements are likely to occur, or where the view of the sign might be obstructed, shall be 7 feet.

The minimum height measured vertically from the bottom of the sign to the sidewalk, of signs installed above sidewalks shall be 7 feet.

The height to the bottom of a secondary sign mounted below another sign may be 1 foot less than the height provided previously.

Neither portable nor permanent sign supports should be located on sidewalks, bicycle facilities, or areas designated for pedestrian or bicycle traffic. If the bottom of a secondary sign that is

mounted below another sign is mounted lower than 7 feet above a pedestrian sidewalk or pathway, the secondary sign should not project more than 4 inches into the pedestrian facility.

1.664 Temporary Traffic Control Plans

A TTC plan describes TTC measures to be used for facilitating road users through a work zone or an incident area. TTC plans play a vital role in providing continuity of effective road user flow when a work zone, incident, or other event temporarily disrupts normal road user flow. Important auxiliary provisions that cannot conveniently be specified on project plans can easily be incorporated into Special Provisions within the TTC plan.

TTC plans range in scope from being very detailed to simply referencing typical drawings contained in this Manual, standard approved highway agency drawings and manuals, or specific drawings contained in the contract documents. The degree of detail in the TTC plan depends entirely on the nature and complexity of the situation.

TTC plans should be prepared by persons knowledgeable (for example, trained and/or certified) about the fundamental principles of TTC and work activities to be performed. The design, selection, and placement of TTC devices for a TTC plan should be based on engineering judgment.

Coordination should be made between adjacent or overlapping projects to check that duplicate signing is not used and to check compatibility of traffic control between adjacent or overlapping projects.

Provisions for effective continuity of accessible circulation paths for pedestrians should be incorporated into the TTC process. Where existing pedestrian routes are blocked or detoured, information should be provided about alternative routes that are usable by pedestrians with disabilities, particularly those who have visual disabilities. Access to temporary bus stops, travel across intersections with accessible pedestrian signals, and other routing issues should be considered where temporary pedestrian routes are channelized. Barriers and channelizing devices that are detectable by people with visual disabilities should be provided.

Reduced speed limits should be used only in the specific portion of the TTC zone where conditions or restrictive features are present. However, frequent changes in the speed limit should be avoided. A TTC plan should be designed so that vehicles can travel through the TTC zone with a speed limit reduction of no more than 10 mph.

A reduction of more than 10 mph in the speed limit should be used only when required by restrictive features in the TTC zone. Where restrictive features justify a speed reduction of more than 10 mph, additional driver notification should be provided. The speed limit should be stepped down in advance of the location requiring the lowest speed, and additional TTC warning devices should be used.

Reduced speed zoning (lowering the regulatory speed limit) should be avoided as much as practical because drivers will reduce their speeds only if they clearly perceive a need to do so.

1.665 Temporary Traffic Control Zones

A TTC zone is an area of a highway, urban street, or rural street where road user conditions are changed because of a work zone, an incident zone, or a planned special event through the use of TTC devices, uniformed law enforcement officers, or other authorized personnel.

A work zone is an area of a highway, urban street, or rural street with construction, maintenance, or utility work activities. A work zone is typically marked by signs, channelizing devices, barriers, pavement markings, and/or work vehicles. It extends from the first warning sign or high intensity rotating, flashing, oscillating, or strobe lights on a vehicle to the END ROAD WORK sign or the last TTC device.

An incident zone is an area of a highway, urban street, or rural street where temporary traffic controls are imposed by authorized officials in response to a traffic incident It extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where road users return to the original lane alignment and are clear of the incident.

A planned special event often creates the need to establish altered traffic patterns to handle the increased traffic volumes generated by the event. The size of the TTC zone associated with a planned special event can be small, such as closing a street for a festival, or can extend throughout a municipality for larger events. The duration of the TTC zone is determined by the duration of the planned special event.

1.666 Components of Temporary Traffic Control Zones

Most TTC zones are divided into four areas: the advance warning area, the transition area, the activity area, and the termination area. Figure 2 illustrates these four areas.

1.667 Advance Warning Area

The advance warning area is the section of highway where road users are informed about the upcoming work zone or incident area.

The advance warning area may vary from a single sign or high intensity rotating, flashing, oscillating, or strobe lights on a vehicle to a series of signs in advance of the TTC zone activity area.

Typical distances for placement of advance warning signs on freeways and expressways should be longer because drivers are conditioned to uninterrupted flow. Therefore, the advance warning sign placement should extend on these facilities as far as 1/2 mile or more.

On urban streets, the effective placement of the first warning sign in feet should range from 4 to 8 times the speed limit in mph, with the high end of the range being used when speeds are relatively high. When a single advance warning sign is used (in cases such as low-speed residential streets), the advance warning area can be as short as 100 feet. When two or more advance warning signs are used on higher-speed streets, such as major arterials, the advance warning area should extend a greater distance (see Table 2).

Since rural highways are normally characterized by higher speeds, the effective placement of the first warning sign in feet should be substantially longer—from 8 to 12 times the speed limit in mph. Since two or more advance warning signs are normally used for these conditions, the advance warning area should extend 1,500 feet or more for open highway conditions (see Table 2).

The distances contained in Table 2 are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted for field conditions, if necessary, by increasing or decreasing the recommended distances.

Figure 2 Component Parts of a Temporary Traffic Control Zone

Figure 6C-1. Component Parts of a Temporary Traffic Control Zone

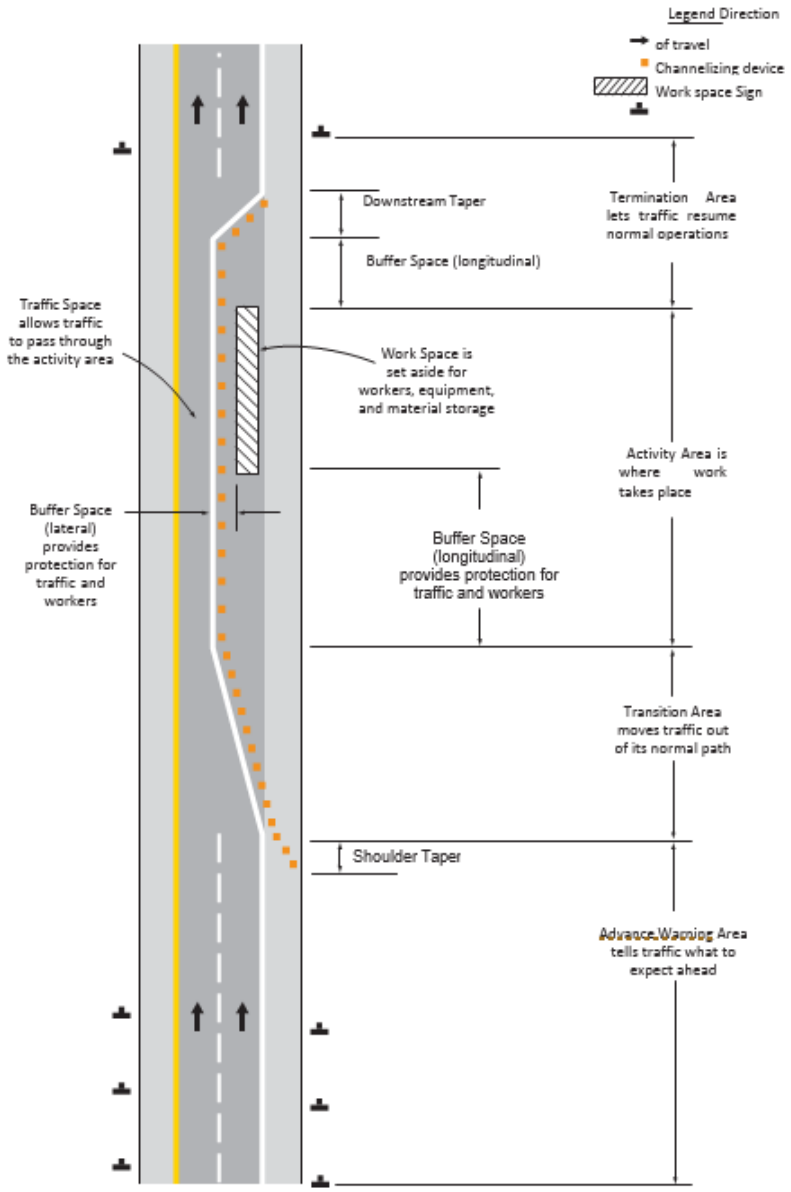


Table 2 Recommended Advance Warning Sign Minimum Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)*	100 feet	100 feet	100 feet
Urban (high speed)*	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

*Speed category to be determined by the highway agency.

**The column headings A, B, and C are the dimensions shown in the Standard. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The “first sign” is the sign in a three-sign series that is closest to the TTC zone. The “third sign” is the sign that is furthest upstream from the TTC zone.)

The need to provide additional reaction time for a condition is one example of justification for increasing the sign spacing. Conversely, decreasing the sign spacing might be justified in order to place a sign immediately downstream of an intersection or major driveway such that traffic turning onto the roadway in the direction of the TTC zone will be warned of the upcoming condition.

Advance warning may be eliminated when the activity area is sufficiently removed from the road users’ path so that it does not interfere with the normal flow.

