ENVIRONMENTAL HEALTH AND SAFETY MANUAL

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ENVIRONMENTAL HEALTH AND SAFETY MISSION STATEMENT

It is the goal of Frontier to provide a safe workplace environment for all of its employees. Accordingly, Frontier shall develop and adopt safe methods and practices for its operations and provide each employee with the necessary protective equipment to ensure that the job can be performed safely. These methods and practices shall be consistent with loss prevention and best management practices, and where applicable, the requirements of governing bodies having jurisdiction over our business operations.

It is the responsibility of each employee to follow governmental and Frontier methods, practices and requirements, and to properly utilize protective equipment, to ensure their own safety, the safety of their fellow employees, and the safety of the public.

Frontier shall also carry out its operations in a manner consistent with good environmental practices, so as to minimize the impact of its activities on our natural resources. These practices shall be protective of our air, water and land, and consistent with the requirements of governing bodies having jurisdiction over our business operations.

Vision Statement:

All Frontier employees **understand, accept** and **demonstrate** accountability for their health, safe work processes and regulatory compliance.

Safety Creed: The demands of the service or urgency of the job are never so great that we cannot take time to perform our work safely.

Responsibilities

Safety is a personal responsibility for all employees and contractors.
Additional responsibilities are:

Role	Responsibilities
Management	Awareness and utilization of appropriate procedures and equipment for job performance safety and management of operations in a safe and environmentally responsible manner.
Supervisors / Coaches	Must abide by, implement, model the behavior and enforce all safety and environmental requirements and ensure direct/indirect reports have: • necessary understanding and awareness of safety and environmental requirements, • proper safety equipment required to perform job, and • personal responsibility for safely utilizing appropriate equipment, and

Role	Responsibilities
Employees	Responsibility includes, but not limited to: • working in a safe manner and adhering to all government and Company environmental, health and safety requirements, • working safely so as not to jeopardize safety of fellow employees or the public, • being familiar with directives in this manual and following prescribed practices, • attendance at environmental, health and safety training and awareness sessions, • utilization of proper and required safety equipment, • being drug and alcohol free while on the job, • operating all equipment or vehicles in a safe and responsible manner, and • handling hazardous materials in a safe and environmentally responsible manner.
Contractors	Commencing work for or on behalf of Frontier, a contractor/subcontractor is: • certifying familiarity with government and Company Environmental Health and Safety requirements, and • has adequate knowledge and skills to perform duties in a safe and environmentally responsible manner consistent with the regulatory requirements and this program.

INCIDENT REPORTING

Purpose

To enable the Environmental Health and Safety (EHS) office to monitor workplace incidents and unsafe conditions within the Company and to comply with OSHA mandated reporting requirements.

Notification to Supervisor

An integral part of EHS program is immediately reporting the following to the supervisor:

- Motor vehicle incidents involving a Company vehicle or employee's personal vehicle driven on Company business.
- All personal injuries/illnesses occurring on the job whether or not medical attention or first aid is required.
- Unsafe conditions.
- Any violations of Department of Motor Vehicles traffic laws.

Notification to EHS Manager

All on the job illnesses or injuries, motor vehicle incidents and violations, and unsafe conditions or safety related near-miss incidents must be reported to your Regional EHS Manager by the supervisor. Information regarding any lost time or light duty work must also be reported by the supervisor.

All Injury/Illness and Motor Vehicle Incidents are reported through Frontier's EH&S Compliance System at http://fesinfwwapv01/FESS/WelcomeNew2.aspx

Unsafe Condition Report forms can be obtained through the Safety Intranet web site at https://frontiercorp1.sharepoint.com/sites/giga_Environmental_Health_and_Safety/SitePages/Unsafe%20Condition%20Report.aspx or through The Link Directory and clicking on Safety.

Injury/Illness on the job

If an incident occurs on the job causing personal injury/illness to any employee, the following steps **must** be taken:

Step	Action
1	Render first aid.
2	Call emergency services if necessary.
3	Notify supervisor of the injury/illness.
4	Supervisor or Management Delegate enters incident information with employee through the online EH&S Compliance System within 24 hours of injury/illness. **NOTE:** Incomplete information will be returned to supervisor for completion.

NOTE: If a serious injury results in an overnight hospitalization or a fatality occurs, call EHS VP immediately.

Company owned motor vehicle incidents

The following steps are to be taken when an incident involves a Company owned motor vehicle:

Step	Action
1	Render first aid. Call emergency services if necessary.
2	Call police.
3	Notify supervisor of the motor vehicle incident.
4	Call Element @ 800-446-7052 to report incident. Use Element Incident Report form booklet for guidance.
5	Take pictures of the incident scene, if possible.
6	Supervisor or Management Delegate enters motor vehicle incident information with employee through the online EH&S Compliance System within 24 hours of incident. **NOTE:** Incomplete information will be returned to supervisor for completion. Any additional information (i.e. pictures, police report, and/or statements) should be uploaded and included into the online report on the EH&S Compliance System.

NOTE: If motor vehicle incident results in an employee sustaining personal injury, an Injury/Illness Form must also be completed. If a serious injury or fatality occurs, call EHS VP immediately.

Personal motor vehicle incident used during company business

Driving personal vehicle on company business must be pre-approved by Supervisor. Frontier does not cover damages to a personal vehicle during Company business. For incidents involving a personal motor vehicle used during Company business, employee is to immediately report incident to supervisor. In addition, as in any incident involving a motor vehicle, employees should make a report of the incident to their personal insurance carrier, and to the police.

Unsafe conditions

Employees must report unsafe conditions to their supervisor, who is responsible for correcting the condition. The supervisor must complete an Unsafe Condition Report and send it to their Regional EHS Manager.

Incidents

Near misses not resulting in an injury or illness should be reported to the supervisor, who must enter the incident information with the employee through the online EH&S Compliance System within 24 hours of the incident occurring.

Incident Investigation

Investigations are to determine cause of an incident and to prevent similar incidents by either physical or mechanical improvements and/or employee training. Investigation of all incidents and incidents are required, regardless of whether injury and/or property damage resulted and not to find fault or place blame.

Supervisor Report

Immediate supervisor is responsible for investigating and reporting the results of the investigation to their Regional EHS Manager. Supervisor investigation will answer the following:

Question	Result
Who, what, when, where and how the incident happened?	Provide who was involved, what was the incident, injury sustained, description in detail of how the incident happened, when occurred (include date and time), and location of the incident.
Why did the incident occur?	Ultimate cause of an incident may not be known for several days after all the data is analyzed. Obvious cause should be included as a hypothesis at time information is given to person in charge of investigation
What should be done?	Supervisor, EHS Manager, and top management make decisions for avoiding future similar incidents.
What has been done?	A follow-up will be conducted to determine if the suggested solution was implemented, and if so, whether the likelihood of incident has been reduced.

GOVERNMENTAL POSTING AND REPORTING REQUIREMENTS

Postings at each location

Each office must have OSHA posters and/or state equivalent placed on employee bulletin boards. Each reporting location has responsibility to determine requirements for any state, providential or other local postings (i.e. Department of Motor Vehicle regulations, State Environmental Regulations, etc.).

OSHA 300A

Posted between February 1st and April 30th, are the OSHA 300A Forms. The forms are located on common main bulletin boards inside each facility. OSHA 300A forms provide a summary of each location's work-related injuries and illnesses during the previous year.

FIRE PREVENTION AND PROTECTION

General

Employees have responsibility to prevent fires from occurring. Smoking is prohibited in all Frontier buildings. Fire drills will be conducted in each reporting location every 12 months.

Fire Doors and Sprinklers

Fire doors must never be blocked, tied open or prevented from closing automatically. Buildings equipped with automatic sprinklers must maintain at least 18 inches clearance between sprinkler deflectors and top of storage. Access to fire extinguishers, hose cabinets and standpipe connections must be clear at all times.

Specialized Fire Detection/ Suppression Systems

Employees should have working knowledge of special fire detection and/or suppression systems when entering rooms with such equipment, such as halon or FM200.

Fire Protection Safeguards

- Paper, cardboard and other combustible material must not accumulate.
- Materials, boxes, supplies, and other similar products should be neatly stored in cabinets or shelves.
- File drawers, desk drawers, sliding shelves and doors should be kept closed when not in use.
- Old computer equipment should be disposed of properly in accordance with EPA requirements and should be considered hazardous waste.
- Flammable materials should not be stored in front of electrical outlets.
- Circuits must have a fuse or breaker of no greater rating than that of the circuit conductor.
- Area around electrical boxes (panels) should be kept clear for access.
- Become familiar with primary and secondary evacuation routes.
- Do not use elevators in an evacuation.

Flammable and Combustible Liquids

Combustible materials (i.e. oil soaked rags, waste, etc.) must be kept in approved metal containers with self-closing lids. Flammable and combustible materials must be:

- Stored or transported only in approved plainly contents labeled containers.
- Be equipped with self-closing spigots and grounded to prevent accumulations of static electricity.
- Properly secured

Fire Classes

Proper classes of fire extinguishers have been placed in facilities based upon materials used or stored in each location. Following are classes of fire:

Fire Class	Elements	Notes
A	Combustible material such as paper, wood, drapes, and	Fire can also be extinguished with water or dry-chemical extinguishers.
B	Flammable liquids such as fuel, oil, gasoline, paint, grease, etc.	Dry-chemical extinguishers are commonly used. Carbon dioxide extinguishers are also effective.
C	Electrical equipment such as motors, switchboards, wiring, etc.	Water **must not** be used. Carbon dioxide and dry-chemical extinguishers are commonly used.
D	Combustible metals, such as magnesium, titanium, zirconium sodium, lithium and potassium.	Special dry compound powders such as graphite or sodium chloride, powdered talc, soda ash, and limestone. In other cases, dry sand is also acceptable for extinguishing fire.

NOTE: Using the incorrect extinguisher on a fire may result in injury or additional property damage.

Fire Extinguisher/Inspection and Maintenance

Fire extinguishers, including those installed on Company vehicles, will be inspected monthly. Check for proper placement in designated location, tampered seals, damage, hose/nozzle obstructions, and pressure gauge. Extinguishers should be recharged after use despite amount of contents discharged. Qualified and trained vendors will inspect and certify extinguishers annually and maintained as required.

Using a Fire Extinguisher

Fire extinguishers are in place to extinguish small fires, to enable a safe exit from an area, or to contain a small fire until the fire department arrives. At no time shall employees risk their own safety to extinguish a fire. An easy acronym can be remembered for using a fire extinguisher if an employee voluntarily chooses to use one:

Action	Description
P- Pull	Pull pin from handle of extinguisher.
A- Aim	Aim nozzle of extinguisher at base of fire.
S- Squeeze	Squeeze handle of extinguisher.
S- Sweep	Sweep nozzle side to side at base of fire.

Personal Appliance Electrical Policy

The Company discourages use of personal electronic appliances in the workplace. Personal appliances have many potential hazards such as circuit overload, fire and misuse. In order to minimize fire hazards and to provide a sanitary work environment food preparation is allowed only in Company provided kitchens, cafeterias and break rooms. Using electronic appliances are at the discretion of the building manager/supervisor. Employees must notify building manager/supervisor before any personal appliance is brought into or used in a Company building. Upon notification, the building manager/supervisor will inspect the appliance to ensure safe and proper working order. Personal appliances include, but not limited to, the following:

- Coffee pots
- Crock/Hot Pots
- Lamps
- Microwave ovens
- Personal space heaters
- Popcorn poppers
- Radios
- Refrigerators
- Toasters and toaster ovens

Guidelines for Approving Appliances

Building manager/supervisor will inspect each appliance requested for use. Inspections will include:

- Switches on appliance must be in working order.
- Ensure no cord is frayed.
- UL approved appliance.
- Appliance must have capability to plug into a power strip with surge protection.
- Appliance must be safe and in proper working order for its use.
- Use of appliance will not result in vermin infestation.

Guidelines for Using Appliances

Employees must ensure:

- All electrical connections are secure.
- Not to overload electrical outlets with excessive appliances.
- Cords are not a tripping hazard or hanging over cubicle walls.
- Good housekeeping where appliances are being used.
- Amperage is relative to circuit limits.
- Appliances are away from flammable materials.
- Appliances are unplugged prior to maintenance.
- Appliances are turned off or unplugged when not attended.
- Appliances used in wet/moist areas have a GFCI (Ground Fault Circuit
- Interrupt).
- Use of appliance will not result in vermin infestation.

Evacuation- Fire and Emergency Action Plans

Each building will have an Emergency Action Plan (EAP) established to provide guidelines for an evacuation due to fire. Each reporting location will have an Emergency Action Plan Owner (EAPO), a Chief Emergency Preparedness Coordinator (CEPC) and assistant EP Coordinators and Sweepers depending on the number of employees located in the building. Refer to section on Emergency Action Plans.

EMERGENCY ACTION PLANS

Each reporting location should have an emergency action plan to deal with major emergencies. Elements of plan shall include:

- Identification of Emergency Action Plan Owner, Chief Emergency Preparedness Coordinator, assistant EP Coordinators/Sweepers and their respective responsibilities.
- Emergency evacuation procedures, including exit routes and designated meeting locations.
- A plan for evacuation and/or rescue of special needs employees.
- Procedures for dealing with severe weather; medical emergencies and any other specific urgent situations that could occur at that location.

Major Emergencies

In a major emergency, an organized effort must be made to protect personnel from further injury and to minimize property damage.
Major emergencies may be one of the following:

- Potential major loss to a building or facility.
- Potential hazard to the surrounding community.
- Terrorist threats, civil disturbances or alerts, natural disasters such as tornadoes, earthquakes, floods, blizzards and landslides, and site wide electrical power or other utility failure.

Reentry Procedures

Reentry to an evacuated building or area is prohibited without specific instructions from the Chief Emergency Preparedness Coordinator or emergency responders (i.e. fire department/police).

Roles

Employees not involved in the emergency must stay away from the scene and follow instructions issued directly from emergency responders and/or the EAP Owner; CEP Coordinator or Facilities Manager.

Role	Responsibilities
Emergency Action Plan Owner (EAPO)	▪ Responsible for the building. ▪ Ensure Emergency Action Plan is developed. ▪ Designate the Chief Emergency Preparedness Coordinator. ▪ Primary contact for communicating with the Senior Management Team (including Public Relations, Safety & Security and Facilities) in the event of fire or other workplace disaster.

Role	Responsibilities
Chief Emergency Preparedness Coordinator (CEPC)	▪ Reside in building. Oversee the overall development, training, testing, and dissemination of information on the Plan to all employees. ▪ Assemble a team of assistant EP Coordinators and Sweepers. ▪ Establish evacuation procedures and coordinate evacuation drills with EP Coordinators/Sweepers and local fire department. ▪ Keep the EAPO up to date on the event. Ensure ▪ crowd control, evacuation assembly and headcounts are proceeding accordingly. ▪ Inform the EPC's and Sweepers when it is safe for employee re-entry. ▪ Conduct periodic meetings to review procedures and update current EP Coordinators/Sweepers.
Sweepers	▪ Check all cubicles, rooms and closets on your floor for any employee that has not evacuated. ▪ Maintain list of handicapped employees on your floor, type of handicap, and their assigned buddy. Provide list to EPC. ▪ Report status of your floor's evacuation to EPC include handicapped and buddies left on floor. ▪ Direct employees to their designated meeting area and deter employees from re-entering building or leaving the premises. When all clear is announced, assist EPC with employees ▪ re-entering and checking for FTR badge. Inform back-up when out of building. ▪
Supervisors/Managers	▪ Review EAP policy with your direct reports annually and with all new hires within 1st week of employment. ▪ Designate a specific meeting area for your group and develop an accountability plan. ▪ Provide name of any handicapped employee along with type of handicap to floor Sweeper. ▪ Designate two buddies (one will be a back-up) to stay with handicapped employee until firemen arrive to assist. ▪ Report any unaccounted employees directly to the CEPC. ▪ In the event of your absence, prepare a designee to take charge.

Role	Responsibilities
Employees	▪ Follow procedures established in emergency action plan and directions from those in authority during an emergency. Evacuate calmly and in an orderly manner using the closest exit. ▪ Meet at your designated area. ▪ Do not use cell phone, smoke, or leave your designated area. ▪ Do not re-enter building until an "all clear" command has been given by the EPC/Sweeper. ▪

Information and Responsibilities for Specific Emergencies:

Terrorist or Bomb Threat

- Highest-ranking management at each location shall make the final determination as to whether the building should be evacuated.
- Frontier Security should be contacted by building management to assist in assessing the credibility of any threat.
- Follow normal evacuation procedures found in the emergency preparedness plans if an evacuation is ordered.

Tornado

- If tornado watch, building manager shall monitor local radio station or weather service for changing conditions.
- If tornado warning employees:
  - shall be moved to the lowest safe floor in building, preferably to a basement area.
  - shall go to inside hallways or rooms, staying away from windows or objects that might fall.
  - should take cover under heavy furniture such as a table or desk where safe.
  - shall remain in safe area until an "all clear" directive has been given.

Earthquake

- Immediately move away from windows, light fixtures, shelves, file cabinets, wall hangings, or any other object that may fall and cause injury.
- Stand in doorways or move towards the corners of buildings or outer stairwells.
- Cover head for protection from falling debris.
- Take cover under heavy desk or table for protection.
- Do not use elevators.

- Beware of aftershocks.
- Watch out for hazards such as gas or water leaks, fires, blocked exits, downed power lines, power failures and general debris.

Natural Gas Leak

- If an employee smells natural gas, immediately cease use of any equipment that could cause even a slight spark. Evacuate the area where a strong gas smell is detected.
- Call local fire department and local utility. Do not use a phone or pull a fire alarm switch in an area where there is a strong gas order, as this could cause a spark and explosion.
- Follow normal evacuation procedures if the highest ranking manager decides to evacuate the building.
- Do not take elevators.

Fire

- Follow normal evacuation procedures from the area.
- Do not take elevators.

Power Failure and Other Emergencies

- Highest-ranking manager shall determine if a building should be evacuated.
- Follow normal evacuation procedures.
- **Call emergency responders (police, fire, and/or ambulance) as needed for assistance.**

HAZARD COMMUNICATION PROGRAM

Introduction

In accordance with Federal OSHA Hazard Communication Standard (29CFR1910.1200), Frontier has developed a Hazard Communication Program to ensure information necessary for safe use, handling and storage of hazardous chemicals is made available to all employees. Frontier has also incorporated into its program the new OSHA requirements that take effect between December 2013 and June 2016. Material Safety Data Sheets (MSDS) will now be labeled as Safety Data Sheets (SDS) which are designed to be easier to read and globally standardized. For the complete training program, please refer to the EHS website, https://frontiercorp1.sharepoint.com/sites/giga_Environmental_Health_and_Safety/SitePages/Environmental%20Information.aspx

Purpose

The Company does not manufacture hazardous chemicals, but is committed to protecting employees exposed to such materials in the workplace. Use of hazardous chemicals may occur at Company facilities, or at various non- Frontier locations by field technicians. Program is intended to cover all Frontier facilities, and should be attached to Chemical Inventory prepared for each location where regulated hazardous chemicals are used or stored. Copies of Chemical Inventory will be on file at Corporate EHS office and forms may be found on EHS web site.

Contact for questions

Employee with questions, about Hazard Communication Program, may call their Regional EHS Manager. Access to Safety Data Sheets (SDS) is through Frontier's Employee Right To Know Hotline by calling 1-877-451-6919, and is available 24 hours a day, 7 days a week. Medical personnel are also available to help interpret MSDS information on a 24/7 basis by calling the hotline number.

Elements of program

Elements of the Hazard Communication Program are:

- Chemical inventory,
- Labels and other forms of warning,
- Chemical Classes,
- Safety Data Sheets,
- Employee information and training,
- Personal protective equipment,
- Emergency response,
- Information third parties, and
- Posting information.

Chemical inventory

Each location is responsible for keeping current chemical inventory lists and notifying EHS office of any changes. New hazardous chemicals brought into the workplace must be added to chemical inventory. Supervisors are to ensure inventory is current with respect to hazardous chemicals in use by employees.

Labels and other forms of warning

No hazardous chemical may be used or introduced into the workplace without the appropriate label affixed to the container.
Supervisor or coach must ensure containers are properly and prominently labeled with the following information:

- Identity of the hazardous chemical.
- Appropriate hazard warnings, or alternatively, words, pictures or symbols providing general information regarding the hazards of the chemicals, and
- Name and address of the chemical manufacturer.

Unmarked or worn/damaged labels

The Company relies on manufacturer-applied labels to determine and evaluate chemical hazards. Labels must be on the containers. Worn or damaged labels must be replaced. Unmarked containers of any kind are not to be left in the workplace. Unmarked containers should be brought to the attention of supervisor or coach for proper disposal with assistance from EHS Manager.

Introduction of new hazardous chemicals in workplace

Supervisor/coach is responsible for ensuring manufacturers, distributors or suppliers provide SDS for new hazardous chemical introduced into the workplace. Copies of SDS for newly introduced hazardous chemical must be faxed to EHS office (see key contact list for fax number) for inclusion in database. Updates to existing SDS must be faxed to EHS office. Supervisor/coach should report to EHS office any discontinued use of a hazardous chemical. Additionally, supervisors should review new products/chemicals and the hazards with employees before introduction.

Chemical classes and labels

Almost all chemical hazards will fall into one of the following classes below, and will be identified with a pictogram and these elements on the label.

1. **Product Identifier** (code number and chemical name)
2. **Signal Word** (level of hazard severity – Danger or Warning)
3. **Hazard Statements** (assigned to each hazard class & category to describe the chemical's dangers)
4. **Precautionary Statements** (describes safety measures to prevent exposure or injury, e.g.: use personal protective equipment)
5. **Supplier Identification** (contact information)
6. **Indication that data is unknown or otherwise classified** if applicable.

Class	Examples	Hazard
FLAMMABLES 	▪ alcohol, ▪ solvent, ▪ propane, and ▪ gasoline.	Materials will burn when ignited at or below room temperature. May be a source of irritation to the skin, and vapors may be toxic at elevated levels. ▪ Smoking is prohibited around flammable materials. ▪ Store materials in a tightly covered, protective containers designed for such storage. ▪ Bond and ground all containers when dispensing flammable materials. ▪ Store flammables away from oxidizers and corrosives.
CORROSIVES 	▪ ammonium hydroxide, ▪ sodium bicarbonate, ▪ lime, and ▪ sodium hydroxide.	Acids and bases, also known as caustics and alkalis, can cause damage with direct contact to skin, eyes, or when inhaled. ▪ Store bases and acids in separate places, and away from flammables. ▪ Use with good ventilation. Examples of acids include sulfuric, acetic, nitric and phosphoric.
TOXICS  	▪ metals, ▪ particulate solids (asbestos), ▪ lubricants, ▪ coolants, ▪ machine oils, and ▪ gas (nitrogen, carbon monoxide, nitrous oxide)	Poisonous to body's organs. Toxic chemical could cause harm depending on frequency and duration of exposure. Minimize contact with toxic materials, use in well-ventilated areas, and minimize the release of volatile materials.
REACTIVES 	▪ oxidizers, ▪ peroxides, ▪ chromic acids, ▪ halogens and ▪ sodium metals.	Chemicals change violently when combined with certain other materials or conditions. Reactives can cause unusual heat, fire or an explosion. Do not mix any incompatible chemicals.

Safety Data Sheets

As of June 1, 2015 a new SDS format will replace the existing Material Safety Data Sheets. You may see both formats during the transition. SDS will continue to communicate the hazards of hazardous chemical products but will simplify the terminology. Data will be presented in a consistent manner, using headings in a specified sequence that includes 16 sections. In addition, Pictograms will be required on all labels to identify chemical hazards. The nine Pictograms will consist of a symbol on a white background framed within a red border and represent a distinct chemical classification.

Chemical manufacturers are required to develop a SDS for each hazardous chemical produced. Distributors are to provide a copy of the SDS for each hazardous chemical intended for use in the workplace. SDS provides detailed information on each hazardous chemical, including its potential hazardous effects, its physical and chemical characteristics, and recommendations for appropriate protective measures. Emergency First Aid measures for dealing with the hazardous chemical are also included. Hardcopy of the SDS is required at any primary workplace facility where access to a fax machine, computer or telephone is not available.

SDS Access

Access to SDS is through **Frontier Employee Right–To–Know Hotline** by calling 8**77-451-6919**; available 24 hours per day, seven days a week. SDS will be faxed or read. Assistance in interpreting information on SDS from trained medical professionals is also available through Hotline. SDS may be accessed from https://www.damarco.com/Default.asp Log In: **frontier** Password: **msds**

Hazard Communication Training

Qualified personnel will provide Hazard Communication Training. Orientation for new employees will include Hazard Communication Program. Existing employees will have periodic training. Supervisors must train employees about new chemicals introduced into the workplace. Training objectives will provide:

- How to identify physical and health hazards of chemicals in the work area.
- Reading and using labels for hazardous chemicals.
- Awareness for appropriate protective measures, preventive work practices, emergency response procedures, and use of personal protective equipment around hazardous chemicals.
- Awareness of SDS, and how to access SDS through Frontier
- Employee Right-To-Know Hotline.
- Awareness of elements in the Hazard Communication Program, and applicable chemical inventory.
- General understanding of methods and observations used to detect the presence of chemical hazards.

Emergency response

SDS contains emergency and first-aid information. In the event of over- exposure to a chemical hazard, follow procedures set forth in SDS, and request emergency medical assistance as necessary. All over-exposure incidents must be reported to the supervisor. Supervisor will notify their Regional EHS Manager.

Employees may participate in a hazardous chemical spill clean-up effort, only if:

- properly trained to deal with spills,
- have appropriate equipment to handle spill, including personal protective equipment, and
- hazard is manageable, not requiring third party action.

NOTE: Supervisors/coaches and appropriate Regional EHS Manager must be notified of spills.

Informing third parties

Third parties coming into the Frontier workplace are required to adhere to the provision of the Hazard Communication Standard.

Posting of information

SDS and interpretive information is available on the Link through the EHS web site for employees and third parties as required in Hazard Communication Standard and Hazard Communication Program.

Chemicals at non-Frontier locations

Frontier employees working on customer premises or at a non-Frontier location may request the owner or operator of that location to provide access to SDS for any chemical exposure.

GENERAL WORKPLACE HAZARDS

Lead

Exposure to lead or lead poisoning is a serious health hazard. Lead enters the body through inhalation (breathing) or ingestion (swallowing). Heated lead emits fumes into air, where inhaled, enters the lungs and absorbed into the blood stream building up in the body. Lead particles can be inhaled or swallowed by build-up on hands, clothing, cigarettes, or food.

Preventing lead poisoning

To prevent build-up of lead in the body, proper engineering controls must be followed:

Prevention	Description
Personal protective equipment	Use of safety glasses, hard hat, and designated protective suits and gloves reserved and stored for lead operations are required. Contaminated suits must be laundered separately or disposed of properly.
Personal hygiene	Washing hands thoroughly with soap and water prior to eating, drinking or smoking is the **best prevention** against ingesting lead particles. Waterless hand cleaner works well if not near running water. Ensure food, drinks and cigarettes are kept away from lead operations to avoid contamination.
Lead disposal	Proper disposal of lead or lead contaminated articles is key in reducing exposure to lead. Lead must be disposed of as a hazardous waste. Verify correct disposal procedures with your EHS Manager.
Lead monitoring	Blood lead testing should be made available to all employees exposed to lead above the action level for more than 30 days per year. Testing is voluntary and is monitored by EHS office.

Preventing lead poisoning (continued)

Prevention	Description
Ventilation and wetting agents	Use of ventilation and wetting agents, as engineering controls, are the primary means of reducing exposure to lead. ***Ventilation*** of manhole should be in accordance with confined space procedures. The procedure of Test, Purge and Ventilate can reduce the concentration of lead dust in air. ***Wetting Agents,*** such as brushless shaving cream and e- pressure testing solution, typically reduce lead dust and exposure to levels far below the action level.
Power tool ban	Use of power tools when working with lead is prohibited.

Asbestos

Asbestos Containing Material (ACM) is typically a grey or white fibrous material that was used as a fire retardant or for insulation in construction on or before 1980. It is regulated by OSHA (29 CFR 1910.1001 and 29 CFR1926.1101); U.S. EPA (40 CFR Parts 61 and 763); and in some States by the State Department of Labor. It is most hazardous when in a friable state, meaning that it is brittle or crumbles when touched, with exposed fibers. When ACM is sealed or encapsulated, and there are no loose fibers, there typically are no health issues for employees, as long as the material remains undisturbed.

Materials Presumed to contain Asbestos if found in buildings constructed in or prior to 1980 (PACM – Presumed Asbestos Containing Material).

- Thermal system insulation found on pipes, fittings, air handlers, boilers, tanks, ducts, or similar structural components to prevent heat loss or gain.
- Surfacing material (material that is sprayed or troweled on for acoustical, fireproofing or other purposes).
- Wallboard, floor tile (asphalt or vinyl), sheeting, ceiling tile and construction mastic.
- Roofing and siding shingles

It is Frontier policy that all such PACM be handled as ACM, unless there is documentation to indicate that the material does not contain asbestos. Examples of acceptable forms of documentation include test results; manufacturer's/vendor specifications; and records to indicate that the material was purchased post 1980.

Prohibition On Disturbing ACM & PACM

Frontier employees shall not engage in or allow any activity that may disturb ACM or PACM. This means that employees shall not, or direct others to engage in activities that may cause others to disrupt, crumble, pulverize, penetrate, remove, strip or cut materials that are ACM or PACM, or engage in any activity that may result in the release of fibers from ACM or PACM.

If an employee observes damaged ACM, PACM or suspect ACM in a Frontier building, this should be reported immediately to the Regional Facility Manager, or the Regional EHS Manager for that location. The employee should not touch or otherwise disturb the suspect ACM. The Regional Facility or EHS Manager shall immediately take action as necessary such as limiting access to the area, and investigating further whether the material observed is ACM and in a friable state.

Responsibility of COEI Manager:

In consultation with the EHS Manager, approval of the Area COEI Manager must be obtained prior to initiating any COEI activity that could result in a release of asbestos fibers.

Responsibility of Facility Manager:

Prior to undertaking, or directing a contractor to undertake any construction, repair, demolition, disturbance, removal, renovation, repair, maintenance or roofing project in a building constructed on or before 1980, the Facility Manager must determine if there is ACM present in the area of anticipated work. This may be done through Company records and credible information; testing; and/or manufacturer's/vendor specifications.

If there is ACM present, the material must be removed and/or encapsulated in accordance with federal and state requirements before undertaking the project. The Facility Manager must retain a licensed, certified contractor/consultant to undertake any ACM removal or encapsulation work, including the disposal of ACM at a facility licensed to handle such waste.

Facility Manager is responsible for notifying maintenance and custodial personnel of any known ACM and PACM in Frontier buildings constructed on or before 1980.

Responsibility of Regional EHS Manager:

- Provide periodic training to the Facility Manager and their staff on the handling and requirements of ACM
- Provide periodic training to employees on ACM and PACM.
- Provide guidance and be a resource to the Facility Managers on ACM and PACM projects as necessary.

Office safeguards

Keeping spaces clean and tidy is vital to safety. Some reminders of good office practices in work areas are:

- Keeping work area tidy will improve productivity and increase safety.
- Clean up trash and scrap. Place in correct receptacles for trash or recycling.
- Dispose of food and drink in trash so not to attract insects.
- Smoke only in designated areas outside and away from general building entrances. Dispose of smoking materials in non-combustible containers.
- Promptly clean up spills of water, grease and other liquids to prevent slips and falls.
- Close cabinet doors and drawers to prevent trips and head injuries.
- Watch for wear and damage to carpets, floors and stairs, which can cause tripping incidents.
- Passages through work areas should be unobstructed. Office furniture and equipment should not protrude into aisles.
- Keep traffic areas, in front of desks and tables free of tripping hazards such as cables and cords; re-route overhead, in conduits or around heavily traveled areas.
- Rarely used areas, such as high shelves, beams, basement storage areas and storage buildings, should be kept neat and clean.
- Store materials properly. Do not place heavy items overhead. Secure materials to prevent falling or rolling.
- Windows should be kept clean and unblocked to help provide light to work safely.
- Do not obstruct routes to fire exits, fire extinguishers, first aid kits, or other emergency equipment.
- Ensure fire extinguishers and other emergency supplies are maintained regularly.
- Paper cutter cutting arm shall always be secured closed when not in use.

Electrical and Tool safeguards

- Watch for signs of overloaded electrical circuits.
- Keep hand tools in good repair. Turn defective tools in for repair or replacement.
- Make sure machinery is properly guarded to prevent incidental contact with point of operation, moving or energized components. Ensure machine guards have not been tampered with or removed.
- Do not allow unneeded materials or equipment to accumulate in work area. Return supplies to central storage area and tools to tool crib.
- Clean up while working when possible, disposing of scrap and returning tools to tool bins.
- Keep tools and equipment routinely cleaned, maintained and inspected.
- Beware of any signs of electrical malfunction. Watch for wear and damage to electrical cables, cords, plugs and outlets. Do not use electrical equipment, which has makeshift repairs by unqualified, unauthorized personnel.

Furniture and stair safeguards

Equipment	Action
Desks	Push on handles to avoid pinching fingers when closing drawer. Avoid placing heavy or bulky objects near edge of the desk. Store sharp or pointed objects with sharp points directed away from body position while sitting at a desk. Place pencils in containers with sharp point down.
Chairs	Never use a chair as a ladder. Avoid leaving chairs in aisles and hallways. Chairs with broken sides, rungs, seats or other defects are to be marked and disposed of immediately.
Filing cabinets	Cabinets should not be located where drawers or doors will block aisles when opened. Open one drawer at a time and store all heavy items in lower drawers to prevent cabinet from tipping. Push on handles of a drawer to avoid pinching fingers. Never use an open file drawer as a ladder.
Stairways	Devote full attention to a safe ascent or descent. ▪ Use the handrail for stability. ▪ Place full length of foot on step and take one step at a time. ▪ Go single file, keeping to the right. ▪ Do not read or carry objects that obstruct your view. ▪ Watch for litter on stairs, loose, broken, worn or slippery treads. ▪ Steps from one level to another should be well marked and guarded with a railing.

Preventing animal attacks

Any animal may show aggressive behavior. Primary step in preventing an attack is awareness and measures should be taken to prevent or reduce exposure. For threatening animal situations:

- stay calm,
- standstill,
- talk softly to the animal,
- back away slowly (do not run),
- seek the safety of the vehicle or a building, and
- contact supervisor.

Signs of dog ownership

Dogs are the most common animals to attack. Prior to getting out of vehicle, visually check for dogs running loose. Check for signs of dog ownership such as:

- a doghouse,
- a lead on the clothesline, or
- fecal droppings.

Whistle, rattle the gate or knock on the side of the house before entering a backyard. In most instances, expect to hear a dog bark. However in some scenarios, such as drug houses, owners have had the animal's voice box removed. If a dog is present, advise owners to secure animals inside or in another room while working. If work cannot be performed safely, then leave premise immediately and contact supervisor.

Dog attacks

Direct eye contact may be perceived as a challenge to a dog. In case of a dog attack, force objects, such as tools or materials, between yourself and attacking dog.

NOTE: Frontier provides dog repellant. Use of dog repellant or other means of defense is **not always effective**.

Poison Ivy, Oak, and Sumac

Approximately 10 million Americans will encounter problems with Poison Ivy, Oak, and Sumac each year. An allergic contact rash (dermatitis) may be caused by contact with oil called urushiol (you-ROO-shee-ol). Urushiol is a colorless or pale yellow oil which oozes from a cut or crushed part of the plant, including roots, stems and leaves. After urushiol is exposed to air, the oil turns brownish-black. Contact with urushiol may occur in three ways:

- Direct contact – touching sap of the plant.
- Indirect contact – touching something which has come in contact with urushiol. Oil can stick to fur of animals, to garden tools, sports equipment, or to any objects having come into contact with a crushed or broken plant.
- Airborne particles, such as from burning plants, may come in contact with skin.

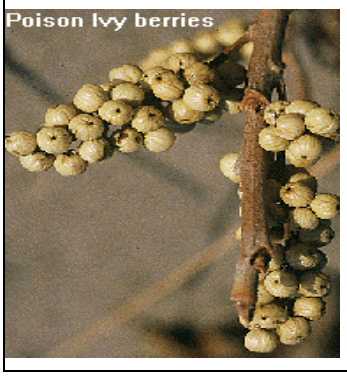
NOTE: Dormant and dead plants may cause reactions because urushiol remains active for several years.

Identifying poisonous plants

Leaflet groups of leaves all on the same small stem coming off the larger main stem, but may vary from groups of three to nine.
Leaves are green in summer and red in fall with yellow or green flowers and white berries.

IF the plant is…	THEN…	AND…
Poison Ivy	may have different forms, such as a vine, climbing vine or low	grows in fertile, well-drained soil.
Western Poison Oak	is a low or high shrub having oak- like leaves	grows wherever enough water is present.
Eastern Poison Oak	is a low shrub having oak-like leaves	prefers sandy soil but may grow near lakes.
Poison Sumac	grows to a tall shrub or small tree	generally grows in standing water.

Sample pictures

Poison Ivy Berries	*Poison Ivy Foliage*	*Poison Oak Foliage*
		

Contact with poisonous plants

If in contact with poisons of plants, employee should:

- Use Technu Oak and Ivy Cleanser disposable packets, or similar treatments available in first aid kits, for removal of toxic oils of poison oak, ivy, and sumac. Read directions before using cleansers.
- Wash affected skin, hands and fingernails as soon as possible.
- Wash or dry-clean clothing immediately.
- Minimize exposure or contamination with other areas of clothing or skin.