1.668 Transition Area

The transition area is that section of highway where road users are redirected out of their normal path. Transition areas usually involve strategic use of tapers, which because of their importance are discussed separately in detail.

When redirection of the road users’ normal path is required, they shall be directed from the normal path to a new path.

Because it is impractical in mobile operations to redirect the road user’s normal path with stationary channelization, more dominant vehicle-mounted traffic control devices, such as arrow

boards, portable changeable message signs, and high-intensity rotating, flashing, oscillating, or strobe lights, may be used instead of channelizing devices to establish a transition area.

1.669 Activity Area

The activity area is the section of the highway where the work activity takes place. It is comprised of the workspace, the traffic space, and the buffer space.

The workspace is that portion of the highway closed to road users and set aside for workers, equipment, and material, and a shadow vehicle if one is used upstream. Workspaces are usually delineated for road users by channelizing devices or, to exclude vehicles and pedestrians, by temporary barriers.

The workspace may be stationary or may move as work progresses.

Since there might be several workspaces (some even separated by several miles) within the project limits, each workspace should be adequately signed to inform road users and reduce confusion.

The traffic space is the portion of the highway in which road users are routed through the activity area.

The buffer space is a lateral and/or longitudinal area that separates road user flow from the workspace or an unsafe area and might provide some recovery space for an errant vehicle.

Neither work activity nor storage of equipment, vehicles, or material should occur within a buffer space.

Buffer spaces may be positioned either longitudinally or laterally with respect to the direction of road user flow. The activity area may contain one or more lateral or longitudinal buffer spaces.

A longitudinal buffer space may be placed in advance of a workspace.

The longitudinal buffer space may also be used to separate opposing road user flows that use portions of the same traffic lane, as shown in Figure 3.

If a longitudinal buffer space is used, the values shown in Table 1 may be used to determine the length of the longitudinal buffer space.

Typically, the buffer space is formed as a traffic island and defined by channelizing devices.

When a shadow vehicle, arrow board, or changeable message sign is placed in a closed lane in advance of a workspace, only the area upstream of the vehicle, arrow board, or changeable message sign constitutes the buffer space.

The lateral buffer space may be used to separate the traffic space from the workspace, as shown in Figures 2 and 3, or such areas as excavations or pavement edge drop-offs. A lateral

buffer space also may be used between two travel lanes, especially those carrying opposing flows.

The width of a lateral buffer space should be determined by engineering judgment.

When work occurs on a high-volume, highly congested facility, a vehicle storage or staging space may be provided for incident response and emergency vehicles (for example, tow trucks and fire apparatus) so that these vehicles can respond quickly to road user incidents.

1.670 Termination Area

The termination area is the section of the highway where road users are returned to their normal driving path. The termination area extends from the downstream end of the work area to the last TTC device such as END ROAD WORK signs, if posted.

An END ROAD WORK sign, a Speed Limit sign, or other signs may be used to inform road users that they can resume normal operations.

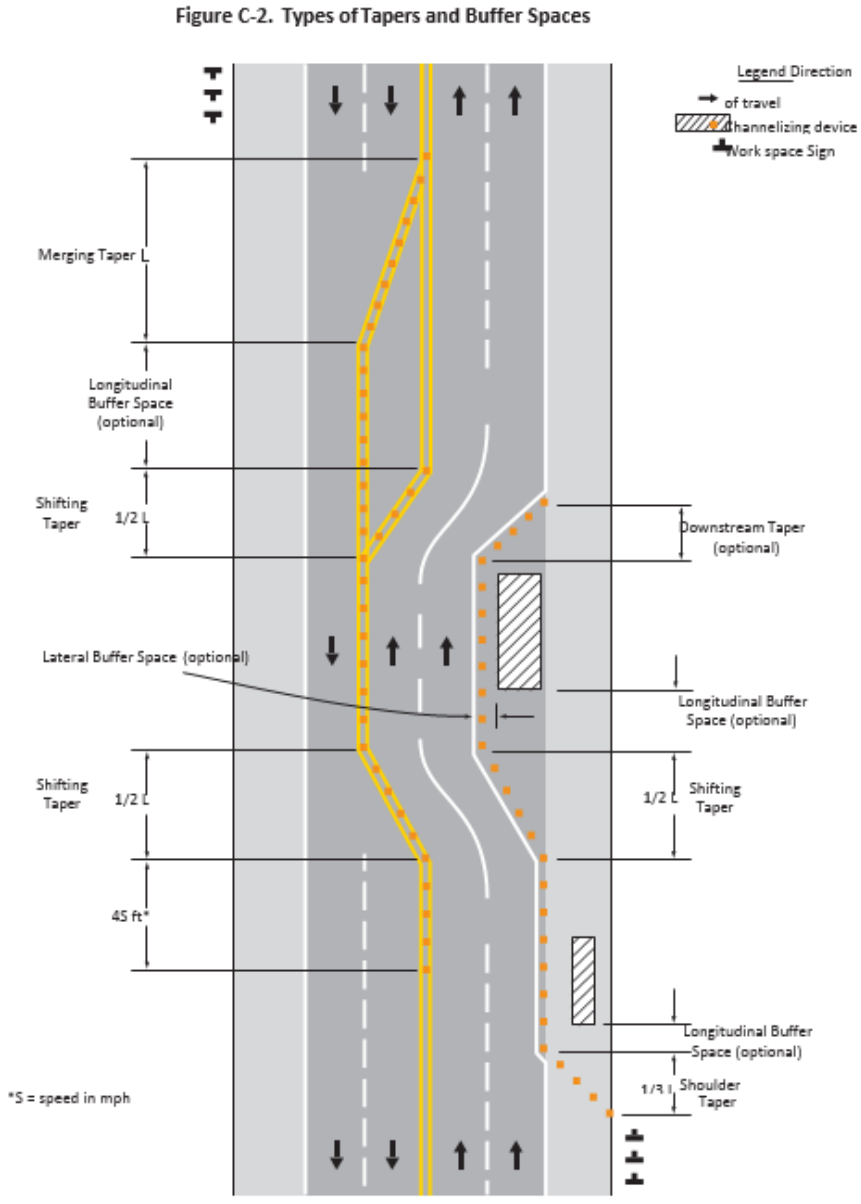
A longitudinal buffer space may be used between the workspace and the beginning of the downstream taper.

1.671 Tapers

Tapers may be used in both the transition and termination areas. Whenever tapers are to be used in close proximity to an interchange ramp, crossroads, curves, or other influencing factors, the length of the tapers may be adjusted.

Tapers are created by using a series of channelizing devices and/or pavement markings to move traffic out of or into the normal path. Types of tapers are shown in Figure 3.

Figure 3 Types of Tapers and Buffer Spaces



Longer tapers are not necessarily better than shorter tapers (particularly in urban areas with characteristics such as short block lengths or driveways) because extended tapers tend to

encourage sluggish operation and to encourage drivers to delay lane changes unnecessarily. The test concerning adequate lengths of tapers involves observation of driver performance after TTC plans are put into effect.

The appropriate taper length (L) should be determined using the criteria shown in Tables 3 and 4.

The maximum distance in feet between devices in a taper should not exceed 1.0 times the speed limit in mph.

A merging taper requires the longest distance because drivers are required to merge into common road space.

A merging taper should be long enough to enable merging drivers to have adequate advance warning and sufficient length to adjust their speeds and merge into an adjacent lane before the downstream end of the transition.

A shifting taper is used when a lateral shift is needed. When more space is available, a longer than minimum taper distance can be beneficial. Changes in alignment can also be accomplished by using horizontal curves designed for normal highway speeds.

A shifting taper should have a length of approximately 1/2 L (see Tables 3 and 4).

A shoulder taper might be beneficial on a high-speed roadway where shoulders are part of the activity area and are closed, or when improved shoulders might be mistaken as a driving lane. In these instances, the same type, but abbreviated, closure procedures used on a normal portion of the roadway can be used.

If used, shoulder tapers should have a length of approximately 1/3 L (see Tables 3 and 4). If a shoulder is used as a travel lane, either through practice or during a TTC activity, a normal merging or shifting taper should be used.

A downstream taper might be useful in termination areas to provide a visual cue to the driver that access is available back into the original lane or path that was closed.

If used, a downstream taper should have a minimum length of 50 feet and a maximum length of 100 feet with devices placed at a spacing of approximately 20 feet.

The one-lane, two-way taper is used in advance of an activity area that occupies part of a two-way roadway in such a way that a portion of the road is used alternately by traffic in each direction.

Traffic should be controlled by a flagger or temporary traffic control signal (if sight distance is limited), or a STOP or YIELD sign. A short taper having a minimum length of 50 feet and a maximum length of 100 feet with channelizing devices at approximately 20-foot spacing should

be used to guide traffic into the one-lane section, and a downstream taper should be used to guide traffic back into their original lane.

An example of a one-lane, two-way traffic taper is shown in Figure 4.

Table 3 Taper Length Criteria for Temporary Traffic Control Zones

Type of Taper	Taper Length
Merging Taper	At least L
Shifting Taper	At least 0.5 L
Shoulder Taper	At least 0.33 L
One-Lane, Two-Way Traffic Taper	50 feet minimum, 100 feet maximum
Downstream Taper	50 feet minimum, 100 feet maximum

Table 4 Formulas for Determining Taper Length

Speed (S)	Taper Length (L) in feet
40 mph or less	$L = WS^2 / 60$
45 mph or more	$L = WS$

Where:

- L = taper length in feet
- W = width of offset in feet
- S = posted speed limit, or off-peak 85th percentile speed prior to work starting, or the anticipated operating speed in mph.