Treating symptoms

Redness, swelling, blistering and itching may appear in approximately 12 to 48 hours. For some, the rash may appear seven to ten days after contact. Oozing blisters are not contagious nor cause further spread on the affected person's body. Scratching blisters may cause infection. The rash will only occur where urushiol has touched the skin and does not spread throughout the body. The rash may seem to spread over time instead of all at once because absorption may vary at different rates on the body. Over the counter products help ease discomfort, including:

- aluminum acetate (Burrows solution)
- aluminum hydroxide gel
- Aveeno (oatmeal bath)
- baking soda
- calamine
- kaolin
- zinc acetate
- zinc carbonate
- zinc oxide

Temperature Extremes

Extreme temperatures, both heat and cold, cause not only discomfort, but also dictate changes in how work should be conducted. Employees may need several days to acclimate to exposure. Controls should include pacing work based on the level of heat or cold.

Temperature Extremes - Cold

Hypothermia results when loss of body temperature is faster than heat can be produced. Blood vessels constrict to conserve vital internal heat affecting body extremities. Insulating clothing provides some protection, but loses protective quality as moisture from water or sweat is retained in clothing. Fatigue also results in rapid heat loss. Wear layers and ensure that extremities are covered, particularly the head, to avoid loss of body heat.

Hypothermia symptoms

Symptom	Symptom
Apparent exhaustion	Cool skin
Drowsiness	Inability to get up after a rest
Incoherence	Low blood pressure
Memory lapses	Slow, irregular breathing
Uncontrollable shivering	Vague, slow, slurred speech

Treatment

Seek medical assistance if hypothermia is suspected.

Temperature Extremes- Heat

In hot environments, the body has trouble dissipating excess heat. As temperatures and humidity rise, concern for workers' exposure to heat related distresses increases. Heat stroke is the most serious. Employees are encouraged to drink water constantly throughout the hot workday (12 oz. or more per hour).

Distress	Symptom	Treatment
Heat cramps	Painful spasms of muscles used during work (arms, legs, or abdominal). Cramps may occur during or after work hours.	Treatment should include removing to a cooler environment and providing increase fluids to drink.
Heat exhaustion	Milder form of heat disorder linked to the depletion of body fluids and electrolytes. Employee experiences fatigue, nausea, and headaches, with moist and clammy skin.	Remove the employee to a cooler environment. Employee should be given additional fluids to drink.
Heat fatigue	Impaired performance of skilled sensor motor or mental tasks in heat.	No treatment is required, but further acclimatization may be necessary.
Heat rash	Prickly heat appearing as tiny raised vesicles (blister like) on the affected areas. Occurs in skin persistently wet by sweat.	Treatment includes mild drying lotions and skin cleanliness to prevent infection.
Heat stroke	Hot dry skin, mental confusion, and loss of consciousness.	Death can result if not properly managed. Emergency medical attention is necessary to properly manage the situation. Any method to cool the employee should be taken.
Heat syncope or fainting	Result of prolonged standing in heat. Heat causes the pooling of blood in the dilated vessels of the skin.	Employee should be removed to a cooler environment. Recovery should be prompt and complete.

FIRST AID/CPR/BLOODBORNE PATHOGENS

General guidelines

First Aid and Cardio Pulmonary Resuscitation (CPR) is the immediate care given to a person injured or suddenly ill. First aid may be difference between life and death, between rapid recovery and long hospitalization. Emergency Medical Response Plan includes First Aid/CPR training/re-certification training based on need and regulatory requirements.
Access to first aid reference manuals should be made available at all times. OSHA requires First Aid/CPR training in certain work tasks, such as confined space entry. Contact EHS Manager for details.

Emergency medical response

Each facility, preferably at security desk or receptionist, should have a current list of first responders with contact numbers. This should be communicated
to all people in the facility. A sign indicating available first aid assistance should be posted at a responder location, office or cubicle. Individuals trained in First Aid/CPR or EMTS/paramedics, on a voluntary basis, are to be first responders in case of sudden incident or illness. Number of trained personnel will vary and depend upon the following:

- Population of facility.
- Type of operation in facility.
- Type of population in facility.
- Number of shifts in facility. 24-hour facilities should have trained personnel for all shifts.
- Proximity to emergency medical care facilities.

NOTE: Emergency response program is never to replace 911. In the case of a medical emergency, calling 911 is the first step

Employee's role

An employee's role when faced with a person having been injured or suddenly taken ill are:

1. Recognize that an emergency exists.
2. Decide to act.
3. Call the local emergency telephone number or 911 for help.
4. Provide care until help arrives. Be sure to use proper personal protective equipment (gloves and rescue breather) to protect patient and self.
5. Recognize limits of training and only administer procedures for which qualified.

Automated External Defibrillators (AED)

Trained rescuers equipped with Automated External Defibrillators (AED) can help save precious minutes and improve survival rates for cardiac arrest victims. Facilities with need for an AED are based on three factors:

- Risk of injury.
- Type of population in facility.
- Proximity to emergency medical care.

AED uses

Only trained and certified individuals are authorized to use AED. Offices equipped with AED must have trained and certified AED employees. An AED must be located in a secure area and accessible to individuals trained and certified in use of the device.

First aid kits

First aid kits should be immediately available for use in an emergency and are provided to all work areas. Contact an EHS Manager if you cannot obtain a first aid kit. OSHA requires inspection of first aid kits monthly for adding or replacing items. First aid kits are in compliance per ANSI Z308.1-2021.

NOTE: Oral over the counter medications are not permitted in first aid kits. If additional items should be in first aid kit due to the nature of job, contact Regional EHS Manager.

Bloodborne pathogens

Occupational Safety and Health Administration (OSHA) issued 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens," to protect workers from anticipated exposures to bloodborne pathogens. Bloodborne pathogens include human bodily fluids potentially contaminated with the human immunodeficiency virus (HIV), hepatitis C virus (HCV), the hepatitis B virus (HBV), or other bloodborne pathogens.

Exposure Control Plan (ECP)

Exposure Control Plan (ECP) outlines specific safe work practices for workers with potential exposure to bloodborne pathogens. Requirements in ECP apply to areas where occupational exposures to human blood, blood components, and other sources of bloodborne pathogens are anticipated including customer premises, hospitals, nursing homes, and other medical treatment facilities. A copy of Frontier ECP may be found on EHS web site.

Scope of ECP

Employees at risk should take steps for protection of exposure. Requirements apply to, but are not limited to, the following work groups:

- Outside plant technicians
- Sales persons
- Engineers
- Public telephone
- Building maintenance/facilities

ECP controls

Controls required for working around bloodborne pathogens include:

- establishing safe work practices,
- personal protective equipment, and
- training workers about the hazards in the workplace.

ECP safe work practices

Following are recommendations to be taken to reduce the risk of infection:

- Follow specific protocols of customer premise.
- Avoid being splashed by blood.
- Cover any cuts, scrapes, or skin conditions.
- Wash hands immediately after an exposure occurs.
- Avoid touching objects that may have been contaminated by blood.
- Avoid eating, drinking, smoking, applying cosmetics, lip balm, and handling contact lenses in work areas where reasonable likelihood of occupational exposure could occur.
- Conduct each task in accordance within applicable safety plans.

- Attend required training sessions.
- Use personal protective equipment or other protective devices when required.
- Report any occupational bloodborne exposure immediately to the EHS
- office.

Risk of infection

Appropriate medical evaluation or treatment shall be sought whenever an exposure occurs or is thought to have occurred. Contact EHS office for further guidance. An infection occurring from incidental bloodborne exposure depends on a number of factors, including:

Factor	Description
Probability material (e.g., blood) was contaminated	Risk of infection following contact with contaminated equipment or blood varies on the type of infectious agent and extent of exposure to the individual. Source of material involved in an incidental bloodborne exposure may be tested for specific bloodborne contaminants such as HIV, HBV, and HCV.
Health status of individual	Plays a key factor in how an individual responds to an exposure. Pre-existing diseases, the use of medication, compromised immunity, and pregnancy are factors to consider when determining how the individual may respond to an exposure.
Efficiency of transmission	Dependent upon the type of wound, severity of exposure, infectious dose, routes of infection, and the ability of the organism to produce disease.

Personal protective equipment

Company will provide personal protective equipment (PPE) including, but not limited to gloves, face shields or masks, and eye protection. Key elements in selection of effective and appropriate protection are:

- Identifying and understanding workplace hazards and matching needed
- PPE to each workplace hazard.
- Type of protection selected shall be based on degree of anticipated exposure.

ERGONOMICS – issue date 06/01/2017

Ergonomics is the study of relationship between people and work performed. Complex factors and variables involve science of ergonomic research and design. Ergonomics account for human bodies in work situations, variations in human sizes, shapes and abilities and fits jobs to people, not people to jobs. Acute or chronic muscle strain may be an indication of exceeding the capacity of the body to accommodate physical stresses. Chronic strain and cumulative trauma disorder (CTD) result from less-intense stresses accumulating over time and reduces recovery rate of the musculoskeletal system.

Symptoms of MSD's

Musculoskeletal disorders or MSD, are injuries and disorders of the soft tissues (muscles, tendons, ligaments, joints, and cartilage) and nervous system. Signs and symptoms in upper extremities include pain, numbness, and tingling of the fingers, wrist, elbow, or shoulder. Chronic back or neck problems may result in pain, numbness, or tingling radiating to the arms or legs, as well as limited back motion.

Key elements

Ensuring an ergonomically safe environment involves the following elements:

Element	Description
Training	Includes, but is not limited to, handling and use of equipment, tools and proper workstation set up and use of office furniture.
Work Evaluation	Employees, experiencing ergonomic related discomfort, should make an ergonomic evaluation request to supervisor and EHS office.
Implementation / Recommendation	Written evaluation results and recommendations will be given to the supervisor and employee. Supervisors are responsible to follow recommendations to ensure an ergonomically correct work area.

Key Points

Practicing good ergonomics is key to reducing or preventing injuries. Employees should:

- Take a neutral relaxed position without excessive flexing. Forearms (elbow to wrist), wrists and hands should be parallel.
- Consider design and layout of work area. Often a minor rearrangement can reduce excessive twisting motion of hand, knees and back. Eliminate twisting motion by placing tools within easy reach.
- Rearrange work activities to avoid reaching above shoulders, behind back and awkward body positions.
- To reduce strain on the back, legs should be used to lift and carry items.
- Proper back and leg support is essential while working in a seated position.

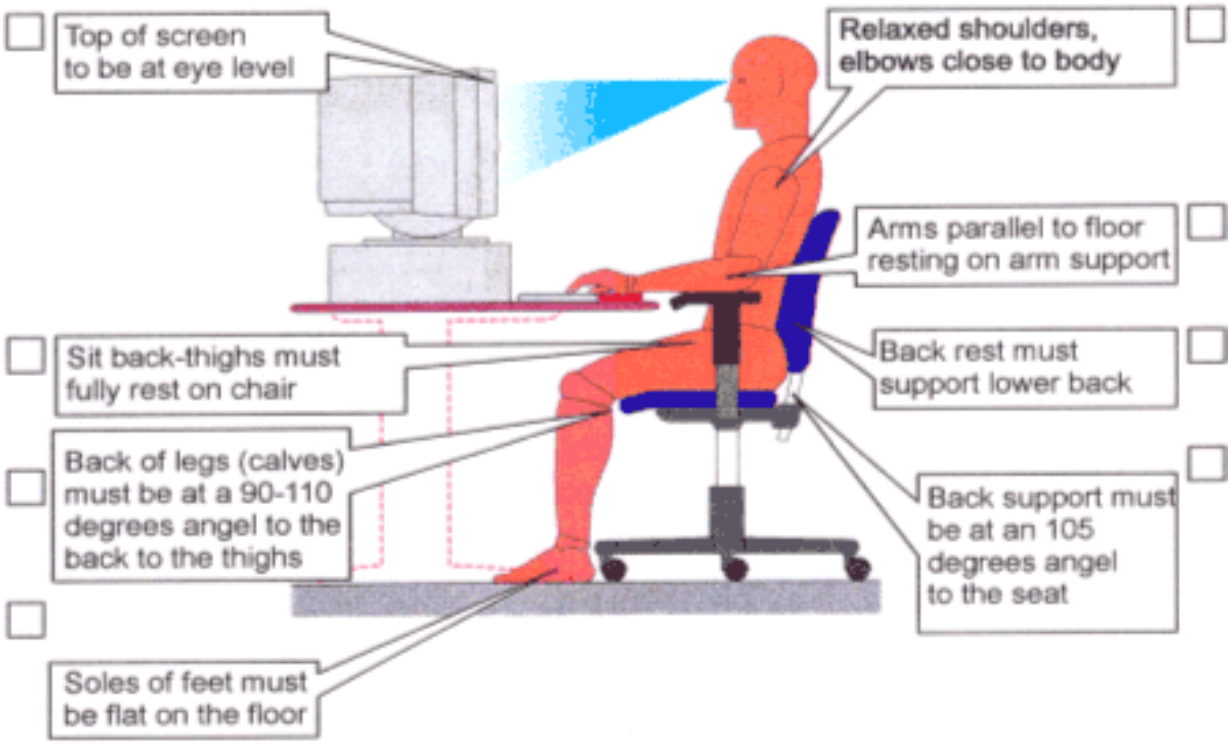
Hand tool ergonomics

Below are some key points to remember when selecting or purchasing hand tools. Following such points can help prevent CTD:

- Select hand tools fitting workers' hands. Tools too large or too small produce stress in hands and wrists. Ideal handle diameter is 1.5 inches for men and 1.3 inches for women.
- Use proper striking tools to reduce harmful hand exertions.
- Do not select tools so large as to be difficult to hold.
- Use vibration dampening designed machines or powered hand tools to reduce strain injuries.
- Choose tools with triggers allowing activation with the middle part of the fingers. Activation with the fingertips can create nodules on nerve sheaths and cause a type of CTD known as trigger finger.
- Use soft coverings on tool handles or gloves to protect the hands from extreme temperatures and to reduce pressure points, vibration, and slipping of the grip.
- Be aware of how tools affect body positioning, particularly in the wrists.
- Look for tools allowing a natural and comfortable work position.

Proper office set-up

Properly designed computer workstations are key to reducing common workplace injuries.



NOTE: Keyboard should always be in a flat position, so that the wrist is not bent up or down or to either side during use. Forearms and wrists should be in a straight-line position, parallel to the floor.

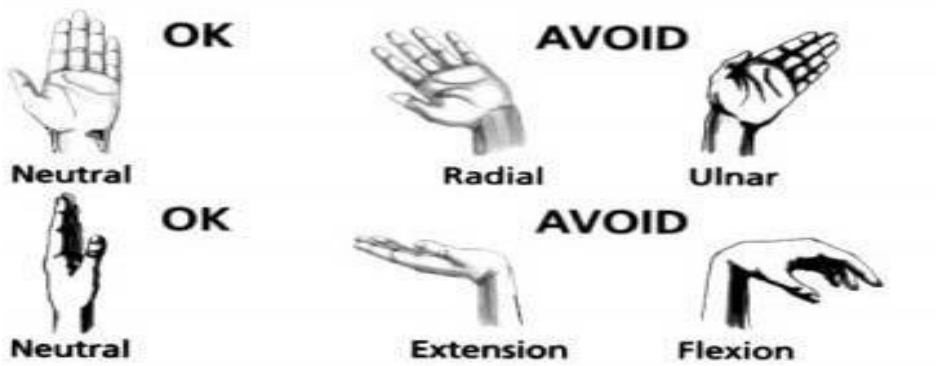
Workspace Ergonomics

Improper configuration of office workspace is a frequent contributor to CTD. Changes to a workstation may require only repositioning furniture, equipment or purchasing ergonomically appropriate replacements.

Use checklist below to evaluate desktop PC's and laptops on a docking station.

Equipment	Ergonomic Factors
Chair	· Adjustable so that the seat pan is around knee height when standing. · Lower part of backrest supports curve of your lower back. · Leg room is provided under desk. · Adjustable in height to permit feet to rest flat on the floor with legs parallel to the floor. Footrests may be needed to achieve parallel legs. Knees are · at a 90 degree angle. · Arm rests are adjusted so that they provide light support for the elbows which should be at a 90 degree angle. · The chair is adjusted so that mouse/keyboard can be reached with elbows at the sides of your body. · Chair has a five-star base and casters compatible to floor surface.
Desk / Monitor	· Frequently used objects are kept close within easy reach without having to stretch. · Elbows, wrists or forearm are not on desk or tray. Wrists · are in a neutral position. · Monitor is straight ahead and at arms-length. · Eyes are straight ahead viewing top 25% of monitor. · Position monitor where outside or overhead light does not reflect off screen. · Periodically look away from monitor to a distant object to relax eye muscles.
Keyboard / Mouse	· Mouse and keyboard are at the same height. · Mouse is moved by moving forearm not just the wrist. Outer · keys are struck by moving forearms, not just wrists. · Documents are not placed in front of keyboard. · Hand is not kept on mouse when it is not being used.

Wrist Ergonomic Diagram



Exercises

Exercising, while at work, can ease pain and relieve physical stress built up in wrists, elbows and spine. Exercises are to be performed gently and may be practiced once every hour.

NOTE: Anyone with pre-existing injuries should consult a doctor before performing the movements described below.

Exercise	Description
Back bend	Helps relax lumbar region, the most common cause of back problems, especially those caused by excessive periods of sitting. Place hands on lower back with feet shoulder width apart and slowly lean backward. Extend until a gentle pull is sensed on stomach muscles.
Chin tuck	Loosens upper back and neck. To loosen the neck and avoid painful stiffness, bring head into a fully upright position then lower head until chin tucks into neck. Try to touch chest gently with chin. Hold head down for five seconds, and return head to a relaxed upright posture.
Hand spread	Releases tension built up from repeated grasping or pinching activities. Making a fist with both hands, hold tightly for 3 seconds and release fingers.
Head turn	Turn head slowly to the right as far as possible then return to forward position. Repeat the movement to the right three times, then switch to the left. Be sure not to overextend neck in each direction. For any feeling of tightness, ease head back to forward position.
Lateral neck stretch	Stretches lateral neck muscles while keeping face pointed forward. Starting with head in upright position, place left hand on right shoulder, and tip head to left side. Hold head to side for five seconds and switch to other side, putting right hand on left shoulder and tipping head to right side.
Reverse shoulder pull	Lock hands together behind back and try to touch elbows together. Hold hands together for 5 seconds and release. Try to raise arms as high as possible while pushing elbows close together.
Shoulder roll	Reduces muscle tension in neck and back area and improves blood circulation in shoulder tendon and joint capsule. Relax arms by sides and bring elbows in close to hips. Slowly rotate shoulders in forward motion for approximately 10 seconds. Reverse direction and bring both shoulders back.

Exercise	Description
Shoulder stretch	Releases tension built up in the upper back. Lock hands behind head. Pull shoulder blades together and hold position for five seconds. Repeat exercise two times.
Tennis elbow	Stretches muscle and tissue responsible for painful tennis elbow and radial tunnel syndrome. With arm held up in front, palm turned away from face, make a fist and straighten arm. Repeat the movement twice slowly.
Waist bend	Loosens tightened and overstressed muscles in back. With arms above head, fingers interlocked and palms facing upwards, stretch arms, shoulders and ribcage. Slowly bend left and right side, stretching as far to each side as is comfortable.
Wrist flexor stretch	Reduces tension in carpal tunnel area. Place palms of both hands touching each other in a praying position. Relax your elbows. Press down, keeping palms together. Hold position for five seconds. Resistance will be felt in wrists, forearms and shoulders.

Material handling

Every operation or work assignment begins and ends with handling of materials. Planning and general awareness can reduce incident risks whether the material is a sheet of paper or a heavy object. Identifying obvious and hidden hazards should be the first step in planning work methods and job practices.

Manual lifting

Manual lifting and handling of material must be done by methods that ensure the safety of both the employee and the material. Employees assigned to work requiring heavy lifting must be properly trained. Following are rules for manual lifting:

- Inspect load to be lifted for sharp edges, slivers, and wet or greasy spots.
- Wear gloves when lifting or handling objects with sharp or splintered edges. Gloves must be free of oil, grease, or other agents that may cause a poor grip.
- Inspect route over which load is to be carried. Route should be free of obstructions or spills to prevent tripping or slipping.
- Consider distance the load is to be carried. Recognize gripping power may weaken over long distances.
- Size up the load and make a preliminary "heft" to be sure the load is easily within lifting capacity.
- Heavier loads require team lifting and personnel should be similar in size and physique. One person should act as leader and give commands to lift, lower, etc.
- Do not exceed your physical load limit, stay within your strength limits.

Lifting objects off ground

Following are steps to lift objects off the ground:

Step	Action
1	Set feet approximately 10 to 15 inches apart to ensure good footing.
2	Assume a knee-bend or squatting position, keeping your back straight and upright.
3	Place a firm grip and lift object by straightening legs and not back.
4	Carry load close to the body and not extending arms. Shift feet to turn or change position as needed.

NOTE: Reverse order for setting objects on ground.

Mechanical lifting

Use mechanical devices for lifting and moving objects too heavy or bulky for safe manual handling by employees. Untrained employees must not operate power-driven mechanical devices to lift or move objects of any weight. Heavy objects, requiring special handling, must be moved by guidance of specifically trained employees.

Lifting diagram

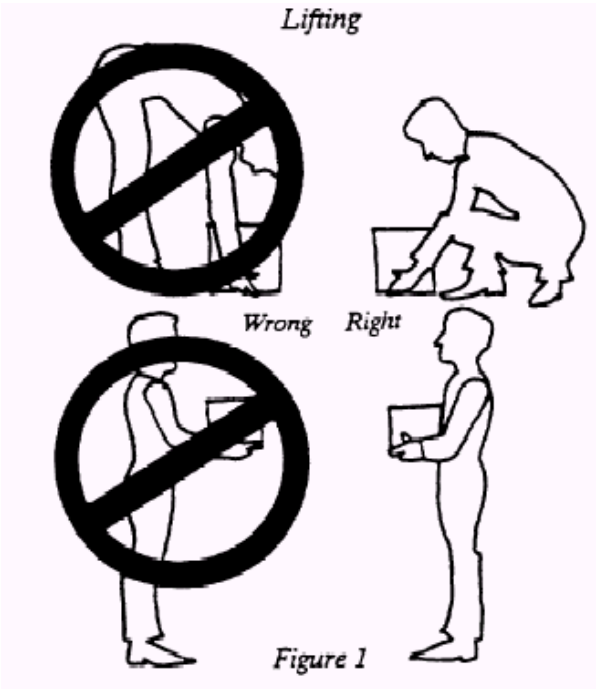


Figure 1

E-learning

Refer to CORNERSTONE for an online course on the Safer Lifting Program (SFY0000620).

DRIVER SAFETY – issue date 06/01/2017

Employees, driving a company owned or personal vehicle on company business must have a valid driver's license. Following are driving policies:

- Employees are required to immediately notify Supervisor and EHS Regional Manager of any change in status of driver's license, such as suspended, expired, conditional, or revoked, as well as any violations of Department of Motor Vehicles laws.
- Employees must never exit a vehicle while the engine is running. Before exiting a vehicle, always apply the parking brake, shift the transmission into PARK, turn the engine off, and remove the key.
- All driver of Frontier motor vehicles must not allow the motor vehicle to be left idling, and shall not leave keys in an unattended motor vehicle.
- Employees must not drive any vehicle while under influence of alcohol, drugs or any medication or substance impairing one's ability to operate a vehicle.
- State motor vehicle rules and regulations apply to employees driving on company business and must be adhered to.
- Company vehicles may be driven only on Company business unless approved by the supervisor.
- No unauthorized passengers or materials may be carried, including alcoholic beverages (even if unopened) and firearms.
- Speeding is prohibited.
- Vehicles must be driven with headlights on low beam during daylight hours.
- Employees must wear seatbelts while driving or riding in a Company vehicle, or while driving or riding in any vehicle on Company business.
- Acts of road rage or horseplay by an employee driving a Company vehicle or any vehicle on Company business is prohibited.
- Employees must have lights on for safety at all times when driving on company business.
- Park in such a manner that you first move out of the space is in a forward direction. Either pull through, or back into a space to meet this directive.

Driver records

Driver license checks will be periodically conducted on employees driving company owned or a personal vehicle for Company business. An employee has responsibility to:

- Provide a current and valid copy of the driver license to EHS Manager.
- Provide Company access to state driving record.
- Immediately notify supervisor and EHS Manager of any status changes to driver license, such as revocation, suspension, or conditional, and any violations of Department of Motor Vehicles.

Training

Employees driving a Company owned or personal vehicle on Company business are required to attend defensive driving courses every three years. An employee having two or more preventable incidents in rolling 12 month period on Company business, must attend a defensive driving course and consultation with their Regional EHS Manager.

Cargo Securement

All material and tools must be secured before driving. There should be no loose items on the seat, floor, dashboards, or above sunshields. All material/tools including wheel chocks, safety cones and signs must be secured with either ropes, chains, webbing or web belts in the bed of the vehicle. No rubber bungee cords are to be used to secure cargo. There should also be no impairment of vision by GPS units, phones or other electronics on windshield nor should any item be hanging off the rearview mirror or in the back of company vehicles.

Motor Vehicle Refueling

When refueling a company vehicle ensure the following precautions are taken:

- Ensure ignition sources are turned off (i.e., engine is not running).
- Extinguish all smoking materials. Follow all posted warnings and restrictions in connection with the fueling operation.
- Before handling the nozzle, always touch a metal part of the vehicle such as the door or hood to discharge static electricity prior to fueling.
- Remember not to use cell phones or smoke while refueling.
- **Remain in full view of the nozzle at all times.**
- DO NOT OVERFILL – fuel expands in heat and may cause a spill.

Safe Driving Practices

Vehicle incidents are the major cause of job-related injuries and deaths. In most cases, incidents are caused by a series of events, which are preventable. Safe driving practices are:

- Use vehicle safety features, such as seat belt and headlights on for safety.
- Driving defensively and according to road conditions.
- Be aware of hazardous conditions such as poor roads and weather conditions.
- Use "pull through" parking to prevent backing out of parking spots.
- Concentrate on driving and anticipate other driver behaviors.
- Perform vehicle inspections to ensure proper working condition of brakes, lights, signals, mirrors and secure ladders, bin doors and load.
- Driving with headlights on in daylight hours to increase visibility of vehicles in traffic.
- Observe actions of driver four or five cars ahead for changes in traffic requiring an emergency maneuver or changes in following distance.
- Identify an alternate path, such as another lane or shoulder area, which to steer if path in front suddenly becomes blocked.

Traffic Signal/Stop Sign

If stopped in a line of cars at a traffic light or stop sign, stop far enough back to see rear tires of vehicle ahead. Extra distance provides a safety margin in event of being struck from behind. If stopped on a hill, this will allow extra space in case vehicle ahead rolls backward prior to acceleration.

Parking safeguards

Pull through parking is the directed method with forward in - forward out as the best way. The next preferred method is to back in upon arrival and pull out moving forward when leaving. Least preferred method, to be used only where absolutely necessary, is drive in forward and back out. Following precautions represent recommendations of many safe drivers and could help avoid backing incidents:

- Safety cones are required at all company and non-company locations. Place two safety cones regardless of how the vehicle is parked. The cones can be placed either centered or off-centered in the front and back of the vehicle as long as one cone is placed at each end.
- Vehicles that are parallel parked require one cone be placed at the front of the vehicle towards the traffic side, and one cone will be placed at the rear of the vehicle towards the traffic side.
- The cones should be placed upon arrival and while removing cones prior to leaving the parking space, conduct a "Circle of Safety" check. Look for obstacles, which may be struck when moving vehicle. Look for obstructions such as other vehicles, curbs, signs, and overhanging roofs. Watch out for pedestrians and children at play.
- Depart immediately after conducting "Circle of Safety" check and picking up cones.
- Use both rear and side view mirrors. Look not only in the immediate area, but also in the distance in all directions.
- Back up slowly. Keeping foot above brake so a stop may be made instantly.
- If necessary to go back some distance, stop part way and get out and check your progress. View and conditions may have changed since starting.
- When backing a large vehicle, try to have a guide. The guide must stand in a safe place with view of the driver and use agreed upon signals. Do not rely solely upon the guide. Responsibility for control is the driver of the vehicle.
- If work location passed when looking for an address, circle the block. Do not back up.
- If use of driveway is inevitable, then back into the driveway from the street. Backing into the driveway is safer than backing to the street.

Speed and Stopping

Speeding reduces a driver's ability to steer safely around curves or objects in the roadway, extends the distance necessary to stop a vehicle, and increases the distance a vehicle travels while the driver reacts to a dangerous situation. Restraint devices such as bags and safety belts, and vehicular construction features such as crumple zones and side member beams decline as impact speed increases. Following is a rate of speed and braking distance chart:

IF speed of vehicle	THEN vehicle distance traveled is…	AND distance for braking is..
20 mph	30 feet per second,	45
30 mph	44 feet per second,	90
40 mph	58 feet per second,	150 feet
50 mph	75 feet per second,	245 feet
60 mph	88 feet per second,	360 feet

NOTE: Distances for braking may increase significantly, depending on weather and road conditions.

Speed-related facts

- Rural roads account for over 60 percent of all speed-related fatal crashes.
- Sixty-six percent of speed-related crashes involved a single vehicle.
- Sixty-six percent of speed-related fatal crashes occur between the hours of
- 6pm and 6am.
- Drivers involved in speed-related fatal crashes are more likely to have a history of traffic violations.
- On average, 1,000 Americans are killed every month in speed-related crashes.
- Fuel consumption increases steadily above 45 mph, with passenger cars and light trucks using approximately 50 percent more fuel traveling at 75 mph than at 55 mph.

Safe following distance

Good following distance helps to ensure reaction time for another driver's mistake. Situations requiring four to eight-second following distances are:

- hazardous road conditions,
- following motorcycles,
- carrying a heavy load,
- pulling a trailer,
- following large trucks or buses or vans/cars towing campers or boats, or
- poor weather conditions.

Determining a safe distance

Determining a safe distance also involves adjustments to meet changes in traffic. Under ideal road conditions and speeds less than 60 mph, following distance should be more than two seconds between vehicles.

To estimate time between vehicles, use the "point of reference" method:

Begin counting, "One thousand and one, two thousand and two" when the rear of the vehicle ahead passes a sign, pavement marker or other reference points. If your vehicle reaches the reference point before finishing the second number, then ease off accelerator a mile or so per hour to widen the gap.

Tailgating safeguards

If being followed too closely, see following scenarios:

IF right lane is…	THEN…
available	signal for lane change and move to the right.
not available	maintain a safe margin ahead and when opposing traffic is clear, move to right and reduce speed to encourage tailgater to pass.

Vehicle safeguards

Secure load for compliance with Department of Transportation (DOT) rules. Prevent propane tanks, nitrogen bottles, spray cans, or gas cans from movement and protection from damage by properly securing them. Each Company vehicle should be supplied with a fire extinguisher and inspections and maintenance should be performed as necessary. A DOT daily inspection must be conducted for all vehicles 10,001 lbs. and over.

Cellphones while driving

Risk of collision is greater when using a cell phone while driving. Frontier strongly discourages the use of cell phones even if you are using a hands-free device. You should pull off to the side of the road to make or receive calls. If it is unsafe to pull off the road, or there is an absolute business emergency that requires you to handle a call while driving, a hands-free device must be used. A cell phone should never be used when driving conditions are such that it would be unsafe. Examples include traffic, poor weather-related driving conditions, and driving in unfamiliar territory. The following tips are provided to ensure that safe driving is your first priority:

- Dialing of a phone number should never be done while driving. Use speed dial programming for key emergency numbers.
- If you receive a phone call while driving, let it go to voicemail until you can pull over in a safe spot and retrieve the message.
- Never text or read a text from someone else while driving.
- When you place a call to a cell number and the person answers, ask them if they are driving a motor vehicle. If the answer is yes, then offer to call back at another time. Management should not call direct reports when you know he or she is driving a motor vehicle, unless it is an absolute business emergency.
- Under no circumstances should a hand held cell phone or other electronic device be used while operating a motor vehicle.

Materials of trade

Materials of trade are small amounts of hazardous materials workers carry on a motor vehicle to perform job. Materials of trade exceptions are meant for companies where primary focus is not transportation, but utilize hazardous materials for conducting work. Small amounts of hazardous materials may be classified as materials of trade when transported and meet specific guidelines. If a material of trade is carried, then:

- No need to complete shipping papers.
- No need to placard.
- No need for emergency response information and training.

NOTE: Materials of Trade exceptions do not absolve the responsibilities associated with transporting hazardous materials:

- Always know what is on board.
- Ensure hazardous materials are properly packaged.
- Ensure hazardous materials are properly secured to prevent movement.

Hazard class/divisions

Following are hazard class/divisions for materials of trade:

Hazard	Class/Division
Corrosive	Class 8
Flammable Gas	Division 2.1
Flammable Liquid	Class 3
Flammable Solid	Division 4.1
Misc.	Class 9
Non-flammable gas	Division 2.2
Oxidizer	Division 5.1
Organic Peroxide	Division 5.2
Other Regulated Material	ORM-D
PG II or III Dangerous When Wet	Division 4.3
Poison	Division 6.1

Packaging requirements

Total weight of materials of trade carried on one motor vehicle cannot exceed **440 pounds**. Cylinders of compressed gases must not be more than **220 pounds**. Packaging requirements for hazards are:

Hazard	Packaging Requirements
Liquids	Must be in leak-proof containers; closes securely; secured to prevent movement and protected against damage.
Solids	Must be in sift-proof containers; closes securely; secured to prevent movement and protected against damage.
Cylinders	Must meet packaging requirements under hazardous materials.
Gasoline	Must meet requirement of OSHA HMR.

Hazard class

Below are hazard class, actual weight and information about common products carried on Company vehicles.

Proper Shipping Name	Hazard Class	Packing Group	ID #	Max Weigh	Actual Weight
Acetylene	2.1		UN1001	220 lbs.	9 lbs.
Batteries, wet, non-	8	III	UN2800	75 lbs. Ea.	Various
Diesel	3	II	UN1993	8 gal (66	5 gal. (41 lbs.)
Gasoline	3	II	UN1203	8 gal (66	5 gal. (41 lbs.)
Helium, Compressed	2.2		UN1046	220 lbs.	150 lbs.
Liquefied Petroleum Gas (Propane)	2.1		UN1978	220 lbs.	20# tank = 40# 30# tank =
Marking Spray Paint	3	II	UN1263		1 lb.
Nitrogen	2.2		UN1066	220 lbs.	140 lbs.
Rainbow PIC Restoration Spray	2.1	II	UN1950		1 lb.
Zep Wasp and Hornet	ORM-D				1 lb.

ENVIRONMENTAL

Spill response

Proper response to a chemical spill is crucial to employee safety and the Company's interest in being an environmentally friendly business. Three potential areas where a spill may occur as part of operations: sulfuric acid spills from batteries, petroleum product spills from motor vehicle operations, and spills of various other products. Prior to cleaning up a spill, the following four steps shall be taken:

Step	Action
1	Ensure personal safety. Separate self from immediate area of spill to minimize risk from fumes, vapors or potentially explosive atmosphere. Check for exposure to chemical, any splashed on skin or clothing and if breathing normally. Seek treatment immediately if necessary.
2	Assess the situation. Attempt to identify product spilled, amount spilled, surface(s) spilled on, and others in danger of exposure.
3	Report spill. Notify supervisor and EHS Manager. Prepare information gathered during assessment for reporting. Information will be used to generate appropriate response to spill. EHS Manager is responsible for reporting event to a regulatory agency.
4	Respond as directed. Type of chemical spill and area where incident occurred determines action. If spill is of a material or quantity unsafe, then a licensed waste disposal firm may need to be hired. If given clearance by EHS, then proceed with spill clean-up. **NOTE:** Employees should not attempt to clean up unless the spill is manageable, employee is a qualified/trained to respond and proper personal protective equipment and materials are readily available.

NOTE: Spill kits should be located in all battery rooms, containing neutralizer, cleanup equipment and personal protective equipment for the employee.

Indoor air quality

- If employees are experiencing problems due to extreme temperature conditions, poor air circulation or unusual odors from unknown sources, they should report this to supervisor for investigation.
- If adjustments are warranted, the supervisor shall call facilities representative for that building.
- If conditions are causing a health or safety concern, the supervisor shall also call the Regional EHS Manager.

Disposal of obsolete computer equipment

Obsolete computer equipment, including CPUs and monitors, may be considered a hazardous waste, because of the lead, cadmium and other metals that they contain. Such equipment should not be disposed of with regular trash. It should either be recycled, or disposed of consistent with federal and state environmental requirements. For information about environmental requirements, contact Regional EHS Manager.

SECURITY

Introduction

Employees have the responsibility to follow adequate safeguards to ensure safety and security of personnel and guard against loss of Company property. Safeguards include precautions deemed necessary to ensure unknown or unauthorized persons do not have access to buildings, critical work areas and/or physical or intellectual properties of Frontier. Employees must observe security procedures and report infractions to their management, who in turn, should report such incidents to Corporate Security.
Employees may also report infractions directly to Corporate Security.

Employee Obligations

All Employees will:

- Review, understand and follow all applicable Corporate Security procedures and policies as set forth in this Manual and on the Corporate Security website.
- Report all Security incidents and infractions, as well as anything suspicious, to Corporate Security through the use of the Security Incident Report form found on the Corporate Security website. Reporting may also be completed through Ethics Point by calling 1-877-773-8325. Reports are kept Confidential, and may be made anonymously.
- If the matter is urgent or an emergency, contact the Security Operations Center (SOC) which is staffed 24/7/365, at 1-800-590-6605. If there is an immediate threat to life or property, call 911.
- If you become aware of a workplace violence issue, report this immediately to your Management, Human Resources and Corporate Security.
- Contact the Corporate Security Director or Managers to obtain advice or with any questions on Security matters. They can be reached directly (contact information is on the Security website) or by calling the SOC.
- Ensure all subordinates comply with Company Security procedures.