1.672 Detours and Diversions

A detour is a temporary rerouting of road users onto an existing highway in order to avoid a TTC zone.

Detours should be clearly signed over their entire length so that road users can easily use existing highways to return to the original highway.

A diversion is a temporary rerouting of road users onto a temporary highway or alignment placed around the work area.

1.673 One Lane, Two Way Traffic Control

Except as provided previously, when traffic in both directions must use a single lane for a limited distance, movements from each end shall be coordinated.

Provisions should be made for alternate one-way movement through the constricted section via methods such as flagger control, a flag transfer, a pilot car, traffic control signals, or stop or yield control.

Control points at each end should be chosen to permit easy passing of opposing lanes of vehicles.

If traffic on the affected one-lane roadway is not visible from one end to the other, then flagging procedures, a pilot car with a flagger used as described in the Standard, or a traffic control signal should be used to control opposing traffic flows.

If the workspace on a low-volume street or road is short and road users from both directions are able to see the traffic approaching from the opposite direction through and beyond the worksite, the movement of traffic through a one-lane, two-way constriction may be self-regulating.

1.674 Flagger Method of One Way, Two Way Traffic Control

Except as provided previously, traffic should be controlled by a flagger at each end of a constricted section of roadway. One of the flaggers should be designated as the coordinator. To provide coordination of the control of the traffic, the flaggers should be able to communicate with each other orally, electronically, or with manual signals. These manual signals should not be mistaken for flagging signals.

When a one-lane, two-way TTC zone is short enough to allow a flagger to see from one end of the zone to the other, traffic may be controlled by either a single flagger or by a flagger at each end of the section.

When a single flagger is used, the flagger should be stationed on the shoulder opposite the constriction or workspace, or in a position where good visibility and traffic control can be

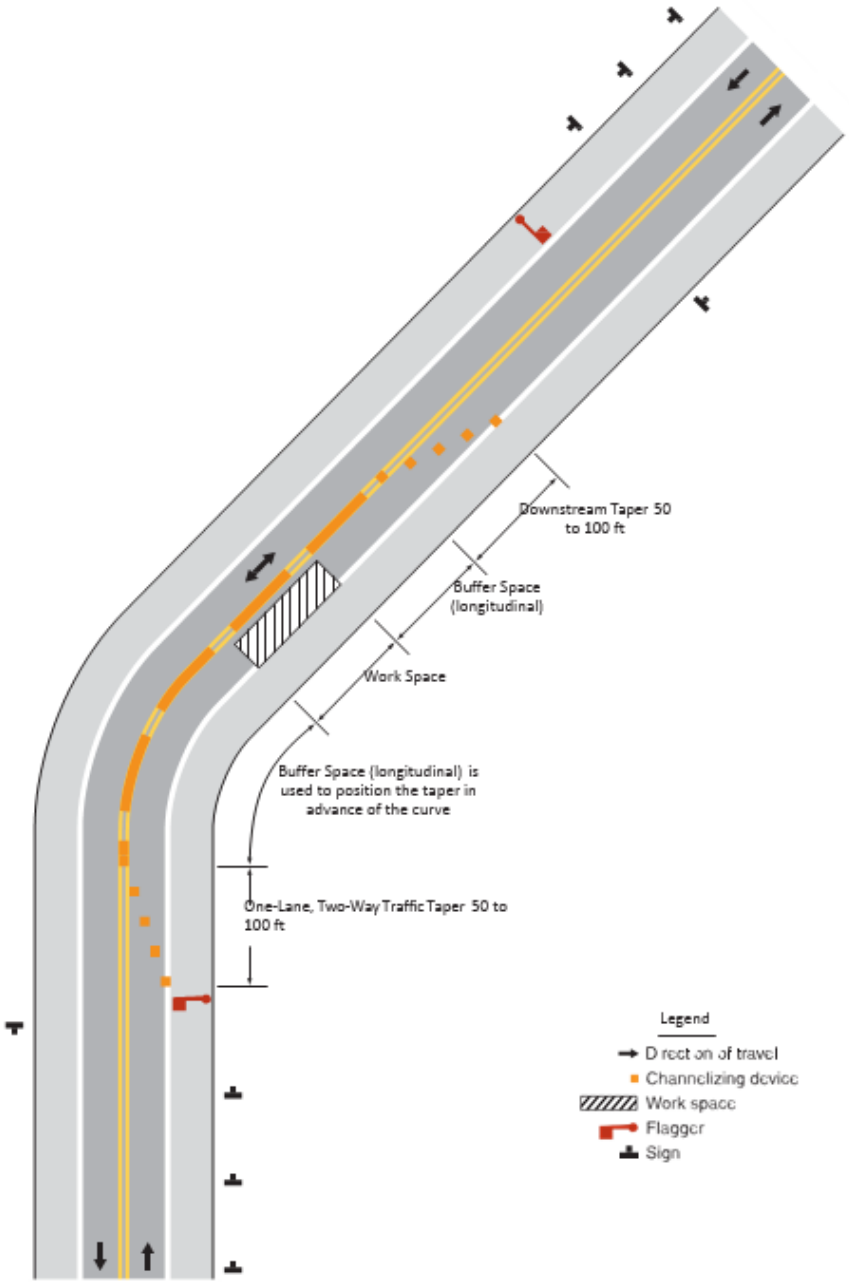
maintained at all times. When good visibility and traffic control cannot be maintained by one flagger station, traffic should be controlled by a flagger at each end of the section.

1.675 Flag Transfer Method of One Lane, Two Way Traffic Control

The driver of the last vehicle proceeding into the one-lane section is given a red flag (or other token) and instructed to deliver it to the flagger at the other end. The opposite flagger, upon receipt of the flag, then knows that traffic can be permitted to move in the other direction. A variation of this method is to replace the use of a flag with an official pilot car that follows the last road user vehicle proceeding through the section.

The flag transfer method should be employed only where the one-way traffic is confined to a relatively short length of a road, usually no more than 1 mile in length.

Figure 4 Example of a One Lane, Two Way Traffic Taper



1.676 Pilot Car Method of One Lane, Two Way Traffic Control

A pilot car may be used to guide a queue of vehicles through the TTC zone or detour.

The pilot car should have the name of the contractor or contracting authority prominently displayed.

The PILOT CAR FOLLOW ME (G20-4) sign shall be mounted on the rear of the pilot vehicle.

A flagger shall be stationed on the approach to the activity area to control vehicular traffic until the pilot vehicle is available.

1.677 Temporary Traffic Control Signal Method of One Lane, Two Way Traffic Control

Traffic control signals may be used to control vehicular traffic movements in one-lane, two-way TTC zones.

1.678 Stop or Yield Control Method of One Lane, Two Way Traffic Control

STOP or YIELD signs may be used to control traffic on low-volume roads at a one-lane, two-way TTC zone when drivers are able to see the other end of the one-lane, two-way operation and have sufficient visibility of approaching vehicles.

If the STOP or YIELD sign is installed for only one direction, then the STOP or YIELD sign should face road users who are driving on the side of the roadway that is closed for the work activity area.

1.679 DEAD END or NO OUTLET Signs

The DEAD END and NO OUTLET signs may be used to warn road users of a road that has no outlet or that terminates in a dead end or cul-de-sac.

If used, these signs should be placed at a location that gives drivers of large commercial or recreational vehicles an opportunity to select a different route or turn around.