Personal assets

Employees' personal assets should be stored in locked compartments when not under the control of employee. Money and personal items of value should never be left in unlocked desks.

Access to building

Security measures for controlling access to buildings are necessary to ensure the personal safety of employees and Company assets. Admittance to buildings will be strictly controlled at all times. Employees are require to display their Frontier ID badge at all times while on Company property, and while performing Company business off-premises. Non-employees entering Company buildings will be require to follow all visitor policies, show proper photo identification and explain the purpose of their visit. All employees are responsible for challenging any individual not properly displaying a valid Frontier ID badge. Non-employees should always be escorted while on Company property and wear a temporary Frontier Visitor ID that is visible.

NOTE: Employees should immediately report any suspicious activity, such as unknown persons loitering on or near the premises or tampering with Company property, to Management and/or the SOC. Canvassing of any nature by outside salespersons or solicitors is prohibited.

Employee access

Employees entering Company building will be required to follow Security procedures, and shall only be in the building during their working hours, or while on Company business authorized by Management.

Access type	Permissions
Normal hours	Entrance to Company buildings by resident employees requires display of a valid Company identification badge and, in many cases, an access card at buildings having a card access system.
After hours	Employees seeking to enter a Company building outside of normal work hours must have prior authorization from Management. Hours which a resident employee may enter a building are determined by work tour and information supplied by their Management through the Access Card Request form on Corporate Security's webpage.

Non-resident employee access

Type of access	Permissions
Normal hours	Permitted during normal business hours for business purposes. Non-resident employees do not have to be escorted while in unrestricted areas, but are required to display Company ID at all times.
Outside of normal working hours	Required to present Frontier ID badge to security officer (where applicable) and sign visitor log entering and leaving building. Must be for business purpose. May be denied access to a building unless escorted by an authorized resident management employee. Access may be granted if authorization is given in accordance with the procedures described in "Non-employees visitor access".

Guidelines for contractors and non-employees

Contractors and non-employees may be granted access at the discretion of the work-group management, subject to the following conditions:

- Have a valid need to be on Company premises. Inform Security Guard of
- name, purpose of visit, and provide proper photo identification.
- Remain in areas where visiting or working and not roaming in building.
- Conduct in a business-like manner at all times;
- Sign in/out and wear ID badges as appropriate.
- Park in the appropriate designated areas.

Visitor badges

In order to obtain a badge and subsequent access to a facility, a visitor must:

Step	Action
1	Provide proper photo identification.
2	Complete information on Visitor Log and wear visitor. badge.
3	Sign Visitor Log and be signed in by authorized Employee.
4	Sign out when leaving building and surrender visitor badge.

Non-employee visitor access

A resident employee must escort visitors. Access to the Frontier buildings by non-employees will be limited to those having specific business need in the building, and upon showing of **proper photo identification**.

Type of access	Permissions
Normal hours	Must report to Security Guard, where applicable. All authorized visitors will be issued a "visitor" badge and must be escorted by a resident employee at all times. Badges will be date-stamped and valid only for date indicated. Security Guard will instruct visitors on proper display of the badge.
Outside normal hours	Building access is denied unless escorted by a resident employee and authorized by management.

NOTE: Social visits by former or retired employees, friends and relatives should be kept to a minimum, and authorized by an employee's supervisor prior to the visit.

Vendors are not permitted to bring potential customers into Frontier facilities to observe in-house operations unless visit is pre-approved by Corporate Security and the applicable business unit.

Tailgating

Tailgating is the practice of following closely behind an authorized person to enter or exit an area without presenting a proper identification badge or access card. Tailgating is strictly forbidden. Any person who tailgates or knowingly permits unknown persons to tailgate into or out of secured areas will be subject to disciplinary action. Do not allow unauthorized persons, unknown persons, or visitors to tailgate into Frontier buildings. Beware of unauthorized persons who may attempt to "social engineer" their way in through false information.

Perimeter fire or emergency doors

Perimeter doors of Frontier building must always be kept closed and locked, with few exceptions that are authorized by Corporate Security. Fire and emergency doors must also be kept closed. At no time should any perimeter, fire or emergency door be propped open. If there is a business need to prop open a perimeter door for a short period of time, you must first get authorization from the SOC at 1-800-590-6605. Locked perimeter doors that are propped open for more than 30 seconds will result in an alarm to the SOC.

ID badges

Employees will be issued a Frontier ID badge by Corporate Security Services at the beginning of their employment with the Company. The application for an ID badge is found on the Corporate Security webpage, and must be authorized by Management. All individuals are required to visibly display a valid Company ID badge at the waist or above while on Company premises. Employees forgetting ID badges will be issued a visitor badge and supervisor will be required to sign them in. In absence of the supervisor, a resident manager may authorize access.

Access cards

Access cards are primarily limited only to resident employees permanently assigned to buildings with a card access system. Non-employee limited access cards may be issued to contractors or co-locators who have an authorized need to work on Frontier premises for longer periods of time. Access cards are programmed to allow entry to only certain doors and during certain hours, Employees forgetting access cards will be required to sign in and will be treated as a visitor. Employees must carry card at all times to gain access to authorized Company facilities and areas within buildings. An access card must be carefully safeguarded and never loaned to another person.

Employees misusing or permitting someone else use of the access card will be subject to disciplinary action and may include dismissal.

Damaged or lost access or ID badges

Following are how report damaged or lost cards and badges:

IF…	IS…	THEN…
Access card	damaged	Card must be returned to Frontier Corporate Security, 111 Field St., Rochester, NY 14620.
	lost or stolen	Report immediately to Supervisor and Security Operations Center at 1-800-590-6605.
ID badge	damaged	Badge must be returned to Frontier Corporate Security, 111 Field St., Rochester, NY 14620.
	lost or stolen	Report immediately to Supervisor and Security Operations Center at 1-800-590-6605.

NOTE: Access Cards or ID Badges found after report of loss must be returned to Frontier Corporate Security, 111 Field St., Rochester, NY 14620. Any replacement cards or badges must be ordered through the Corporate Security webpage.

Exit/transferred

Immediate supervisor and/or Human Resources is responsible for retrieval of access card and ID badge for exiting employees or part of responsibility when completing Employee/Contractor Separation Checklist. Transferring employee must surrender access card upon leaving.

PERSONAL PROTECTIVE EQUIPMENT

Introduction

The corporation provides a wide array of Personal Protection Equipment (PPE) for employees. Employees may wear only Company issued PPE. If Company issued PPE does not fit properly, or adequately address a particular hazard, contact your Regional EHS Manager for assistance.
Employees must seek approval prior to purchasing non-standard PPE.

Eye Protection

Eye protection is required for all tool-using employees when they are performing or observing a work operation where there is reasonable probability of injury to the eye. Safety glasses with side-shields are required when there is a hazard from flying objects. Visitors, supervisors, management and other employees when visiting work sites, where tools are in use, must wear eye protection. Examples include, but are not limited to:

- central office frame and switch rooms,
- customer premises (residential or commercial),
- manholes,
- all aerial work, and
- roadside work zones.

Types of Eye Protection

Equipment	Description
Safety glasses	All lenses and frames must be Company approved and comply with requirements of American National Standards Institute (ANSI) standard Z87.1 for eye and face protection. Refer to the following link for information on Frontier's Prescription Eyewear Program. https://frontiercorp1.sharepoint.com/sites/giga_Environmental_Health_and_Safety/SitePages/Safety%20Prescription%20Eyewear.aspx Contact your Regional EHS Manager for details.
Safety goggles/ face shield	Tool-using employees may encounter working conditions where satisfactory eye protection cannot be gained through use of safety glasses. When using a chainsaw or working in areas with flying or falling particles, sawdust, concrete chips, or hot solder, require use of safety goggles or full-face shield.
Welding shields	Appropriate shielding and eye protection must be worn to prevent exposure from welding and optical radiation.

Head Protection (hard hats)

Hard hats must not be altered or defaced with paint or decals, drilled, or modified. Safety hard hats must be inspected prior to use daily by users for cracks, penetrations, faded color, suspension systems being in good condition, and cleaned using soap and warm water.
All hardhats must be ordered through the company. You will have (2) types to choose (baseball or safari). All hardhats come with reflective tape.
Hard hats must be worn for protection against head injury and electrical shock and to provide visibility. Hardhats must be worn from the time you step out of your company vehicle and must remain on until you return to your company vehicle.

Hand Protection **(revised 05/21/2019)**

Hazards to hands are present in many work operations. Approved gloves must be worn based on the identified hazard:

- Kevlar or level 4 cut-resistant gloves provide protection against cuts. (Employees **must** cut away from their body.)
- Cut resistant gloves are required to be worn when handling sharp materials and tools such as those used in outside, high-hazard occupations. Such activities include, but are not limited to, Armor protected wire, opening telecommunication cables, buried service wire, and drop wires.
- Sharp objects (Administrative employees are not required to wear cut-resistant gloves for the normal handling of office tools, such as a paper cutting tools etc.).
- Using knives.
- Leather gloves when working with rough materials such as poles and extension ladders.
- Special "hot gloves" when working near power lines and battery maintenance. Refer to Rubber Gloves and Insulating Equipment section in this document.
- Nitrile gloves when work involves personal hygiene issues such as working with lead to prevent transfer of lead from hands to food and drink or first aid situations to prevent the transfer of blood borne pathogens such as Hepatitis or HIV.

Foot Protection

Must have an **ASTM F2413-18 or ASTM F2412-18a** rating on the footwear to meet the minimum requirements.

- Impact and compression hazards are present for all tool-using employees regardless of where you work inside or outside. Safety toes protect you from this hazard. Safety toed footwear does not need to utilize steel.
- Carbon fiber and other modern materials meet the requirements for protection as long as it includes the above ASTM label.
- Climbing poles and ladder use in any location, requires a **defined heel**. Use care here because many types of safety footwear use a molded heel which does not keep a person securely on a ladder. The heel shall be square and well-defined, **(a minimum ½" high to a maximum of 1½")** and be 90° from the ground**. (Fig. 1)**

- Leather offers chemical protection. High top boots that are at least 6" in height measured from the point where the sole meets the boot material to the tallest part of the boot shaft (Fig. 2) are required for work outside.

Fig.1

Fig. 2 – This boot is approx. 6 ½"

- Sneakers and sandals or any open toed footwear is never acceptable.

- For our inside plant employees, safety shoes with steel toe/compression protection and a defined heel are required. The only difference between outside and inside plant is that there is no requirement for high tops as long as the footwear meets the ASTM standard above.

Body Belts, Lanyards, Gaffs

Employees must use Company issued body belts and safety straps when working at positions more than 4 feet above ground. Body belts, safety straps and lanyards must be used when working on:

- Poles (including stepped poles)
- Ladders placed on suspension stand or poles
- Work platforms (elevated) such as aerial splicing, pole, or ladder platforms and terminal balconies.
- Aerial lift baskets on bucket trucks or digger derricks.
- Cable cars.
- Open equipment doors over 4 feet from the ground while raising or lowering materials via these doors.

Never exceed manufacturers weight limits. Body belts and safety straps should be used in accordance to manufacturers specifications. All body belts must be approved and purchased through the company.

NOTE: In the State of Connecticut, on an interim basis, employees will still be allowed to use their OSHA approved restraint (single harness and 2 ft. lanyard with sliding D-ring).

Lanyard Precautions

Safety lanyard should be as short as practical to minimize potential falling distance. Follow the instructions that are on the label of your lanyard.

An employee **should not**:

- Attach two or more straps together for additional length. Before climbing a pole, see tongue of buckle is properly seated in desired hole of safety strap. Security may be improved by placing safety strap around a point of pole directly above a cross-arm, strand, pole step or other secure attachment provided attachment is one foot or more from the top of pole.
- Place strap around an insulator pin, bolt or other insecure attachment.
- Use electric light, power or foreign attachments as supports. Ensure snap hook and "D" ring are properly engaged.
- Rely on feel or click of keeper in snap hook, when attaching a safety strap, as an indication fastening is secure. Workers must look and know snap hook is properly engaged before placing weight on strap. Always have keeper of snap hook on safety strap away from body when engaged in "D" ring.
- Place or carry tools or materials in "D" ring of body belts. When wearing a safety strap that is not in use, both ends should be snapped in the same "D" ring. Care should be taken to see the strap does not catch on pole steps and other attachments while climbing.
- Fasten an uncoiled hand line directly to body belt or to tools carried on belt when climbing or working on a pole. Safely carry aloft by forming free end into a bight and tucking under belt or by forming hand line into a loop and placing loop in the hand line carrier.
- Punch extra holes in a body belt. Improper fitting body belts must be replaced with one of correct size.
- Secure self with a safety strap placed around a pole, strand or other
- support where both snap hooks are engaged in same "D" ring of body belt. Only specific instances covered in this section and when using belts identified by a metal instruction plate stating, "SAFETY STRAP MAY
- BE USED IN ONE "D" RING" are exceptions.

Safety belt/ strap on an extension ladder

An employee working from a ladder must be secured with body belt and safety strap using one of the following methods:

IF extension ladder is…	THEN attach one snap hook to one "D" ring and pass free end of strap…
securely lashed to a suspension strand or other support,	between two rungs and around one side rail and engage snap hook in other "D", **OR**
	around a rung and engage snap hook on other "D" ring, **OR**
	over a suspension strand so as to loop strand and engage the snap hook on other "D" ring.
properly placed on the strand but not lashed	around strand and side rail, between two rungs and engage snap hook in other "D" ring.
supported by a suspension strand or other support	across front of the body, through other "D" ring and engage other snap hook on suspension strand.

Safety belt precautions

Belts should be constructed of material that is of sufficient strength to allow the safety strap to loop the strand with both ends of the strap attached to the same "D" ring. Straps and belts should never be worn with sharp tools unless such tools are equipped with satisfactory guards.

Safety belt storage

Keep belt and strap away from radiators, stoves, steam pipes, fires, and other places where fabric would be subjected to excessive heat. Damp or wet belt/strap should not be packed until wiped with a dry cloth and allowed to dry by ventilation.

Inspection

Each employee is responsible for determining body belt, harness, safety strap and lanyard are in good condition before use. Equipment that may not be safe should be exchanged for equipment in good condition. Conditions to look for during visual inspection:

- Steel reinforcing plates holding "D" rings.
- Loose, broken or missing rivets or rivets with excessive wear.
- Broken or rotted threads in the stitching.
- Cracks, cuts or stress lines that tend to cause leather/fabric to tear or affect the strength of the belt or strap.
- Broken or defective buckles or snap hooks.

Gaffs

Never wear gaffs where not required. Pole gaffs must not be worn when:

- Working in trees.
- Working on ladders.
- Working on an aerial lift.
- Driving a vehicle.
- Walking between poles or working on the ground.

Gaff precautions

- Use gaffs adjusted to correct size. Never exceed manufacturers weight limits on gaffs.
- Do not bend leg irons, do not use gaff as a pry.
- Only one person on a pole at a time.
- When climbing, avoid placing gaff on or near a crack, knot, nail, or tack.
- Equip gaffs with gaff guards, when not in use.

Gaff inspection

Pole gaffs should be inspected before each use. Each employee must be responsible for determining climber pads, straps and gaff guards are in good condition and must inspect gaffs to detect nicks or dulled cutting edges. Use gaff gauge when inspecting gaffs. If gaffs are not in good condition, check with pole cutout test. Gaff cutout test must be performed daily at the first pole you plan to climb.

Important conditions to look for when visually inspecting climbers are:

- Fractured gaff or hairline crack.
- Loose gaff.
- Broken stirrup ring or broken or loose ring loop.
- Cracked leg irons.
- Nicks in gaff due to impact with hard object.
- Ridge of gaff not straight.
- Dull gaff.
- Gaff less than minimum 1-1/4" in length.
- Broken, worn or otherwise defective straps, buckles or pads.

Testing- pole cut out test

Pole cutout test should be performed daily at the first pole you plan to climb. Gaffs must be tested when received and any time there is doubt as to sharpness. Gaff gauge shall be used regularly to test gaff sharpness and shape. Gaffs may be tested by making the pole cut-out test as follows:

- Place the climber on the leg and fasten the foot strap in the usual manner.
- Do not fasten the leg strap.
- Place hand between leg and climber pad, palm facing the pole. Place other hand around pole for balance. With leg at about a 30 degree angle, normal climbing angle, aim gaff toward center of pole about one foot above ground line. Lightly jab gaff in pole to penetrate wood 1/4 inch at a location where the pole surface is free of cuts.
- Keep enough pressure on stirrup to keep gaff in pole, but not so much as to cause the gaff to penetrate any deeper. Push climber and hand toward pole by moving knee until the strap loop of sleeve is against the pole.
- Making certain the strap loop is held against the pole with pressure from leg. Gradually exert full pressure straight down on the stirrup without raising other foot off the ground to maintain balance if gaff does not hold.
- A gaff, which is correctly shaped and is sharp, will cut into the pole and hold in a distance of two inches or less. Measure cut from the point the gaff enters the pole to bottom of cut at surface of the pole. A gaff, correctly shaped but dull or burred, will cut in and hold, but length of the cut will be more than two inches.
- Any gaff which fails visual inspection, gaff gauge, pole cut-out test or has been honed up to 3 times and is in such condition where doubt in safety, must not be used, but exchanged for gaffs in good condition.

Potential Electrical Hazards

To prevent serious injury or loss of life, employees will not handle electric power wires, or associated switches and must arrange to have necessary work required on these circuits performed by electric company. Similarly, employees must not handle telephone wires suspected or known to have been energized until electric company has cleared contact conditions. **Always use voltage detector first!**

Rubber Gloves

Due to complicated nature of conditions encountered in which rubber gloves should be worn, a complete set of rules covering each specific case is impractical. Therefore, employees must wear rubber gloves whenever handling wires, poles, placing or removing temporary or permanent electrical bonds, driving ground rods or working with other objects on which there is a possibility of hazardous voltages being introduced. Leather protector gloves must be worn over rubber gloves to prevent mechanical damage to the rubber glove. Leather gloves do not provide protection from electrical shock and must not be worn except over rubber gloves. Leather gloves are not to be worn as a substitute for rubber gloves. All rubber gloves will be di-electrically tested in accordance with OSHA specifications. Schedule provides for a testing interval of nine months. In CA, gloves must be tested every 6 months. Contact supervisor for details on ensuring gloves are tested. **DO NOT USE** gloves whose electrical test date (last day of the month and year stamped) has passed.
NOTE: Class II rubber gloves are the standard for outside plant and shall be worn when placing permanent and temporary bonds.
Class 0 gloves are to be used only by Fleet when working with hybrid vehicle battery maintenance. All gloves must meet the electrical and physical requirements contained in "ANSI J76.6 Standards Specifications for Rubber Insulating Gloves."

Rubber Gloves Visual Inspection

Each employee is responsible for determining insulating gloves are in good condition and used within specified electrical test period stamped on each glove indicating the next test due date. Each employee must inspect gloves:

- Upon receipt of gloves.
- Each time before use.
- Each time after use.
- To ensure gloves are dry.
- At least once a month when not used regularly.

Rubber gloves will be visually inspected and air tested prior to each use. Visual inspections will be made to detect cracks, cuts, nicks and signs of deterioration of the material. Air tests will be performed to detect any minute punctures not found by the visual inspection.

Check gloves visually using the following steps:
1. Visually check test date. The gloves are required to be replaced by the last day of the month and year stamped. No gloves can be used in the field after the last day of month stamped on them. Any use of expired gloves will be considered a life-threatening infraction and the employee will be subjected to discipline up to and including termination.
2. Pull vigorously between the fingers looking carefully for cracks and inner lining showing through.
3. Look for signs of abrasions or deterioration on the palms and back of the thumb side and the little finger side.
4. Squeeze the fingers of the glove together, let go quickly. Live rubber will return to normal shape.
5. Turn the glove inside out and repeat the stretch test.
6. Turn the glove right side out.

Air Test Diagram

Always do the air test last. To perform the air test, roll up cuff of glove. Air will trap in glove. Hold inflated glove up to cheek or ear to detect any escaping air. If visual inspection or air test reveals any defects, then immediately make glove unusable by cutting glove from gauntlet to palm with scissors. Turn gloves in to supervisor for a new pair.

Glove Storage

- Rubber gloves must be stored in the bag provided upon issue.
- Rubber gloves must be removed from protectors and prepared for storage by making a "sandwich" as follows:
    - cotton liners in center
    - electric gloves palm to palm (with liners in between)
    - protectors on the outside with palms out.
- This sandwich should then be inserted into bag with cuffs down, fingers up to top of bag.
- Never place insulating gloves near high heat.
- Do not store where damage by sharp-edged or pointed tools may occur.
- Hang bag by a hook to keep the gloves dry as moisture and humidity deteriorates natural rubber.

Rubber Blankets

Employees must use rubber blankets where required by local practice and/or possibility of contact with energized circuits exists. Employees assume responsibility for determining rubber blankets are in good condition and should not indicate deterioration from an electrical or mechanical standpoint.
Employees must verify blankets are used within specified electrical test
period as stamped. The blanket is required to be replaced by the last day of the month and year stamped. No blanket can be used in the field after the last day of month stamped on it. Any use of an expired blanket will be considered a life-threatening infraction and the employee will be subjected to discipline up to and including termination.
Each employee must visually inspect for cracks, abrasions or deterioration in rubber blankets:

- At time blankets are issued.
- Each time before use.
- Each time after use.
- A minimum of once each month.
- On retest date located on blanket.

NOTE: Rubber blankets must always be stored in the blanket canister or the manufacturer's carton that was provided.

Hearing Protection

Hearing protection must be worn whenever a loud noise exists, even for short periods of time such as operating trenchers, plows, generators, power activated tools and other equipment that emits excessive noise levels. Exposure to excessive noise over prolonged periods of time can lead to a hearing loss. Employees exposed at or above 8 hours-time weighted average (TWA) of 85 dBA (action level) will be included in a hearing conservation program.

The Company will make available noise protection for employees working for short periods of time near diesels or machinery. Questions or concerns related to noisy equipment or work environment should be directed to your Regional Safety Manager.

Clothing

Clothing appropriate for the work and weather shall be worn. Shorts are not appropriate for working with tools or handling materials. Long pants offer protection against scratches, punctures, burns and other hazards. Long sleeve shirts are recommended for use when working on or around poles. Long sleeve shirts offer protection against creosote and other types of preservatives. Extra protection from specific hazards may be required such as protective coveralls for working with some lead. Flame retardant clothing is required when working near open flame. See supervisor for other circumstances requiring special clothing.

Hi-Viz Vests

All employees working within or adjacent to a roadway are considered to be exposed to vehicular traffic. All employees must wear hi-viz vest and hard hats, when working in these right of way areas (see work area protection). Hi-Viz vests should only be purchased through the company.

TOOL SAFETY/EQUIPMENT AND TEST GEAR

Hand Tools

- Before use, inspect tools for such conditions as loose handles, loose, broken, or bent blades, cracks, breaks, or excessive wear.
- Cutting tools shall be kept properly sharpened and protected by suitable guards.
- Use only the tool properly designed for the job. Hand tools (electric) must have ground fault protection.
- Defective tools must be turned in for repair and/or replaced.

Chisels, Bars and Drills

Chisels, bars and drills held by one person and struck with a hammer by another, must be held with a holding tool or other suitable device. When mushroomed heads develop on these or similar tools, they shall be dressed before further use.

Power Saws

Here are a few examples and fundamental safeguards you should follow before operating a power saw:

Saw type	Safeguards
Portable circular saws	Equipped with guards above and below base plate or shoe. When tool is withdrawn from work, the lower guard shall automatically and instantly return to covering position.
Circular table saws	A hood over the portion of the saw automatically adjusting to thickness and remain in contact with material being cut.
Radial saws	Installed with a blade to return to starting position when released by the operator. Upper half and arbor end should be guarded. Lower half of saw should have a floating guard.
Band saw blades	Enclosed or guarded, except for the minimum arc, is required to allow proper retraction and contact with work. Band saw wheels shall be fully encased.

Chain Saws

Employees/operator must be trained initially by an approved vendor and undergo comprehensive training consistent with the requirements of the manufacturer of the tool with yearly refresher courses thereafter.

- Wear protective equipment such as chaps, hard hat, earmuffs, face shield/goggles, gloves and hard-toed safety shoes.
- Hold chain saws firmly on ground when starting.
- Use two hands to operate saw.
- Never operate a chain saw from a ladder or use above shoulder height.
- Use anti-kickback chains and guards on chain saws.
- Keep chain lubricated sharpened and properly tensioned.
- Let the engine cool down about one minute before refueling.
- Place guard on saw when stored.
- Not use electric chain saws in rain, damp or wet locations.
- Use a proper sized GFCI protected cord with electric chain saws.
- Do not use a gas chain saw when working aloft.

Soldering Iron

- Electrical cords must be checked for defects or excessive wear.
- Tip of iron shall be clean, free from excess solder, not excessively worn or pitted and tight in shell.
- Grounding must be omitted on soldering irons or power wire-wrap tools when used on telecommunication circuits.
- Soldering irons must be stored in soldering iron cage when not in use.
- Never leave a hot soldering iron or gun unattended.
- Do not breathe in the smoke.
- Ensure soldering iron is cool before touching and storing.

NOTE: The required PPE for working with a soldering iron are safety glasses with side shields.

Torches

ACETYLENE & MAPP GAS

- Before use, check torch for leaks using soap solution. Never test for leaks with an open flame.
- Always use the friction-type lighter to light the torch.
- Always keep the acetylene tank in an upright position.
- After completion of work, extinguish the flame by closing the tank valve, allowing the acetylene to burn from the hose and regulator.
- Never use the torch in a utility hole, cable vault or excavation unless authorized.
- Always store the tank properly protected, without gauges and properly secured in an upright position at all times.
- Never take torch into confined space.

Hot Work Permits

A hot work permit is required for any temporary operation involving open flames or producing heat and/or sparks. This includes, but is not limited to: brazing, cutting, grinding, soldering, thawing pipes, and welding. Obtain hot work permit from your Regional Safety Manager.

Pneumatic Tools

Only employees with fully documented training shall be permitted to use pneumatic tools. Tools and tool holders shall be inspected before use. Operators shall wear approved eye, ear, head and foot protection.

Powder Actuated Tools (PATs)

Consult manufacturer's instructions for use and safety procedures for powder actuated tools (PATs). Employees must be familiar with state or local rules applicable to use of such tools. Powder actuated tools are to be operated only by employees trained and familiar in use of equipment and licensed where required. Operators must wear safety goggles and steel toe footwear. Powder actuated tools not in use should not be left unattended. Tool, studs, and cartridges should be transported in a locked container.

Surfaces for using PATs

Studs should not be driven into very hard or brittle surfaces such as, but not limited to cast iron, glazed tile, face brick, glass block or surface-hardened steel. Powder-actuated tools must not be used on easily penetrated materials or concrete less than two inches thick without sufficient backing such as sandbags or timber.

Operating PATs

Operators must ensure:

- Bore is clear before loading.
- Cartridge is fully seated.
- Breech is closed and locked.
- Safety devices are in working order.
- Inspect PATs for defects prior to each use.
- Never point a powder-actuated tool at anyone.
- PAT does not rest against body.
- Cartridge is inserted into tool only when it is ready to be fired.

Misfire in PATs

In case of a misfire, tool should be held against the work surface in operating position for at least 30 seconds, then attempt firing again. Misfired cartridges should be disposed of safely to prevent anyone gaining access.

Portable Electric Tools, Cords, Lights and Equipment

Inspect tools for wires that may have been pulled out of housing, broken or missing prongs, frayed cords or exposed wires. A portable electrical tool, cords, lights or equipment not double insulated must be equipped with a ground wire or three conductor cords and plugs.
NOTE: Ground Fault Circuit Interrupter (GFCI) is always required even if tool is double insulated.

Grinding Wheel

Goggles or face shield must be used when operating a grinding wheel. All bench and stand grinders shall be provided with safety guards covering spindle ends, nut and flange projections. Machines will be securely anchored to prevent movement, or designed not to move in normal operation. An adjustable work rest of rigid construction must be used to support the work on offhand grinding machines. Work rests shall be kept adjusted closely to wheel with a maximum clearance of 1/8 inch. Wheels should be checked, tested and periodically inspected according to manufacturer's specifications.

Ropes

When working with ropes an employee must:

- Inspect all rope for surface imperfections, such as broken fibers, cuts or decay, before using. Never use a rope in a doubtful condition.
- Be thoroughly familiar with proper methods of handling rope. Faulty knots or hitches in a rope may slip under strain and cause serious incidents. Leave excess in end of rope, when tying knots or hitches, to ensure knot will not pull out.
- Never exceed working strength of the rope by the load supplied.
- Ropes must not be placed which form obstructions on highways or thoroughfares. Temporary guys must afford sufficient clearance for passing vehicles.

Slings

Wire slings are not permitted because of electrocution possibility. Synthetic web slings with a choker hitch are only permitted slings. Employees using a sling must:

- Not exceed working strength of sling.
- Inspect sling before each use.
- Performed additional inspections during use.

Chain Hoists

Before use, inspect for:

- Bent, cracked or otherwise deformed hook(s) or handles.
- Cracked or distorted casting and binding or sticking, worn or deformed links in chain
- Control lever not operating freely.
- Hoist not properly operating in any manner.
- Jaws are clean and free of rust, grease, etc.

- Workloads exceeding safe limits.
- Extension handles or reinforcements made in an attempt to increase normal leverage of hoist.
- Position working handle outboard of pole.
- Appropriate pole binder is in place to secure poles during transportation and not utilizing the chain hoist as device for securing pole.
- Any previous defective conditions that should have been tagged and turned in for repair.

Welding

- Hot Work Permit required before beginning any welding work.
- Welder's clothing must be kept free of excessive oil, grease and other flammable substances.
- All oxygen & acetylene hoses must be repaired with proper clamps and connections.
- Welder is to ensure proper shielding before striking arc.
- Have portable fire extinguisher near when welding, cutting, or soldering.
- Any defective welding leads or grounds cables must be properly repaired.
- Welder is responsible for examining area for possible fire hazards.
- Torches must be lighted only with friction type lighter.
- Acetylene line gauge pressure must not exceed 15 PSI.
- All welding hoses must be coiled and hung in a safe manner when welding is completed.
- All spent welding electrodes must be disposed of properly.
- All empty oxygen bottles, hoses, torches, or oxygen related equipment must be kept away from all petroleum products
- Gauges should be protected or removed and caps replaced when not is use
- Screens shall be in place when arc welding is being performed
- Employees must wear eye protection with suitable filter lenses for welding, cutting, chipping, grinding or any other activity that might cause eye injury.
- Only trained employees will be allowed to use welding equipment.

LADDERS

Frontier has selected many types of ladders as a standard for use by employees. Regardless of type or size of ladder, some fundamental steps must be taken to use the ladder safely. All ladders should be labeled with inspection for correct use and care.
Take the time to familiarize self with these labels. Proper ladder selection is the first step. Use wood ladders for Central Office use and Fiberglass ladders for outside work. Make a determination of the correct ladder to use based on the following questions:

- What is the height needing to be reached?
- What kinds of surface will the ladder be on?
- What are nearby hazards or obstacles?
- How much weight will ladder need to support?

Refer below to new CDC-NIOSH SmartPhone App that addresses ladder safety:
http://www.cdc.gov/niosh/updates/upd-06-17-13.html

Duty Rating

Duty ratings were established by the American National Standards Institute (ANSI) to define a ladder's recommended use and weight capacity for the ladder to be used safely. Duty ratings are prominently displayed on the ladder side rail labels. Ladders must be used properly to support the intended load and must not be subjected to loads greater than the listed working load. Company ladders are rated Type 1A Extra Heavy Duty Industrial, 300 + 25 pounds load capacity. Type 1AA ladders have a 350 + 25 pound load capacity and is available based on need. Capacity is a worker including any tools, materials and equipment.

Types of Ladders

There are three basic types of ladders:

Ladder Type	Description
Step	Self-supporting and designed for climbing on only one side. Bracing on backside is designed for ladder stability – NOT CLIMBING. Not typically designed for scaffold support. Use to reach desired height without standing on top step of ladder.
Extension*	Are not self-supporting. Used for higher work up to 40 feet.
Single*	Are not self-supporting. Require a structure to lean on. Have one or more sections and are designed for easy access to mid- range heights or depths.

* Use a stabilizing strap to position ladder against pole.

Specialized Ladders

Ladder Location	Description
Central office	Rolling ladders have additional inspection and use requirements (i.e., brake and lock).
Utility hole	Ladder is a straight section 8'-16' long by 12"-15" wide intended for use in utility holes of varying depths. **(Rev. 10/05/15)**

Ladder Inspection

Inspect ladder on receipt and before each use. Ensure rivets and joints, nuts and bolts are tight, rungs secure, ladder extension jacks and feet functioning, and rope in good condition. Never make temporary repairs of damaged or missing parts. Never perform field modifications to ladder.
Destroy ladder if broken, shows signs of excessive wear, fire or chemical corrosion.

Frontier companies must have formal, annual ladder inspections. Check with your Regional EHS Manager for details.

For specialized ladders, ensure:

- Side rails and steps are not split.
- Brake locks when standing on third step.
- "Look Up" signs are in place.
- Mechanical and electrical trolley connections are in good condition.

Proper Set Up for Extension Ladders

Measure the vertical distance from ground to support point for extension and single ladders. Check ladder's label for the highest standing level. Ensure ladder will extend beyond the support point for ladders supported by cable or roof edge Secure the base when raising the extension and never set up ladder when it is extended. Set the ladder on firm ground. Do not lean sideways. Set ladder at proper 4:1 ratio (75.5-degree angle) from working support.

Use the "fireman's stance" to set up a ladder:

- Place toes against bottom of ladder side rails.
- Stand erect.
- Extend arms straight out.
- Palms of hands should touch top of rung at shoulder level and ensures maximum stability, strength, support and climber balance.
- Use a stabilizing strap to position ladder against pole.

Carrying Extension Ladders

Following these proper ladder carrying techniques can reduce the risk of injury:

Over the shoulder carry: Position ladder on the shoulder in a balanced position; ladder hooks turned in, base downward and to the front, arms should not be between the side rail and raise it to shoulder height.

Suitcase: Bend at your knees, at the ladder mid-point, pick up the ladder by the top rail to waist height. This is the preferred method in high wind conditions or around obstacles like tree branches.

Vertical carry: Should only be used for short distances during ladder placement. With ladder standing on its feet, squat down, grab a hold of one rung about knee height and one rung about shoulder height. With your legs, lift up and walk to your destination. Do not reach through the rungs.

REMEMBER:

- Retain a proper grip on the ladder at all times.
- Ensure ladder hooks are in.
- Carry feet first.
- Do not lift or carry using ladder rope.
- Hold onto the ladder with both hands and do not attempt to carry tools or other materials at the same time.
- Before removing ladder from vehicle, inspect route to carry ladder for any obstructions/hazards both on the ground and overhead.
- Remove ladder from vehicle by first sliding the feet to the ground.
- Make sure ladder rope is tied off and ladder hooks are turned in.
- If the ladder begins to slip and/or fall, do not try to catch or re-balance the ladder, let the ladder fall.

Ladder Safety

- Ladder must be secured properly to company vehicle with hooks in at all times.
- Do not let ladders of any material contact live electrical wires. Face ladder when climbing up or down and keep body centered.
- Maintain three points of contact ascending and descending ladder.
- Make sure ladder is fully open, spreaders secure, pail shelf in position. Place on firm level surface with a secure footing.
- Do not use on slippery surfaces.
- Do not place on boxes, unstable bases or scaffolds to gain additional height.
- Do not place in front of door opening toward ladder.
- Never move belt bucket outside ladder rails.
- Lash secure ladder at point of support by tying off.
- Do not wear climbers on ladder.
- Exercise caution when climbing a ladder during wet or icy weather.
- In high traffic areas, have a worker guard the ladder and display appropriate warning signs and flags.

- Employees must not use ladders if tire easily, subject to fainting spells, using medicine or are physically impaired.
- To protect children, do not leave ladder set up and unattended.
- Check that ladder is firmly supported and properly set up.
- Do not lean to the side so far that the breastbone is beyond the side rail.
- Maintain a firm grip and use both hands in climbing.
- Do not climb from one ladder to another.
- Never use ladder as a platform, plank or hoist. Never use ladder on a scaffold.
- Do not overload. Ladders are meant for one person.
- When placing ladder on strand, ensure ladder hooks are engaged on the strand and the strand is in the circumference of the hooks.
- Keep ladder close to work; avoid pushing or pulling off to side of ladder.
- Never drop or apply an impact load to a ladder.
- Do not "walk" or "shift" ladder while standing on it.
- Use shoulder pads or carrying mate if needed to transport ladder.
- Keep ladder clean from grease, oil, snow, mud, wet paint and other slippery material.
- When carrying ladder, ensure ladder hooks are in.
- Use stabilizing strap to position ladder against pole.

If you encounter a unique circumstance with your ladder, contact your Regional Safety Manager.

ELECTRICAL POWER SAFETY

There are two standard tools for checking the presence of hazardous high voltages. The C-9970 Voltage Tester and the Foreign Voltage Detector (FVD). Both are acceptable for use by Frontier employees and must be within the employee's reach when exposed to potentially energized objects.