Figure 5 Work on the Shoulder

Figure·6H-3.·Work·on·the·Shoulders·(TA-3)¶

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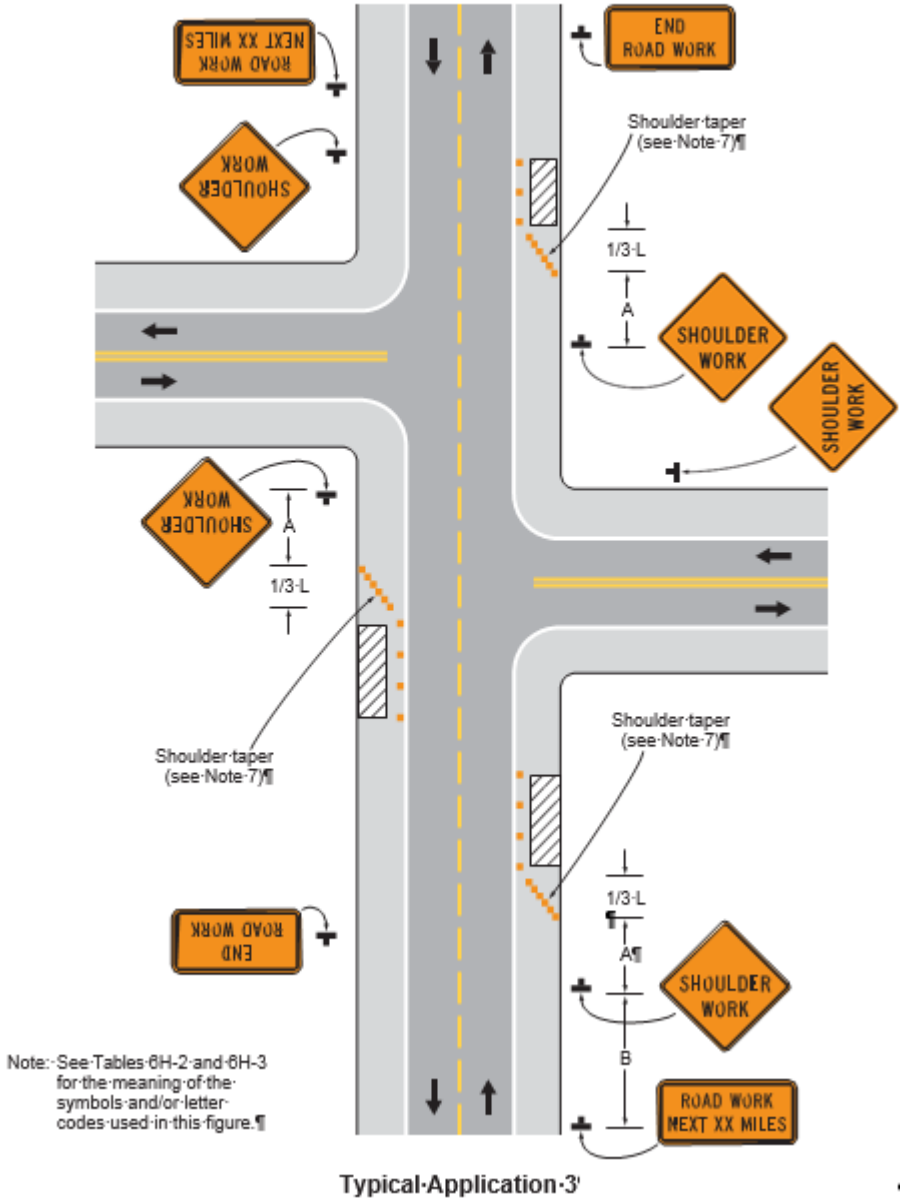
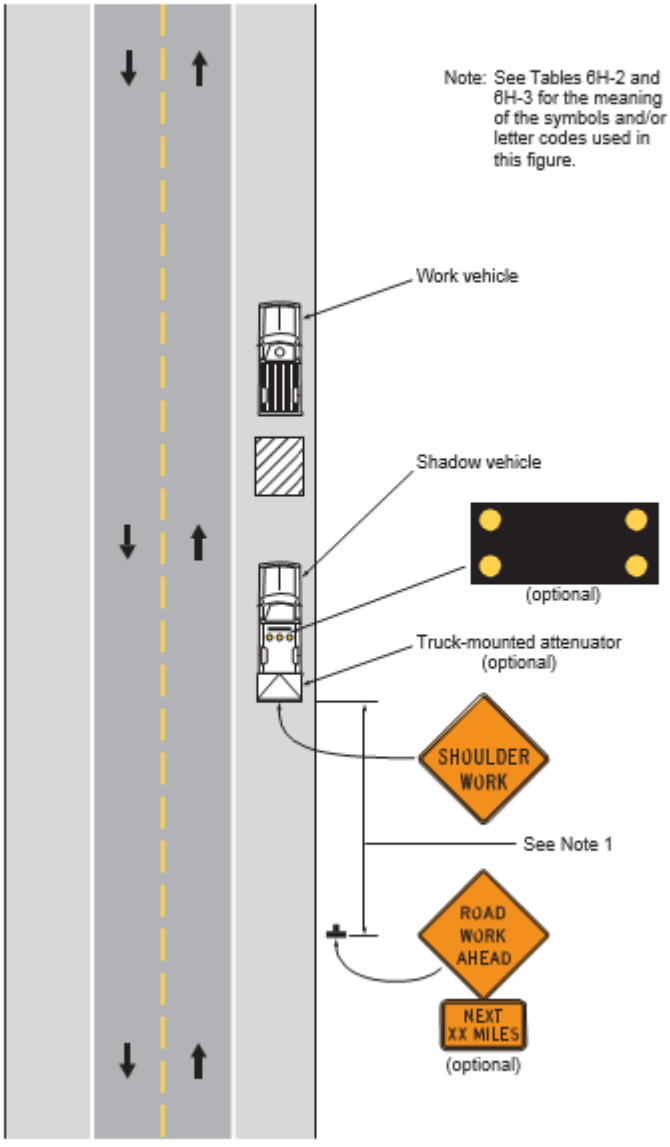


Typical·Application·3'

Figure 6 Short Duration or Mobile Operation on a Shoulder

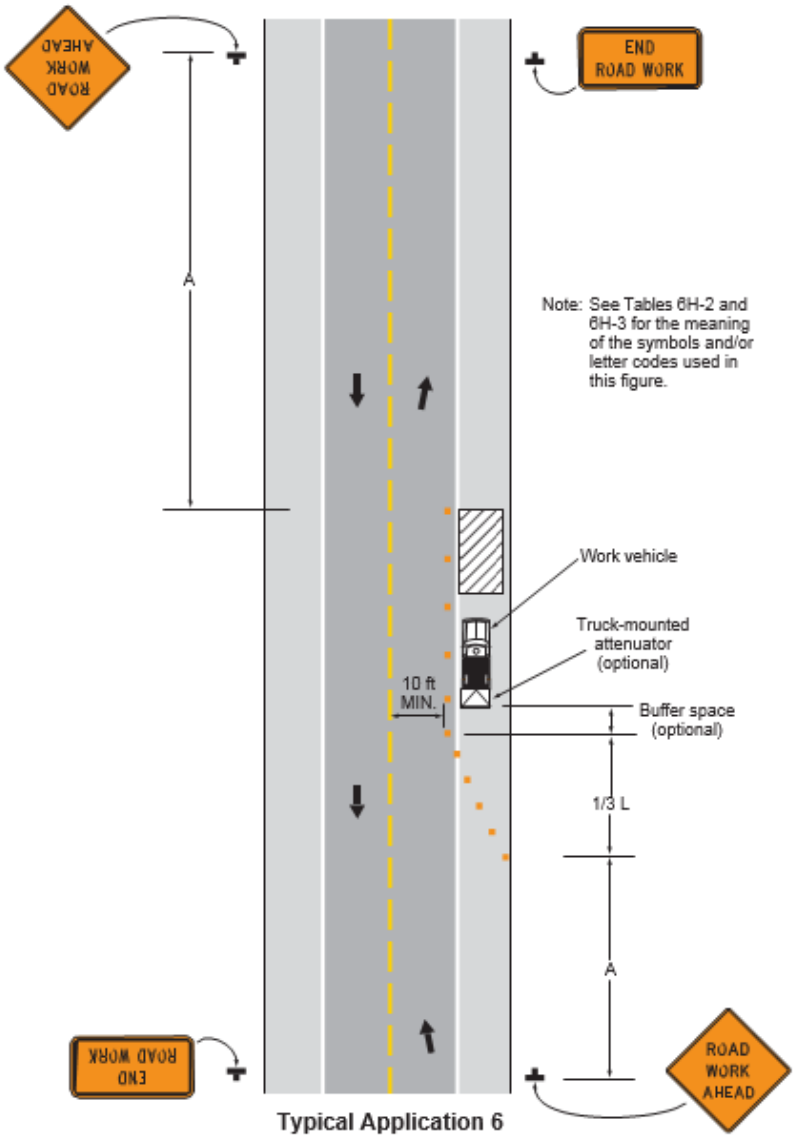
Figure 6H-4. Short-Duration or Mobile Operation on a Shoulder (TA-4)



Typical Application 4

Figure 7 Shoulder Work with Minor Encroachment

Figure 6H-6. Shoulder Work with Minor Encroachment (TA-6)



Typical Application 6

67. Trailer Towing Safety Program

1.680 Purpose and Scope

The purpose of this program is to reduce accidents and injuries associated with trailer towing by increasing awareness of best practices, ensuring compliance with safety regulations, and fostering a culture of safety and preparedness.

This procedure applies to all Van Kirk Bros. Contracting employees.

1.681 Safe Towing, Trailer Parking, and Securing

Whether pulling a lightweight trailer for the first time or if towing one is part of an employee's daily routine, it is important to prepare before hitting the road. Always follow these precautions:

- Choose the proper towing equipment
  Check the vehicle's weight capacity in the owner's manual to ensure it can handle the trailer and cargo load. Choose a size of hitch, coupler, and components that provide a secure fit. Each vehicle may require different equipment to tow safely and legally. According to Consumer Reports, incorrectly sized hitch balls are the number one cause of trailer accidents.
  - Check the tires
    Check the tire pressure on both the towing vehicle and the trailer. The vehicle's tires may require a higher pressure while towing, as outlined in the owner's manual. Inspect the trailer tires for dry rot and cracking, especially if it is stored outdoors. Even if the tires have plenty of tread, age can lead to tire failure. Always check the lug nuts to ensure they are tight.
  - Be prepared for roadside emergencies
    Ensure there is at least one spare tire for the trailer. Keep a jack and a lug nut wrench that works properly with the trailer and its wheels. Keep the trailer's wheel bearings greased and check the brakes (if equipped). Towing can put extra stress on a vehicle, so ensure the towing vehicle's maintenance is up to date.
  - Hitch up the trailer correctly
    Make sure the following proper procedures for hooking up the trailer are used before towing:
    - Line up the vehicle. With the help of a coworker or camera, back the vehicle straight toward the trailer.

- Raise the coupler. When the vehicle is about a foot away from the trailer tongue, stop and adjust the trailer coupler height to clear the trailer ball.
- Align the ball and coupler. Back the vehicle the rest of the way so the coupler lines up perfectly above the trailer ball.
- Lower the coupler onto the ball. With the vehicle in park and the emergency brake engaged, use the trailer jack to lower the unlocked coupler until it rests on the ball.
- Latch the coupler. Once the coupler is fully seated on the ball, engage the latch, and secure it with a hitch pin or coupler lock.
- Attach the safety chains in a crisscross pattern. This is required by law. Ensure the safety chains are rated to meet the gross trailer weight.
- Retract or swivel the trailer jack. Move it out of the way for towing.
- Plug in the trailer wiring. Ensure the harness does not touch the ground but has enough length to make turns without tension.
- Check the trailer lights. With a helper or mirrors, ensure the turning lights, running lights, and brake lights are functional.

- Use wheel chocks. Before unhooking the trailer from the tow vehicle, place chocks (sturdy, wedge-shaped blocks) in front of and behind the trailer's tires. This keeps the trailer from rolling away when it is released from the tow vehicle.

1.682 Driving Tips

Extra caution on the road is needed when towing a trailer. These tips can help prevent accidents.

- Allow plenty of stopping distance.
  One of the reasons people get into accidents is because they tailgate. It takes longer to stop with a trailer than with a vehicle alone. Allowing for extra stopping distance helps prevent collisions. It also prolongs the life of the towing vehicle when sudden accelerations, braking, and maneuvers are avoided.
- Anticipate problems ahead.
  Since it takes longer to stop when towing a trailer, scan ahead farther than usual. Look for problems developing down the road. Observe the traffic flow and be ready to react if needed.

- Watch for trailer sway.
  Crosswinds, large trucks, downhill grades, and high speeds can lead to the trailer swinging back and forth like a pendulum behind the towing vehicle. If this occurs, the driver should remove their foot from the gas and gently apply the trailer brakes until the swaying stops.
- Swing out when making turns.
  The amount of space needed to make a turn when towing a trailer is increased. Account for this extra space by swinging out farther when taking a turn. Watch out for curbs, corners, and other cars.
- Use care when changing lanes.
  When changing lanes with a trailer, blind spots increase, and it is more difficult to accelerate quickly. Make sure to leave plenty of space between the trailer and other vehicles when moving from one lane to another. Consider installing tow mirrors to increase visibility.
- Use a spotter when backing.
  When backing, a spotter is required.
  Have a helper assist the driver in looking for blind spots and providing directions when backing a trailer. While reversing, the driver must turn the wheel in the opposite direction from where they want to go. This can be challenging and confusing. However, these steps can help:
  - Hold the bottom of the steering wheel.
  - To turn left, move the steering wheel to the left.
  - To turn right, move the steering wheel to the right.
- Do not pull into a place if there is no way out.
  It is easy to get stuck or blocked in with a trailer. Avoid pulling into a small parking lot that requires complicated backup maneuvers to leave. Leave plenty of space when parking so a complete turnaround can be made when exiting. Choosing a parking spot that is farther away may be a better option.
- Use a parking brake and chock the trailer's wheels.
  Once the trailer is in its desired position, set the towing vehicle's parking brake and chock the trailer's wheels. Avoid parking on hills.

68. Underground Installations Safety Program

1.683 Purpose and Scope

The purpose of this program is to minimize the risk of accidents, injuries, and property damage associated with underground work by providing guidelines and safety protocols.

This program applies to all Van Kirk Bros. Contracting employees.

1.684 Underground Installations

According to the Centers for Disease Control & Prevention (CDC), 89% of confined space fatalities occurred with jobs authorized by supervisors, and 80% of fatalities happened in locations that had been previously entered by the same person who later died.

Where manholes contain exposed, energized parts operating at 50 volts or more, OSHA requires anyone entering the manhole to be a qualified employee. In order to be considered qualified an individual must have the skills and knowledge to:

- Distinguish live parts (from de-energized parts)
- Determine nominal voltage
- Calculate and maintain minimum approach distances
- Work with live equipment

1.685 Assume Highest Hazards

Start by considering every restricted space to be a “confined” space, governed by OSHA’s more stringent standard. Only if your inspection, testing, and monitoring reveal no hazards aside from electrical, can you apply the “enclosed” space rules. But to achieve the highest safety standards, work all underground installations as “confined.”

1.686 Routine vs Occasional Access

Unlike a confined space, an enclosed space is designed for routine entry, in non-emergency conditions.

1.687 Atmospheric and Non-Electrical Hazards

If inspection or site history suggests a hazardous gas mix or other non-electrical hazards apply more stringent “confined space” standards unless the hazards can be eliminated. Vaults or manholes that might be expected contain such hazards require an entry permit and require even tighter safety rules.

1.688 Monitor Changing Conditions

If new hazards arise, apply the stricter standard.

1.689 Vented Vault Exception

To enter a vented vault, if atmospheric testing verifies a safe gas mix, workers would apply OSHA’s "Alternate Procedure Entry" standard.

OSHA requires that the air be tested for dangerous gas mixes before entering an underground space. The hazards include oxygen deficiency, oxygen enrichment, and flammable or toxic gases. Test the air inside an underground vault or manhole before anyone enters using a direct-reading meter that is keep calibrated within an accuracy of plus or minus 10%.

It is important to test for gases or vapors that are flammable, toxic, corrosive, or otherwise harmful. If flammable gas concentrations exceed 10% of the lower flammable limit, employees are in a hazardous atmosphere. Each regulated hazardous gas also has an acceptable concentration threshold.

If any hazardous gas mix is detected, ventilate the work area to get its atmosphere within safe limits and monitor continuously, using an atmospheric detector. If ventilation fails to achieve a safe gas mix, enter only by following OSHA’s stringent “Permit-Required Confined Space” rules.

Oxygen concentrations below 19.5% are too low to breathe. Concentrations above 23.5% are enriched and potentially explosive. Before entering such oxygen-deficient or oxygen-enriched spaces, ventilate them and test to confirm that safe concentrations have been achieved.

Any attendants must meet the tightest standards and restrictions among all the OSHA standards. Attendants must maintain reliable communications with underground and other workers. Although voice communication might be adequate for shallow underground spaces, two-way radios are standard.

A written Emergency Action Plan must be maintained that specifies rescue and escape procedures. Designated rescue personnel must be appropriately trained. Provide equipment for quickly and safely rescuing employees from the underground space. This means without injuring the rescuer, and without further harming the fallen employee. Employees should complete a job-briefing form and pre-entry checklist before entering the underground installation.

69. Utilities Grounding Safety Program

1.690 Purpose and Scope

The purpose of this program is to minimize the risk of electrical accidents, equipment damage, and electrical hazards by providing guidelines and safety protocols for proper grounding techniques.

This program applies to all Van Kirk Bros. Contracting employees.

1.691 Oversee Clearance

One employee shall be designated to communicate with the system operator to deenergize the particular section of line or equipment that is to be worked on.

When multiple crews are working on the same lines or equipment, each crew must coordinate their activities.

Activities could include ensuring all means through which known sources of electricity may be supplied are open, that network protectors are maintained to immediately trip open if closed when a primary conductor is deenergized, and that all manual overrides are disabled.

1.692 De-energization

All electric energy sources (e.g., switches, disconnectors, jumpers, and taps) that are supplied to lines and equipment must be deenergized.

All electric energy sources must be made inoperable unless the design does not permit, in which case tagging must be in place to indicate employees are working.

1.693 Equipotential Zone

Temporary protective grounds must be placed in a manner that can be demonstrated employees will not be exposed to hazardous differences in electric potential.

Guidelines on how to establish the equipotential zone can be found in Appendix C 1910.269 App C.

1.694 Industry Guidelines

Protective grounding equipment must meet industry guidelines.

The American Society for Testing and Materials Standard Specifications for Temporary Protective Grounds to Be Used on De-Energized Electric Power Lines and Equipment, ASTM F855-17, provides guidelines for protective grounding equipment. These include that grounding equipment must be capable of conducting the maximum fault current that could flow at the point of grounding until the fault can be cleared, as well as having an ampacity greater than or equal to No. 2 AWG copper. IEEE also provides guidelines for selecting and installing protective grounding equipment in 1048-2016.

1.695 Protective Measures

Protective measures must be in place when removing grounds for test procedures.

Grounds are permitted to be removed temporarily during tests. If this happens, each employee must:

1) use insulated equipment
2) isolate themselves from any hazards, and
3) use any other means necessary to protect themselves in case the previously grounded lines and equipment become energized

70. Utility Potholing Safety Program

1.696 Purpose and Scope

The purpose of this program is to describe potholing methods and recommend procedures for potholing.

This program applies to all Van Kirk Bros. Contracting employees.