C-9970 voltage tester

C-9970 uses electronics and high voltage mechanical design to indicate the presence of dangerously high AC and DC voltages, regardless of current potential. A test is conducted by performing a comparison in voltage difference between user's body and object and is measured to an internal safety reference. Voltage differences exceeding reference indicates a danger. Ranges are 50 to 20,000 volts AC at 60 Hz. And to 2000volts DC. Red flashing LED indicates presence of a hazardous voltage but does not indicate actual voltage. Voltage tester is used in testing various conductive objects such as:

- Power ground wires
- Metallic conduit
- All down guys
- Street light fixtures
- Mobile homes
- All telephone strand
- Metal frameworks
- Newly driven ground rods
- Pedestals
- Metal siding on homes
- Machinery
- Any vertical ground wire attached to pole
- Similar potentially hazardous items
- Working on any joint use poles

Using voltage tester

Before first time use of the C-9970 Voltage Detector, the technician should completely read the entire manufacturer's handbook to ensure proper training. When the test set indicates the presence of a potentially hazardous voltage, the technician should contact their supervisor **immediately**. The supervisor will determine if the voltage is hazardous and take the appropriate steps to eliminate the hazard.

The capacitance between the user's hand and the handle of the voltage detector is part of the measuring circuit and can affect the sensitivity of the voltage detector. The use of high voltage electrical safety gloves should be avoided where possible, since gloves reduce the sensitivity of the detector and may cause erroneous indications. Where voltages may exceed 20,000 volts AC, gloves are required when using the voltage detector.

If, under gloved conditions, the detector indicates a safe condition, perform a second test without gloves. Follow the indications of this second test. If, however, the detector indicates a high voltage under gloved conditions, **DO NOT RETEST WITHOUT GLOVES, MOVE AWAY AND CONTACT SUPERVISOR**.

Self-check

Self-check is a test that **must** be performed before **each** use of the Voltage Detector. To perform the self-check:

- Ensure the entire housing is clean and dry. Dirt and moisture reduce insulating properties of the plastic surface.
- Examine the housing for cracks. If there are cracks or other obvious defects, **do not use voltage detector**.
- Grasp the handle with bare hand. Using thumb, depress trigger and observe green indicator. If it does not light or is very dim, check internal battery and replace if necessary. If the green indicator still does not light, **do not use voltage detector**.
- With trigger depressed, touch both probe tip and "check contact" (smaller of two metal contact points on sides of the detector). The red indicator should flash and the green indicator should go out. If lights do not go out, then **do not use the voltage detector**.

NOTE: It may be necessary to wet the fingers touching the probe tip and "check contact" in order to start the red flashing light. This is acceptable and does not indicate a malfunction. After passing self- check, the voltage detector may be used to perform a voltage check on the object(s) in question.

AC hazardous voltage testing

- No grounding is required for AC hazardous voltage testing.
- Always perform self-check before each test.
- The detector is designed to detect voltages at 60 Hz and may require a higher voltage to trigger a hazard indication at different frequencies.
- Refer to operator's handbook procedure for AC Voltage Testing.

Aerial applications

Since the capacitance between the detector and the user's body is part of the measuring circuit, voltages induced into the user's body can impact the readings. Such induced voltages can be introduced when the user is isolated from ground while working aloft near power transmission lines. This can cause the voltage detector to indicate danger where none exists.
Refer to the operator's handbook for details on testing in this environment.

DC hazardous voltage testing

When testing for DC voltages, a connection **must** be established between the ground terminal of the voltage detector and a **KNOWN EARTH GROUND**. Refer to the operator's handbook or supervisor for details of the DC Voltage Test procedures.

Additional equipment

C-9970 Voltage Detector comes in a kit that should also contain two additional pieces of equipment:

- C-9972 (left) Temporary Bond
- C-9967 (right) Ground Cord

Use of these items is explained in the operator's handbook.

Periodic performance tests

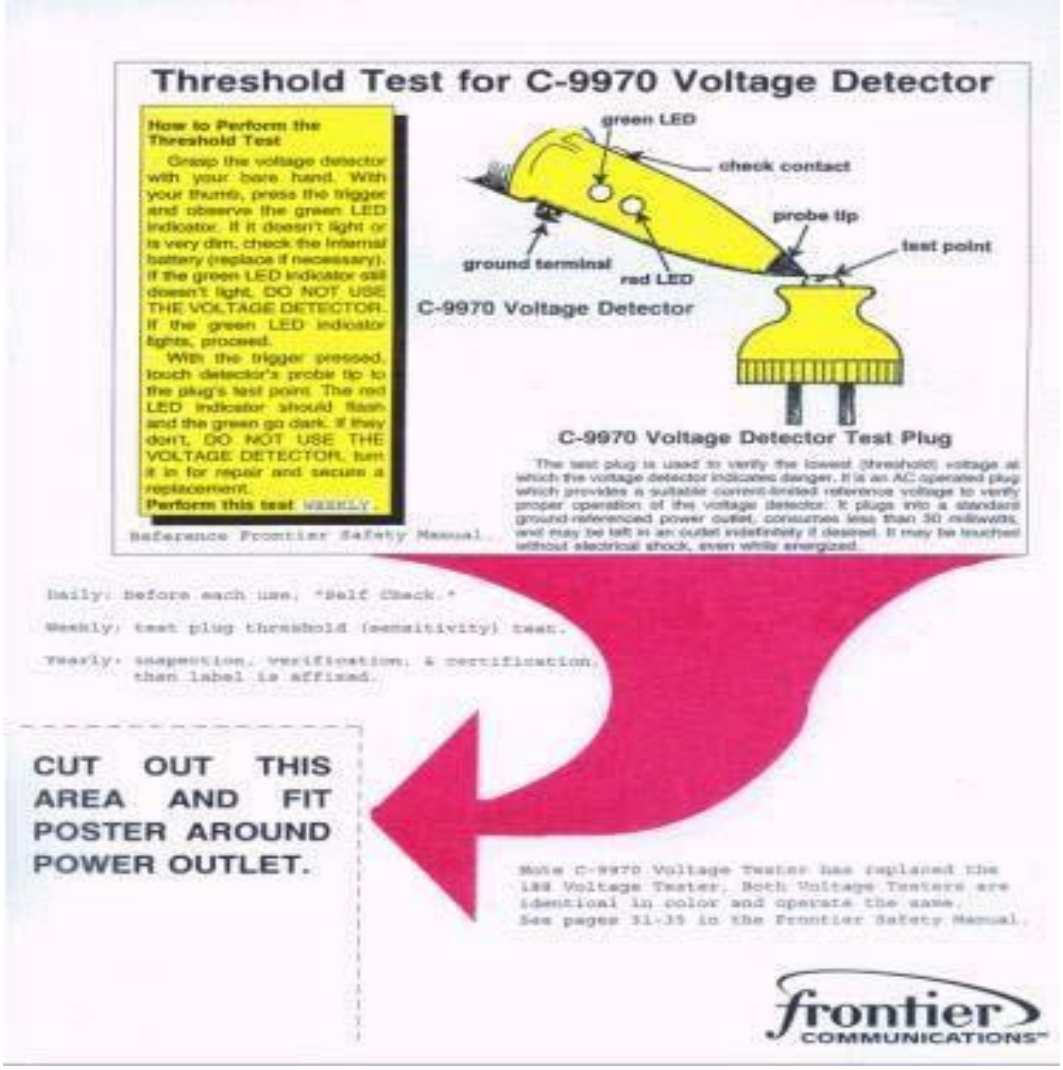
The voltage detector must be checked periodically to assure that it is working properly and that it retains its protective properties.

Performance test	Description
Self check	Should be performed prior to every use of the voltage detector. See the section above for details on performing this check.
Test plug threshold sensitivity check	This test verifies the sensitivity of the voltage detector. The test plug provides the proper reference voltage. This test: ➢ Should be performed at least weekly. ➢ Verifies proper sensitivity. ➢ May be performed whenever the insulation is in doubt. ➢ Should be performed whenever the detector suffers severe mechanical stress (is dropped, etc.). ➢ Refer to the operator's handbook for details on performing the Threshold Sensitivity Test.

Annual testing

Annual certification testing is required. Do not use C-9970 Voltage Detector if the certification has expired.

Threshold test



Foreign Voltage Detector (FVD)

The Foreign Voltage Detector (FVD) is a hand held test set used to detect the existence of AC voltages on a conductive surface.

Method of measurement

The FVD is a remote measurement device. Electrical contact with the object being tested is not required.

Indications

Visual bar graph and audible alarm.

Indication	Function
Visual	Indication of the amount of AC voltage being detected on a 10 step bar graph. Displays from 9 to 200Vac.
Audible alarm	Alarm will sound if detected voltage exceeds 50Vac. Alarm = Hazardous voltage detected.

Construction

Plastic housing

- Non-conductive
- Moisture-resistant

Why the FVD

- Smaller than the 188A/C-9970
- Easily worn on belt
- Contact not required for measurement

What doesn't the FVD do

Doesn't detect DC voltage
Doesn't detect current flow

What does the FVD do

Measures the AC voltage difference between the user holding the FVD and the object under test.

FVD Theory

The FVD uses a ball shaped metallic electrode to form one side of a capacitor; the other side of the capacitor is the object under test.

Sensing circuitry amplifies the varying charge (AC voltage) detected across the capacitor.

The amplified AC voltage passes through a low pass filter with a 200Hz roll-off (blocks interference from signals >200Hz (like radio)).

The filtered AC voltage then passes through a 20Hz notch filter (removes ringing).

The filtered signal is then converted to DC by a precision full wave rectifier. (The greater the AC voltage amplitude: The greater the resultant DC voltage)

The filtered DC signal is passed to a display driver chip that drives the 10 step bar graph.

An audible alarm is wired to activate along with the 50v step of the bar graph.

What am I actually measuring?

When power lines are not nearby, the FVD can measure the device under test without interference.

The proximity of power lines can cause the FVD to indicate hazardous voltage on the object under test when it doesn't exist.

Your body will be capacitively charged by the power lines. Your hand will couple that charge to the FVD. This coupled charge will affect the charge on the input capacitor. The FVD will indicate a reading affected by both the object under test **and** the charge your body is holding.

When you ground yourself, the capacitive charge you received from the power lines is dissipated to ground. This allows the FVD to indicate a reading affected only by the object under test.

Self-test

When: Before each use.

Do…	Result…
Press and hold the power switch.	Bar display illuminates. The audible alarm must sound when the sixth bar illuminates. Green light must be illuminated.

Periodic test

When: Monthly.

Do…	Result…
Turn on FVD and touch the end of the probe to the metal end of a 193A Test Plug that is plugged into an active power outlet.	• At least six to seven steps must illuminate. • audible alarm must sound.

The green light

The green light will illuminate and stay on as long as the power switch is depressed.
If the green light does not illuminate, the battery must be replaced before use.

If the green light only illuminates when the bar graph steps are extinguished, the battery is low.
The FVD can be used - the battery should be replaced as soon as practical.

Operation (no high voltage lines)

- Perform self-test
- A few feet away from object being tested, depress power switch and aim FVD at object.
- If alarm sounds: more than 50Vac is present **Hazard.**
- If no alarm sounds: move closer to object until contact is made.
- If alarm sounds: more than 50Vac is present **Hazard.**
- If no alarm sounds: and FVD probe tip is touching object, and less than 50Vac is indicated; **not hazardous.**

Operation (high voltage lines near-by)

Situation: When measuring in close proximity to high voltage power lines, the user is capacitively charged. This charge will cause the FVD to indicate hazardous voltage when it doesn't exist.

Solution: Provide a temporary path to ground to remove the AC voltage on users body caused by capacitive coupling to the power lines. Once grounded operate as directed in Operation (no high voltage lines).

Methods of grounding:

- Grab some vegetation
- ESD wrist strap to ground
- WIBU cord to screwdriver in ground

Calibration

Calibrated to indicate 50Vac (and sound alarm) when probe tip is touching insulation on 22gauge wire carrying 50Vac.

Measurement affecting

Indicated voltage affected by:
distance between FVD and voltage source size
of the conductor
insulation on the conductor

- If the conductor is larger (bigger gauge, mobile home) the indicated voltage will be higher than actual voltage.
- If the distance between the FVD probe tip and object under test is greater, the indicated voltage will be less than actual voltage.

Care and Storage

- Keep FVD clean and dry.
- Clean with mild soap and water.
- Store in leather pouch.
- If water gets in the battery compartment - allow it to dry before use.
- If plastic housing is cracked - return for repair/replacement.

DO NOT!

- Do not write on the outside surface of FVD
- Do not place any stickers or tape on the surface of FVD

Aerial pole testing

- All poles will be visually checked and tested before any pole is worked on.
- **PROBE AND SOUND TEST THE POLE.**
- All joint-used poles must be tested with voltage detector.
- Caution MUST be taken when removing anything from a pole, especially the last attachment or wire.
- Report to supervisor and engineering of any dangerous condition. (i.e., shell and ground , structural damage, electrical hazards.)
- The method for marking the unsafe condition is with burnt orange paint marking a large X on the cable side of the pole or danger tag made out with follow-up procedure.
- Be familiar with ropes and knots common to pole conditions. Before starting any joint pole work, the electric utility must be notified. Electric wires should be guarded before work starts.
- Ladders must be lashed securely to support while working aloft. Keep 60 inches clearance for voltages over 750 volts.

Testing cable suspension strand

Before attaching a splicing platform to cable suspension strand, it shall be tested as follows to make sure it has sufficient strength to support the weight of the platform and the employee, except that where the strand crosses above power lines or major railroad tracks, an inspection should be made.

One of the following methods or its equivalent shall be used:

- Throw 3/8 inch rope (or larger) over the strand. On joint lines, pass the rope over the strand using tree pruner handles or a wire-raising tool. If two employees are present, both shall grip the double rope and slowly transfer their entire weight to the rope. The feet should not be more than about 12 inches above the ground.

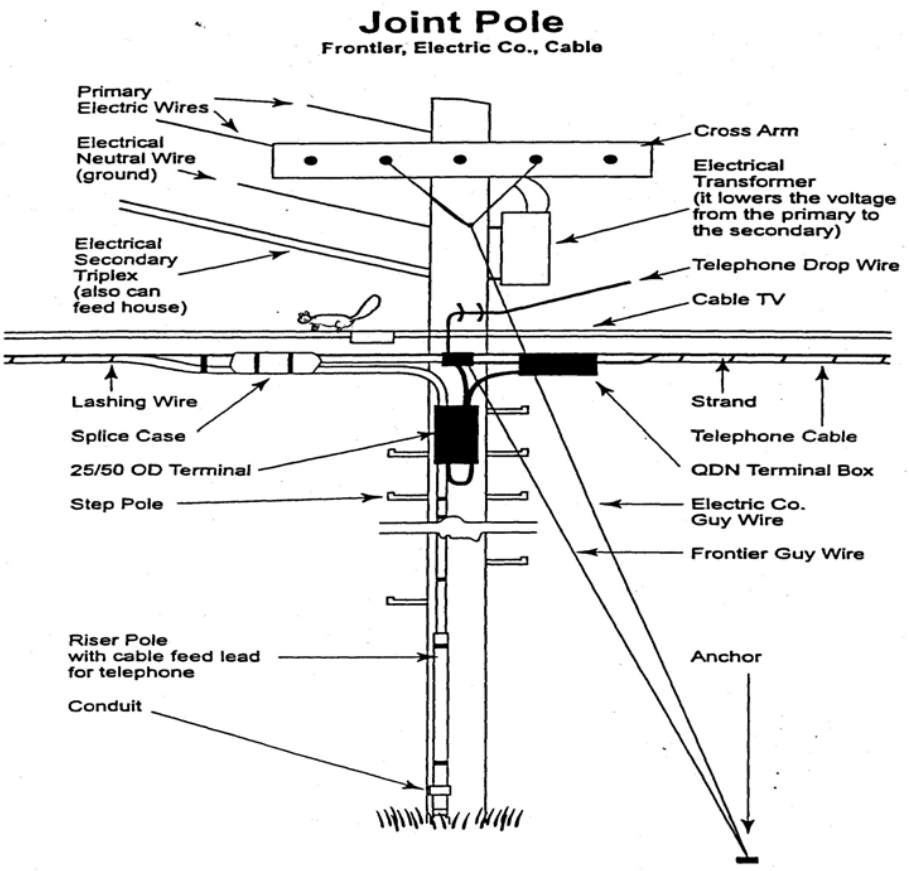
- If only one employee is present, one end of the rope shall be tied to the bumper of the truck or other equally secure anchorage; the employee shall then grasp the other end of the rope and attempt to raise himself about a foot above the ground.

Inspection of strand

Strand passing over electric power lines or major railroad tracks will not be tested, but must be inspected from a convenient working position at both poles supporting the span. Strands must not be used to support any splicing platform, scaffold, or cable car if any of the following conditions exist:

- Corrosion where no galvanizing can be seen.
- One or more wires of strand are broken.
- Any worn spots.
- Burn marks such as caused by contact with electric power wires.

Notify supervisor if unsafe conditions exist.



Methods of testing wood poles

All employees working in proximity to power when testing wood poles must wear appropriate insulating rubber gloves with leather protectors at all times. All parts of the body other than protected hands will be kept free from contact with the pole or tools used in handling the pole during period when pole might contact electric wires.

One of the following methods or its equivalent shall be used:

Test type	Description
Probe and sounding test	Rap the pole sharply with a hammer weighing about three pounds. Begin near ground line and continuing to a height of about six feet circling the pole. Hammer will produce a clear sound and rebound sharply when striking sound wood. Decay pockets will be indicated by a dull sound with hammer rebounding less pronounced. Pole must be considered unsafe. Use a pole prod or a screwdriver, with five-inch or longer blade, to probe pole near ground line. If substantial decay is encountered, the pole shall be considered unsafe.
Test type	**Description**
Horizontal force	Apply a horizontal force to pole and attempt to rock back and forth in a direction across the line. The force may be applied either by pushing with a pike pole or pulling with a rope. If the pole cracks during the test, it must be considered unsafe. **NOTE:** Caution must be exercised to avoid causing power lines to swing together.

Unsafe poles or structures

Poles or structures found to be unsafe by test or observation shall not be climbed until made safe by guying, bracing, or other adequate means. Poles found unsafe to climb shall, until made safe, be tagged in a conspicuous place to alert and warn employees of the unsafe condition.

Lockout / Tagout (LOTO)

Lockout / tagout (LOTO) standard applies to telecommunications industry and covers servicing and maintenance of machines and equipment in which unexpected startup or release of stored energy could result in death or injury to employees. Lockout and tagout of energy-isolating devices will be required when performing maintenance or service work on machines or equipment.