1.697 Potholing

Potholing is the practice of digging a test hole to expose underground utilities to ascertain the horizontal and vertical location of the facility. The horizontal and vertical position of the exposed facility must be tied to a survey benchmark or permanent above grade feature. The position may be identified by GPS or traditional survey coordinates or by measuring the distance, with a tape measure, to permanent features in three horizontal directions. In addition, the vertical distance below grade should be obtained.

Some municipalities and utility companies do not consider potholing to be an option. Rather, it is viewed as an essential phase of underground construction for all types of excavation including horizontal directional drilling (HDD) operations. This practice applies to all potholing activities for both construction and design applications.

1.698 Backhoes

In the recent past, potholes were typically dug with backhoes. Digging potholes with a backhoe is a risky endeavor compared to other methods of potholing due to its potentially destructive nature. The backhoe method is inexact and cumbersome; even skilled backhoe operators run the risk of hitting and damaging the very utility they were trying to locate and protect.

The use of backhoes is not the preferred method of potholing. However, if a backhoe is utilized, it is essential that a “spotter” be present for the entire excavation. A spotter is a person that observes the excavation and communicates to the backhoe operator when a buried facility is sighted.

1.699 Hand Dig

Hand digging a test hole is the method of digging a pothole by manual means with handheld equipment such as a shovel. This method is labor intensive and time consuming. The advantage to hand digging is that it does not require expensive equipment and is relatively safe for locating most facilities. As with any excavation, extreme caution should be practiced if digging near hazardous utilities such as electric cable.

1.700 Vacuum Excavation

Vacuum excavation is the preferred method for non-destructive exposure of buried utilities. Vacuum excavation utilizes either air or water pressure to break up the soil and a vacuum device to collect the spoil. Of the two methods, air vacuum excavation is generally preferred, though specific site and environmental characteristics may lead to a decision to use water vacuum excavation.

1.700.1 Air

Air vacuum excavators utilize the kinetic energy in a high velocity air stream to penetrate, expand and break-up soil. The loosened chunks of soil and rock are then removed from the hole through the use of a powerful vacuum. In this way a test hole is created that reveals the buried utility. Holes vary in size and shape. A typical test hole is 6 inches to 12 inches in diameter and 4 feet to 6 feet deep. However, a test hole one foot square is also common, and holes can be considerably deep if required. For example, holes in the excess of 20 feet may be required to locate deep sewer mains. Dry or air excavation has several advantages over water vacuum excavation. For example, the air method is faster in most soils and eliminates the need for mud disposal. Since the spoil remains dry, it can immediately be used for backfilling. Air methods are safer for the operator and the utilities. One shortcoming of air units is that they are not effective in all soil types, especially wet, heavy clay, and caliche.

1.700.2 Water

Water vacuum excavation systems dig the pothole using high-pressure water to reduce and loosen the soil. The wet soil and mud slurry is removed to a spoil tank using a powerful vacuum. Like air systems, a hole typically one-foot square or 6 to 8 inches in diameter is common. The maximum hole depth for both systems is dependent on the vacuum limitations. The higher density of water produces powerful forces that are effective in most soils including wet heavy clays. Heated water systems can be used to excavate frozen ground allowing efficient potholing year-round. Operational caution is also necessary as high-pressure water systems have the potential of cutting through cables or damaging pipe if not used with care.

1.701 Call Before You Dig

As with all excavations, call for utility locates through the state One Call system and refer to the state “Excavator’s Manual” prior to potholing and other construction activities.

Facilities of owners that do not participate in the state One Call systems need to be identified as well.

1.702 Construction Drawings

Construction drawings showing new construction and existing facilities should be present and utilized during potholing activities. Construction drawings should be compared to designating/locate paint marks to determine if all facilities shown on the drawings have been identified in the field. If drawings and paint marks do not match, consider additional potholing to determine accurate locations.

1.703 Contact Information

Have contact names and phone numbers for all known underground facility providers available.

1.704 Mis-Designated Facility

If locate paint marks have improperly designated the location of a facility, and the facility is exposed during potholing or other excavation, the facility owner and/or the state One Call systems should be notified. The entity that exposed the facility should document the position of the facility and communicate the information to the facility owner.

If a utility cannot be located through potholing used in conjunction with drawings and locate marks, the facility owner should be contacted and/or the state One Call system should be notified.

1.705 Conditions Requiring Potholing

State statutes require excavation within 2 feet of marked utilities be performed in a careful manner. The following sections are intended to advocate a careful and prudent method to protect existing underground facilities. Refer to State statutes.

1.705.1 Close Proximity

It is recommended that potholing be used to expose utilities for any excavation including HDD within the tolerance zone of the marked utility. The tolerance zone (also known as the “approximate location”) is typically a strip of land equal to the width of the underground utility plus 2 feet on either side.

For HDD operations with a bore path that parallels a utility within 3 feet, potholing should be required at the beginning and end of the bore and every 50 feet along the route.

For HDD operations with a bore path that parallels a utility within 5 feet, potholing should be required at the beginning and end of the bore and every 200 feet along the route.

Potholing should also be performed for all utilities crossing the path of HDD operations.

Backhoe excavation should not be allowed within 2 feet of existing facilities.

1.705.2 Congested Utilities

In congested areas having several facilities in close proximity and/or crisscrossing each other, locates have greater potential to be considerably less accurate. It is recommended that potholing be utilized for excavations near congested utility areas.

1.705.3 Hazardous and Vital Systems

Hazardous systems include electric cables, and all types of natural gas pipelines including transmission, distribution, and service lines. Vital systems include telephone transmission lines, fiber optic, and other communication cables.

For the preservation and protection of human life and vital facilities, it is recommended that excavations with 3 feet of hazardous or vital systems utilize potholing to locate the facility.

1.706 Protecting Exposed Facilities

Facilities exposed during potholing must be protected throughout the project. Exposed facilities can shift or sag when the soil that was supporting and protecting the utility is removed. Utilities that are rendered unsupported due to potholing should be temporarily supported by shoring or other means. The utility should also be protected from heavy and sharp items falling into the excavation which could crush or cut the facility.

1.707 Backfill and Restoration

After the underground utility has been located, the pothole should be restored within 24 hours or as otherwise directed. Appropriate sediment controls should be utilized during all potholing activities to prevent storm water pollution. The pothole should be clean and dry prior to backfilling. Backfilling of the excavation and the restoration of pavement or surfacing shall be in accordance with the governing authority's standards and specifications.

Drilling mud or remaining spoil should be cleaned up and the area restored to original condition or better. Any drilling mud or remaining spoil must be disposed of in an environmentally suitable manner.

71. VACUUM TRUCKS SAFETY PROGRAM

1.708 Purpose and Scope

The purpose of this program is to minimize the risk of accidents, injuries, and property damage associated with vacuum truck operations by providing guidelines and safety protocols.

This program applies to all Van Kirk Bros. Contracting employees working with or near vacuum trucks.

1.709 Qualified Operators

Vacuum truck operators must be trained and properly licensed in accordance with applicable regulation.

Vacuum trucks must not enter into the tank dike area(s) until such area(s) have been checked/monitored and rendered safe.

Vacuum trucks cargo tanks must be depressurized.

Vacuum truck operators must be aware of the effect of speeds, turns and the changing center of gravity.

Vacuum truck operators must maintain proper distances when operating vacuum trucks inside facilities with restricted clearances.

1.710 Inspection

Prior to beginning operations, vacuum truck operators must:

- Obtain any required permits
- Inspect vacuum trucks, equipment, and loading/offloading sites to assure safe operations

1.711 Personnel Safety

The Company must ensure that vacuum truck personnel working in petroleum facilities are trained on:

- The safe operation of the vacuum equipment
- Familiar hazards of the petroleum products, by-products, wastes, and materials being transferred
- Aware of relevant government and facility safety procedures and emergency response requirements

- Safety Data Sheets
- Appropriate PPE

It is required that all personnel must leave the vacuum truck cab during loading and off-loading operations, when transferring flammable liquids or hazardous materials.

Vacuum truck operators must remain positioned between the vacuum truck and the source or receiving tank, vessel, or container and within 25' of the vacuum truck throughout the duration.

Vacuum truck operators must monitor the transfer operation and be ready to quickly close the product valve and stop the pump in the event of a blocked line or release of material through a broken hose or connection.

Smoking, or any other source of ignition, must not be permitted within at least 100' (depending on local procedures and atmospheric conditions) of the truck, the discharge of the vacuum pump, or any other vapor source.

1.712 Hazards

The Company must ensure that vacuum truck owners and operators, as well as facility personnel, are made aware of the numerous potential hazards associated with vacuum truck operations in petroleum facilities, including but not limited to:

- Sources of ignition
- Flammable atmospheres
- Potential hazards associated with the surrounding area
- Toxic vapors and their PEL’s and STEL’s
- Additional hazards such as slips and falls, spills and releases, fires and explosions, and accidents within the facility or on the highway

1.713 Atmospheric Testing

The areas where vacuum trucks will operate must be free of hydrocarbon vapors in the flammable range.

The areas where the vacuum truck operator and others work without respirators must also be at or below air - contaminant PEL's/STEL's.

If there is any question whether the area is vapor-or toxic gas- free, atmospheric testing must be performed by a qualified person using properly calibrated and adjusted detectors.

Testing must be conducted prior to starting any operations, and if necessary, during operations, including but not limited to the following:

- When operations in the area are subject to change such as automatic pump start-up or product receipt into, or transfer out of, a tank located in the vicinity of the transfer operations
- When offloading
- When atmospheric conditions change such as wind direction, when an emergency situation, such as product release, occurs in within the facility that may affect atmospheric conditions in the transfer area

1.714 Conductive Hoses

Vacuum hoses constructed of conductive material or thick-walled hose with imbedded conductive wiring, must be used when transferring flammable and combustible liquids when the potential for a flammable atmosphere exists in the area of operations.

Conductive hoses must provide suitable electrical conductance less than or equal to 1 mega ohm per 100 feet (as determined by the hose manufacturer).

Thin-walled metallic spiral-wound conductive hoses should not be used because of the potential for electrical discharge through the thin plastic that covers the metal spiral.

1.715 Bonding and Grounding

The complete vacuum transfer system needs to be bonded so that there is a continuous conductive path from the vacuum truck through the hose and nozzle to the tank or source container and grounded to dissipate stray currents to earth (ground).

Prior to starting transfer operations, vacuum truck needs to be grounded directly to the earth or bonded to another object that is inherently grounded (due to proper contact with the earth) such as a large storage tank or underground piping.

A safe and proper ground to earth may be achieved by connecting to any properly grounded object including but not limited to any one or more of the following examples:

- A metal frame of a building, tank, or equipment that is grounded.
- An existing facility grounding system such as that installed at a loading rack.
- Fire hydrants metal light posts, or underground metal piping with at least 10' of contact with earth.

- A corrosion free metal ground rod of suitable length and diameter (approximately 9' long and 5/8-in. diameter), driven 8' into the earth (or to the water table, if less).

1.716 High Discharge Temperature

Under normal conditions, the absence of oxygen minimizes the risk of ignition in a vacuum truck.

However, operating rotary lobe blowers and vacuum pumps at high speeds creates high air movement and high vacuum levels, resulting in high discharge air temperatures and high discharge vapor concentrations that can present potentially ignitable conditions.

1.717 Exhaust Venting

A number of methods can be used by vacuum truck operators to safely vent vacuum pump exhaust vapors, including but not limited to the following:

- Operators can prevent dieseling by locating the vacuum truck upwind of vapor sources and by extending the vacuum pump discharge away from the diesel engine air intake
- Vapors may be returned to the source container using conductive and closed connections
- Vapors may be vented into the atmosphere to a safe location using a safety venturi
- Vacuum truck operators may provide vertical exhaust stacks, extending approximately 12 feet above the vacuum truck (or higher if necessary), to dissipate the vapors before they reach ignition sources or other potential hazards and personnel
- Vacuum truck operators may attach a length of exhaust hose to the vacuum exhaust that is long enough to reach an area that is free from potential hazards, sources of ignition, and personnel. The hose should be preferably extended 50' downwind of the truck and away from the source of the liquids

72. WELDING, CUTTING, HOT WORK PROGRAM

1.718 Purpose and Scope

The purpose of this program is to establish hot work requirements to ensure all hazards are evaluated and the appropriate safety measures and controls are administered prior to and during any process that involved welding and cutting or any other hot work.

This program applies to all Van Kirk Bros. Contracting employees involved with hot work.

1.719 Resources

Number	Title
29 CFR 1910 Subpart Q	Welding, Cutting, and Brazing
Cal/OSHA T8CCR Subchapter 7	General Industry Safety Orders – Gas Systems for Welding and Cutting
NFPA 51B	Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
CMS-FM-0050	Hot Work Permit

1.720 Definitions

Acronym/Term	Definition
Welder and Welding Operator	Any operator of electric or gas welding and cutting equipment.
Approved	Listed or approved by a nationally recognized resting laboratory.
Confined Space	A relatively small or restricted space such as a tank, boiler, pressure vessel, or small compartment of a ship.

1.721 Welding, Cutting, and Hot Work Program

Welding, cutting, and hot work such as brazing or grinding present a significant opportunity for fire and injury. All precautions of this program shall be applied prior to commencing any hot work.

1.722 Responsibilities

Management shall recognize its responsibility for the safe usage of cutting and welding equipment on the property and:

- Based on fire potentials of plant facilities, establish areas for cutting and welding, and establish procedures for cutting and welding, in other areas.
- Designate an individual responsible for authorizing cutting and welding operations in areas not specifically designed for such processes.
- Insist that cutters or welders and their supervisors are suitably trained in the safe operation of their equipment and the safe use of the process.
- Advise all contractors about flammable materials or hazardous conditions of which they may not be aware.

The **Supervisor**:

- Shall be responsible for the safe handling of the cutting or welding equipment and the safe use of the cutting or welding process.
- Shall determine the combustible materials and hazardous areas present or likely to be present in the work location.
- Shall protect combustibles from ignition by the following:
    - Have the work moved to a location free from dangerous combustibles.
    - If the work cannot be moved, have the combustibles moved to a safe distance from the work or have the combustibles properly shielded against ignition.
    - See that cutting and welding are so scheduled that operations that might expose combustibles to ignition are not started during cutting or welding.
- Shall secure authorization for the cutting or welding operations from the designated management representative.
- Shall determine that the cutter or welder secures approval that conditions are safe before going ahead.
- Shall determine that fire protection and extinguishing equipment are properly located at the site.
- Where fire watches are required, see that they are available at the site.

1.723 Training

Cutters, welders, and their supervisors shall be suitably trained and qualified in the safe operation of hot work equipment and safe use of the process.

Assigned fire watchers shall be trained in the use of fire extinguishing equipment and familiar with the facilities for sounding an alarm in the event of a fire.

Affected employees assigned to maintain or operate welding or cutting equipment must be familiar with 29 CFR 1910.254 and 29 CFR 1910.252(a-c).

Affected employees whose duties require arc welding or cutting must be trained in a manner such that those employees are qualified to operate such equipment.

1.724 Special Precautions

The Qualified Hot Work Supervisor shall verify that all fire suppression systems present in the area are fully operational. If fire suppression systems cannot be operational, additional protective measures shall be put in place.

If the object to be welded or cut cannot readily be moved, all movable fire hazards in the vicinity shall be taken to a safe place.

If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards shall be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards.

Where practicable, all combustibles shall be relocated at least 35 feet from the work site. Where relocation is impracticable, combustibles shall be protected with flameproof covers or otherwise shielded with metal or asbestos guards or curtains.

If the requirements for fire hazards and guarding cannot be followed, then welding and cutting shall not be performed.

Wherever there are floor openings or cracks in the flooring that cannot be closed, precautions shall be taken so that no readily combustible materials on the floor below will be exposed to sparks which might drop through the floor. The same precautions shall be observed regarding cracks or holes in walls, open doorways, and open or broken windows.

The frame or case of welding machines, except engine-driven machines, shall be grounded.

Before starting operations all connections to welding machines shall be checked to make certain they are properly made.

Ducts and conveyor systems that might carry sparks to distant combustibles shall be suitably protected or shut down.

Where cutting or welding is done near walls, partitions, ceiling, or roof of combustible construction, fire-resistant shields or guards shall be provided to prevent ignition.

If welding is to be done on a metal wall, partition, ceiling or roof, precautions shall be taken to prevent ignition of combustibles on the other side, due to conduction or radiation, preferably by relocating combustibles. Where combustibles are not relocated, a fire watch on the opposite side from the work shall be provided.

Welding shall not be attempted on a metal partition, wall, ceiling, or roof having a combustible covering nor on walls or partitions of combustible sandwich-type panel construction.

Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings, or roofs shall not be undertaken if the work is close enough to cause ignition by conduction.

1.725 Fire Watch

Fire watchers shall be required whenever welding or cutting is performed in the following situations:

- Locations where other than a minor fire might develop.
- Appreciable combustible material is closer than 35 feet to the point of operation.
- Appreciable combustibles are more than 35 feet away but are easily ignited by sparks.
- Wall or floor openings within a 35-foot radius expose combustible material in adjacent areas including concealed spaces in walls or floors.
- Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.

Fire watchers shall have fire extinguishers readily available and shall be trained in its use. They shall be familiar with facilities for sounding an alarm in the event of a fire. They shall watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm. A fire watch shall be maintained at least half an hour after the welding or cutting operation is completed. Depending on location and local regulations, a fire watch shall be maintained at a minimum of 60 minutes after the welding or cutting operation is complete. A minimum of 2 hours of surveillance must be maintained after completing hot work.

1.726 Hot Work Permit

Before cutting or welding is permitted, the area shall be inspected by the individual responsible for authorizing cutting and welding operations. Precautions shall be designated to be followed in granting authorization to proceed, preferably in the form of a written permit.

1.727 Prohibited Areas

Cutting or welding shall not be permitted in areas not authorized by management, in sprinkled buildings while such protection is impaired, in the presence of explosive atmospheres, areas near the storage of large quantities of exposed, readily ignitable materials.

1.728 Personal Protective Equipment (PPE)

Employees exposed to the hazards created by welding, cutting, or brazing operations shall be protected by personal protective equipment (PPE).

Goggles or other suitable eye protection shall be used during all gas welding or oxygen cutting operations. Spectacles without side shields, with suitable filter lenses are permitted for use during gas welding operations on light work, for torch brazing, or for inspection.

Helmets or hand shields shall be used during all arc welding or arc cutting operations.

1.729 Ventilation

Local exhaust or general ventilating systems shall be provided and arranged to keep the amount of toxic fumes, gases, or dusts below the maximum allowable concentration.

1.730 Confined Spaces

When hot work is to be performed in confined spaces, ventilation, securing cylinders, lifelines, electrode removal, gas cylinders shutoff, and warning signs shall be addressed.

When welding or cutting is being performed in any confined spaces the gas cylinders and welding machines shall be left on the outside. Before operations are started, heavy portable equipment mounted on wheels shall be securely blocked to prevent accidental movement.

Where a welder must enter a confined space through a manhole or other small opening, means shall be provided for quick removal in case of emergency. When safety belts and lifelines are used for this purpose, they shall be so attached to the welder's body that the body cannot be jammed in a small exit opening. An attendant with a preplanned rescue procedure shall be stationed outside to observe the welder at all times and be capable of putting rescue operations into effect.

When arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes shall be removed from the holders and the holders carefully located so that accidental contact cannot occur, and the machine shall be disconnected from the power source.

In order to eliminate the possibility of gas escaping through leaks of improperly closed valves, when gas welding or cutting, the torch valves shall be closed and the fuel-gas and oxygen supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. Where practicable, the torch and hose shall also be removed from the confined space.

After welding operations are completed, the welder shall mark the hot metal or provide some other means of warning other employees.

1.731 Equipment

The operator shall report any equipment defect or safety hazard to the supervisor and the use of the equipment shall be discontinued until safety has been assured. Repairs shall be made only by qualified personnel.

First aid equipment shall be available at all times.

Only approved apparatus such as torches, regulators or pressure-reducing valves, acetylene generators, and manifolds shall be used.

Employees in charge of the oxygen or fuel-gas supply equipment, including generators, and oxygen or fuel-gas distribution piping systems shall be instructed and judged competent by the Company for this important work before being left in charge.

1.732 Identification

Compressed gas cylinders shall be legibly marked, for the purpose of identifying the gas content, with either the chemical or the trade name of the gas. Such marking shall be by means of stenciling, stamping, or labeling, and shall not be readily removable. Whenever practical, the marking shall be located on the shoulder of the cylinder.

1.733 Transportation and Storage

Cylinders shall be kept away from radiators and other sources of heat. Inside of buildings, cylinders shall be stored in a well-protected, well-ventilated, dry location, at least 20 feet from highly combustible materials.

Cylinders shall be stored in assigned places away from elevators, stairs, or gangways. Assigned storage spaces shall be located where cylinders will not be knocked over or damaged by passing or falling objects, or subject to tampering by unauthorized persons.

Cylinders shall not be kept in unventilated enclosures such as lockers and cupboards.

Empty cylinders shall have their valves closed. Valve protection caps, where cylinder is designed to accept a cap, shall always be in place except when cylinders are in use or connected for use.

Appendix 30 **Hot Work Permit**

General Information			
Hot Work Operator:		Date:	
Fire Watch Name:		Job No.:	
Location of Work:			
Description of Work:			
Date Work to Begin:		Date Work to End:	
Time Work to Begin:		Time Work to End:	

Emergency Notification	
Contact	Phone No.

Van Kirk Bros. Contracting

Welding, Cutting, Hot Work Program

Building Information			
Building Name:		Building Number:	
Floor:		Specific Location:	
Do building fire alarm system devices have to be deactivated?		Yes ☐	No ☐
Device number(s) requiring deactivation:			
Date(s) device(s) will be deactivated:			

Special Precautions		
1. Proper training verified by hot work operator.	Yes ☐	No ☐
2. Can hot work be moved outside or to a safe location?	Yes ☐	No ☐
3. Hot work area swept and clear of combustible materials within a 35-foot radius.	Yes ☐	No ☐
4. Combustible construction has been shielded.	Yes ☐	No ☐
5. All tools, equipment, and PPE inspected and in good working condition.	Yes ☐	No ☐
6. Adequate ventilation.	Yes ☐	No ☐
7. Fire extinguishers are in service / operable.	Yes ☐	No ☐
8. Fire watch has fire extinguisher and has completed fire extinguisher training.	Yes ☐	No ☐
9. Management has evaluated the facility.	Yes ☐	No ☐
10. Operator understands that work must stop if unsafe.	Yes ☐	No ☐

11. Confined space entry permit required.	Yes ☐	No ☐

12. Lockout / tagout required.	Yes ☐	No ☐
13. Hot work area will be monitored for 30 minutes after work.	Yes ☐	No ☐
Additional Precautions:		

Signatures

I verify that the above location has been examined and the required precautions have been taken.

Hot Work Operator Name:		Date:	
Hot Work Operator Signature:			

I verify that the above location has been examined and the required precautions have been taken.

Post-Work Fire Watch Finish Time:			
Fire Watch Name:		Date:	
Fire Watch Signature:			

I verify that the above location has been examined, the required precautions have been taken, and permission is authorized for this work.

VanKirk Bros.
Contracting
773-5250
SUTTON, NE

Van Kirk Bros. Contracting

Welding, Cutting, Hot Work Program

Permit Authorizer Name:		Date:	
Permit Authorizer Signature:			

73. Winter Driving Safety Program

1.734 Purpose and Scope

The purpose of this program is to minimize the risk of accidents, injuries, and property damage associated with winter driving by providing guidelines and safety protocols.

This program applies to all Van Kirk Bros. Contracting employees.

1.735 Winter Driving Safety

The United States Department of Transportation (US DOT) Federal Highway Administration reports that 1,836 people die, and 136,309 people are injured every year from icy roads in the US.

Winter weather, such as snow, sleet, freezing rain, and ice, can create hazardous road conditions. Every year, 24% of weather-related vehicle crashes happen on snowy, slushy, or icy pavement and 15% happen during snowfall or sleet.

1.736 Hazards

Winter driving hazards include:

- Slowed traffic
- Slippery or icy roadways
- Frozen bridges
- Steep hills
- High speed roadways
- Deceleration spots
- Acceleration spots
- Fallen branches and powerlines

1.737 Warning Signs

Warning signs that can alert you to possible hazardous winter road conditions include:

- Temperatures near or below freezing (32°F)
- Falling precipitation
- Ice or snow sticking to your vehicle
- Ice or snow sticking to elevated objects

1.738 Best Preparedness Practices

During a winter weather event, stay off roads if possible. If you must get on the road:

- Carry a cell phone
- Let someone know when you depart, your route, and expected arrival time
- Dress according to weather conditions; keep dry and wear clothing in layers
- Keep your gas tank full
- Check the local news for road closures or known hazardous conditions and plan your route accordingly

Making sure your vehicle is winter-ready is another important safe driving practice. To keep your vehicle winter ready:

- Keep your battery fully charged (they are weaker in cold weather)
- Check your brakes and have them serviced if necessary
- Make sure your vehicle's exhaust system has no leaks
- Make sure your wiper blades are in good condition and keep the windshield washer reservoir filled with antifreeze solvent
- Also check the vehicle's radiator, heater core, and all hoses that carry antifreeze to make sure they are in good condition and free of leaks.

In case of a winter emergency, keep an emergency supply kit in your vehicle that includes:

- Jumper cables
- A small shovel
- Ice scraper and brush
- Traction aids (bag of sand or cat litter)
- A flashlight and extra batteries

- A two-way radio
- Flares or reflective triangles
- First aid kit
- Blankets or sleeping bags
- Extra winter clothes
- Matches
- Food and water
- Road maps

1.739 Safe Driving Practices

Once on the road, follow these safe driving practices:

- Accelerate slowly
- Increase your following distance
- Brake early
- Approach bridges, shaded spots, and turns slowly
- Never use cruise control
- Use snow tires or chains
- Wear your seat belt

1.740 Skidding or Sliding

Driving too fast for the road conditions can cause you to skid or slide. If you do begin to slide, remain calm and react based on your vehicle's steering.

In rear-wheel drive vehicles, stay off the brakes and gradually ease off the accelerator.

- Turn your wheels in the direction the rear end of your vehicle is skidding
- If the rear end of the vehicle skids right, steer right; if the rear end of the vehicle skids left, steer left

In front-wheel drive vehicles, accelerate slightly and steer in the direction you want to go.

- If there is no room to accelerate, shift into neutral

The key to safe vehicle operation is slower speed. Slow down and be alert.

1.741 Accidents

If you get into an accident on an icy road:

If your vehicle is drivable, keep moving.

Do not get out of your vehicle and stand on the road.

If your vehicle is disabled, stay in your vehicle if traffic is approaching.

Do not stop for accidents or stranded vehicles along the road. If possible, get off the road as quickly as you can. If it is not possible to get off the road, stay in your vehicle.

1.742 Stranded During a Storm

If a winter storm strands you in your vehicle, stay in your vehicle. Do not leave the vehicle to search for assistance unless help is visible within 100 yards.

If you can, hang a brightly colored piece of cloth on the radio antenna and raise the hood.

Run your vehicle's engine for about 15 minutes each hour and run the heat to keep warm. Never go to sleep with the engine running.

If it is extremely cold, you may need to keep the engine running continuously; it may not restart if shut off.