LOTO responsibilities

Role	Responsibility
Management	➢ Must assure locks and tags required for compliance with lockout procedure is provided to employees. ➢ Survey buildings to determine LOTO isolating devices and quantity. ➢ Inspection of LOTO devices to ensure compliance. ➢ Initial and re-training of employees including records of training. ➢ Procurement and supply of LOTO devices.
Employee	➢ Understands purpose of LOTO. ➢ Hazards of unexpected energizing of equipment. ➢ Perform and follow all steps in LOTO procedures. ➢ Importance of not attempting to remove a LOTO device without following LOTO procedures.
EHS	➢ Develops LOTO procedure. ➢ Identify LOTO devices.
Contractor	MUST comply with all requirements of LOTO procedure. **NOTE:** A copy LOTO procedure must be given to any Contractor whose work requires lockout tagout.

LOTO requirements

LOTO is required in the following situations:

- Potential for injury by unexpected start-up of equipment or release of any stored energy, including pressurized lines.
- Employee removing a guard or other safety device.
- Employee placing any part of the body where it could be caught by moving machinery.
- Anyone working "away from" any energy-isolating device which could result in an injury if device was incidentally or unexpectedly released.

Exceptions to LOTO

Exceptions to the LOTO are:

- Cord and plug type of equipment (if operator has control of cord)
- "Copy machines" having interlocks which do not allow the copier to operate when removing paper jams.
- During hot tap operations involving transmission and distribution systems for telecommunications power systems, gas, steam, wat; when continuity of service is essential, and shutdown of the system is impractical; and employees are provided with an alternative type of equally effective protection.

Examples of stored energy (LOTO)

LOTO may apply in central office power areas, electrical power distribution panels, stand-by generators or lasers. Buildings where stored energy may be located and LO/TO may apply:

- Central Offices (CO)
- Offices
- Warehouse
- Garage

LOTO procedures

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>Locate all energy sources needing to be isolated.</td></tr>
<tr><td>2</td><td>Notify all affected employees that LOTO is going to be utilized and the reason for lockout. (tailgate meeting)</td></tr>
<tr><td>3</td><td>Turn off and lock in off position the following energy sources at the point of operation control:
<table>
<tr><th>Energy type</th><th>Shut off and lock description</th></tr>
<tr><td>Electrical</td><td>Locate correct electrical disconnect switch or circuit breaker and turn to “OFF” position. Check with voltmeter to assure no energy is present.</td></tr>
<tr><td>Mechanical</td><td>Springs, elevated machine members, rotating flywheels, must be dissipated or restrained by methods such as repositioning or blocking.</td></tr>
<tr><td>Flammable, Pneumatic, Hydraulic, Thermal, or Chemical</td><td>Valves must be closed or lines disconnected, or isolating “blanks” or stoppers installed.</td></tr>
</table></td></tr>
<tr><td>4</td><td>TAG all energy isolating devices controlling the unexpected release of energy and attach locks.</td></tr>
</table>

Multiple workers for LOTO

When two or more employees work on same equipment, each is responsible for attaching a lock. Upon arrival, an employee assigned to a job and finds a lock or tag affixed to equipment must take the following action:

Step	Action
1	Affix their lock or tag to the equipment.
2	Test equipment to see if energy isolation has been effective.
3	Return controls to off position.

LOTO corded machines

Machines connected to "OVER 110 volts" of power by a plug-in cord must have a locking device on the plug. A machine connected to 110 volts of
power by a plug-in cord shall be considered locked out if plug is disconnected and tagged with "DANGER DO NOT OPERATE".

LOTO restoring power

Power may be turned on when required to perform tests or adjustments. ALL LOTO RULES for removal & restoring power must be followed. Upon completion of work, each employee will remove lock, rendering equipment operable when last lock is removed. The last employee responsible must assure all guards have been replaced, equipment/machine or process is cleared for operation, and appropriate personnel notified power is being restored prior to removing Lock.

LOTO emergency safety lock removal

Only designated personnel will be authorized to remove an employee's lock. Lock removal may be made under the following conditions:

- Receipt of a written request signed by the appropriate supervisor stating reason for the lock removal.
- Supervisor must follow LOTO restoring procedures.
- Verify the authorized employee (lock owner) is NOT on site.
- Conduct a reasonable effort to contact authorized employee.
- Inform authorized employee upon returning to work.

Approved LOTO devices

Specific tags and locks will be available to all authorized employees. Tags will be used in all LOTO situations.

- Tags will be standardized.
- Each tag will list name of person or supervisor requesting tagout (name of person tag is protecting).

- Locks must be used in combination with tag.
- Employee being protected must maintain lock key. Supervisor may maintain a duplicate key but cannot utilize the key without following lock removal procedures.
- Individual locks issued will specifically identify lock's owner.
- Key duplication for individual locks is strictly prohibited.
- Designated tags and locks must not be used for any other purpose than LOTO.
- Multiple lock adapters will be available for all jobs requiring more than one safety lock to be placed on an energy-isolating device.

Electrocuted worker

Do not touch anyone in contact with a power source or serious injury or death could occur. Turn off power at control panel/power source. Call 911 and inform an electrical injury has occurred. If victim is not breathing, then begin CPR. Continue CPR until medical assistance has arrived or person has been revived.

Un-interruptible power supply (UPS)

UPS systems can present both electrical hazards and possible noise exposures. Noise is generally generated not by the UPS itself, but by air movement due to ventilation requirements. Noise should be evaluated and documented. Administrative controls for electrical hazards must also be evaluated. Three systems provide power to the UPS (power company, batteries, and emergency generator). Systems must be controlled prior to service work. See Lockout/Tagout Section in this document.

Electrical fires

In case of an electrical fire:

- If smoke or flame is detected, unplug equipment involved or turn off power at main control panel.
- If fire is small, use a multipurpose fire extinguisher (ABC) to extinguish fire, if trained on the extinguisher's use.
- If fire cannot be extinguished, then sound fire alarm and leave immediately.
- Call 911. Be sure to give name, location, inform of an electrical fire, and any pertinent information about the fire.

NOTE: Never use water on an electrical fire.

Batteries

Battery rooms require employee protection be available due to sulfuric or lead acid in sealed and unsealed batteries. Protective equipment must be worn
when installing, testing and/or maintaining batteries. Lead-acid batteries can be found in Central Offices, SLC's, DLC's and fork lift trucks. Employees are required to wear the following chemical resistant personal protective equipment:

- Face shield (working around Lead-Acid batteries requires full-face shields worn over safety glasses),
- Apron,
- Gloves, (refer to Rubber Gloves and Insulating Equipment section, pg. 15)
- Safety shoes or boots.

NOTE: Proper room ventilation and chemical (acid) neutralizer must be contained in every battery room in case of a spill. Eyewash, water rinse substitution, neutralizing packs, drenching or flushing facilities must be available in locations with batteries.

COMPRESSED GAS CYLINDERS

Compressed gas cylinders

Compressed gas cylinders must be secured at all times and are dangerous when improperly stored or mishandled. Cylinders should be treated as if pressurized. Cylinders should always be secured and never thrown, banged, tilted, dragged, slid, rolled, or dropped from a truck bed or other raised surface. Never use full or empty cylinders as a roller for moving materials, work support, or other purposes.

Transporting, moving cylinders

Cylinders are difficult to move by hand because of shape, smooth surface, and weight.
Following are guidelines for cylinder transportation:

- Two or more people are required to manually lift cylinders.
- A truck or an approved cylinder handcart must always be used to move a cylinder.
- Secure all objects loaded on trucks to prevent any shifting of the load in transit.
- Vehicle wheel chocks must be used for loading or unloading cylinders to prevent movement of vehicle.
- Regulators must be removed or protected during transportation.
- Nitrogen cylinders must be transported horizontally in special compartments or racks for compliance with OSHA CFR 29 1910.268.
- Transportation of all fuel cylinders must be in vertical racks that would prevent inadvertent damage or overturn. Acetylene cylinders must never be tilted beyond a 30-degree angle. Tilting at greater than 30 degrees could result in an explosion.
- Nitrogen sling available through Procurement to assist in moving cylinder at manholes.
- Nitrogen cylinders should always be chained in a vertical position.

Inspections

Damaged cylinders may cause severe injuries, including lung damage from inhalation of toxic contents and physical trauma from explosion. Compressed gas cylinders, hoses, tubing, and manifolds must be inspected frequently to ensure no defects could cause a failure. Cylinders must be removed from service if defective, or a valve is stiff; or fittings leak; or containing: dents, cuts, gouges, digs over 3 inches long; leaks (of any size); or fire damage; or valve damage. Return all defective cylinders to the manufacturer or vendor for test and repair. Replace worn hoses and fittings before the equipment is used. Never attempt to repair, altar, or tamper with cylinders, valves, or safety relief devices. All standard size single compressed gas cylinders must be pressure tested to 5/3 (1.67) of DOT service pressure every 6 years. Cylinders must be chained in the standing position to prevent incidental fall.

DOT regulations and cylinder markings

Compressed gases (over 150 pounds per square inch) are usually stored in steel cylinders manufactured according to DOT specifications. DOT was formed in 1969 and acquired responsibility for cylinder specifications, formerly issued by the ICC (Interstate Commerce Commission). DOT regulations require the following markings on all cylinders:

- Type of cylinder and pressure rating
- Serial number
- Inspection date

Example: DOT 3AA 2065 973487 6/90

Field	Description
DOT 3AA	indicates DOT specification 3AA, which is a seamless alloy-steel cylinder of definite prescribed steel, not over 1000-lb. water capacity, with at least 150-psi service pressure.
2065	service pressure at 70 degrees F and maximum refill pressure.
973487	manufacturer's serial number.
6/90	date of the initial qualifying test.

NOTE: Cylinders made prior to 1970 will have "ICC" in the markings, where cylinders made after 1970 will be marked "DOT." The other identification markings are unchanged.

Storing cylinders

Following are guidelines for storing cylinders:

- Pressure regulator must be connected or safety cap must be in place and chained to a cart or a permanent structure. A pressurized gas cylinder can become a dangerous projectile if valve is broken or damaged.
- Valve must be kept closed.
- Ensure cap is on when not in use.
- Disconnect regulator when storing.
- Cylinders must not be lifted by the safety cap.
- Cylinders containing compressed gases should not be subjected to temperatures above 125 degrees F.
- Cylinders must not be subjected to low temperatures. Many ferrous metals become extremely brittle at low temperatures. The loss of ductility and thermal stress at low temperature may cause a steel cylinder to rupture.
- Twenty feet or a half-hour firewall five feet high must separate fuel gas storage from oxygen storage.

NOTE: Notify Regional EHS Manager providing details and cylinder serial number for foreign substances having entered cylinder or valve.

Fuel, welding precautions

Cylinders used in conjunction with electric welding, must not be grounded and burned by electric welding arc. All Oxygen/Acetylene rigs must use a flash arrestor. Flames, sparks, molten metal, or slag must never come in contact with any part of a compressed gas cylinder, pressure apparatus, hoses, or any part of the system. Do not place cylinders where becoming part of an electric circuit is evident.

AERIAL

Bucket trucks/digger derricks

Only properly trained and equipped employees may operate bucket trucks. The operator's manual must be kept in the vehicle and must be read and understood by operator prior to the vehicle's use. The operator must conduct a daily inspection of the vehicle, including:

- Booms(s) for loose objects.
- Under the truck for evidence of hydraulic leaks and proper fluid levels.
- Loose nuts and bolts.
- Strobe(s) and other emergency lighting.
- Damages and proper inflation.
- Condition of wheel chocks.
- Harness and lanyard.
- Operating controls for signs of wear, contamination or any other condition that might interfere with proper operation.
- Other inspections as required by the operator's manual.
- Cycle unit from ground controls position to ensure proper operation.
- Outrigger, pads and leveling system for proper operation.
- Bucket in good working condition and vehicle housekeeping.
- Boom must be in cradle firmly before driving vehicle.
- Any employee not strapped in while in the bucket will be subject to disciplinary action.

Vehicles with bucket - electrocution hazard

A major hazard related to vehicles equipped with a bucket is electrocution.
Vehicles may not be operated with any conductive part of the equipment exposed to energized power lines closer than the clearance set below:

Voltage range (phase to phase, RMS)	**Approach Distance (inches)**
300 V and less	Avoid contact.
Over 300V, not over 750V	12
Over 750V not over 2 kV	18
Over 2 kV, not over 15 kV	24
Over 15 kV, not over 37 kV	36
Over 37 kV, not over 87.5 kV	42
Over 87.5 kV, not over 121 kV	48
Over 121 kV, not over 140 kV	54

NOTE: No digger derrick head shall come closer than 3 ft. of any energized conductor>750V.

Vehicles with bucket - fall hazard

An additional hazard to vehicles equipped with a bucket is the potential for a worker to fall. Following are guidelines for workers in aerial buckets:

- A properly fitted full body harness and lanyard, hard hat and eye protection must be worn.
- Lanyard must be attached to manufacturer supplied anchor points.
- Lanyard must never be attached to the strand or any other object.
- Refer to the operator's manual for the weight capacity of the bucket on vehicle to prevent overloading.
- Wheel chocks must be used for all aerial work.
- Bucket must not be used when vehicle is parked at a slope greater than 5 degrees.
- Boom must never be used for entering or leaving bucket.
- Only qualified persons are allowed to operate aerial lift. Formal and refresher training is required every two years.
- Climbers/gaffs must be removed prior to using aerial bucket.
- To loosen pole, use a pole jack, not the boom.
- Any employee not wearing the appropriate personal protective equipment or is not strapped in while in the bucket will be subject to disciplinary action.

Operating a digger derrick

Only qualified and trained workers may operate digger derricks. Moving parts of equipment and machinery carried on or mounted on trucks must be guarded.
Derricks and operation must comply with the following:

- Manufacturer's specifications, load ratings and instructions must be strictly observed.
- Rated load capacities and instructions related to derrick operation must be posted conspicuously on a permanent weather-resistant plate or decal in a location plainly visible to derrick operator.
- Prior to derrick operation, parking brakes must be set and stabilizers extended if vehicle is equipped.
- Wheel chocks must be used when operating the derrick.
- Hand signals to derrick operators must be those outlined in ANSI B30.6-
- 1969 "Safety Code for Derricks."
- Wire rope used with derricks must be of improved plow steel or equivalent.
- No installation of joint poles without the employee being properly trained and provided with the appropriate PPE in accordance with OSHA regulation.

Digger-Derrick electrocution hazard

Derricks used to place, move or remove a pole, all necessary precautions shall be taken to avoid contact with energized power conductors or equipment. Equipment must not be operated with any conductive part closer to energized power lines as stated in Vehicles with bucket -electrocution hazard in this document. Specific guidelines are:

- Digger-Derrick must be grounded with approved ground cord and properly installed ground rod before placing, holding, or removing pole (metallic structures, fence posts, and guard rails shall not be used to attach ground cord).
- Approved ground cords shall be used when placing strand and cable.
- Joint poles being placed or removed must be insulated with either a rubber insulating blanket, fiberglass box guide or equivalent. OSHA rules are minimum guideline. Consult and coordinate with local electrical energy provider and Regional EHS Manager on appropriate PPE and training.
- Class II insulating rubber gloves must be worn when handling pole with either hands or tools where pole may contact a power conductor. The insulating rubber gloves must have a current certification date and be tested before and after each use.
- When on the vehicle carrying the derrick, avoid all contact with the ground, with persons on the ground and with any grounded objects such as guys, tree limbs or metal signposts.
- If needing to enter or leave the vehicle where the possibility of electrical contact, then step onto an insulating blanket to break the contact with either the vehicle or ground. If a blanket is not available, jump clearly from vehicle.
- No digger derrick head shall come closer than 3 ft. of any energized conductor>750V.

NOTE: Derricks used to place poles near energized power conductors may come closer than distances in Vehicles with bucket -electrocution hazard, if:

- Employee is insulated or guarded from energized parts by using insulated gloves.
- Energized parts are insulated or guarded ("rubbered") from employee and any other object at a different potential, **or,**
- Power conductors and equipment are not energized and grounded.

Roof top installation

Employees who perform roof top installations require certification and periodic updated training. They must have the appropriate fall arrest system which is available by ordering through the company "Compliance in a Can".

Fall arrest systems

Employees required to work from surfaces in excess of 4 ft. above an adjacent safe work place and are unprotected by railings, the following procedures and guidelines must be applied:

- Approved fall arrest systems are required. A recommended fall arrest system consists of a full body harness, a shock absorbing lanyard with a breaking strength of 5,000 lb. and a maximum length to provide for a fall no greater than 4 feet, and an anchored hook up location separate from the primary support.
  NOTE: In the State of Connecticut, on an interim basis, employees will still be allowed to use their OSHA approved restraint (single harness and 2 ft. lanyard with sliding D-ring).
- Extension ladders must be secured with a safety strap at top or as high as possible.
- Responsibility of supervisors is to plan each job to ensure proper precautions are taken.

NOTE: Fall arrest systems are not required when work is being done while standing on a ladder.

Aerial platforms

Aerial splicing platforms must be inspected before each use. The following items must be checked:

- Boards for cracks, excessive wear, poor finish, paraffin and solder droppings.
- Hardware for defective welds, saddles, snaps and hooks.
- Bolts or screws missing or loose.
- Rope for abrasion, broken fibers, cuts, burns, soft and loss of stretch, mildew, mold and change of color.
- Rope for correct knots and ties in saddles and hooks.

NOTE: The following precautions must be taken before placing and using aerial platforms:

- Employee must be trained and have appropriate PPE.
- Test strand before placing, using two man test or equivalent.
- Do not place on 220 pound strand or any size pole to building strand.
- Platforms placed in excess of three feet from a pole shall be tied to a ladder.
- Ladders used for guy rope tying shall be secured to the strand by the two-rope method.
- Body belts and safety straps must be worn when placing, removing and working on a platform.
- The safety strap must be secured to the strand before stepping from a pole or ladder to a platform.
- All items on the platform must be secured.

UNDERGROUND SHORING/TRENCHES

Purpose

Practice was developed to meet needs of personnel for use in OSHA construction standards. Standards have been edited and condensed to provide necessary information required for all Telephone Company Work Operations. Excavations and trenching dangers require not only caution but also training and equipment to control. Issues of underground utilities, trench depth, soil type, hazardous atmospheres, and means of egress must be understood and addressed. Corporate safety practice should be used as a minimum guideline. Employee training must be completed prior to any excavation or trenching.

Excavating requirements

Excavation and trenching must meet minimum OSHA guidance for shoring sides. Each employee, in excavation, must be protected from cave-ins by an adequate protective system where excavation is ***both*** less than five (5) feet in depth ***and*** examination by a competent person determines no indication of a potential cave-in.

- Ensure all underground utilities have been located.
- Ensure necessary easements or permits have been obtained prior to starting work.
- Close as much trench as practical at end of each day of work
- For work located in pastures or grazing lands, livestock should be removed before starting work. Open excavations left unattended should be protected with temporary fencing or planking of sufficient strength to protect livestock.

NOTE: To be deemed competent, person must be thoroughly trained in determination of soil conditions, equipment use, support, shoring, and safety procedures.

Soil classifications

Only a person trained in soil inspection can determine type. Soil classifications are determined by both of the following means:

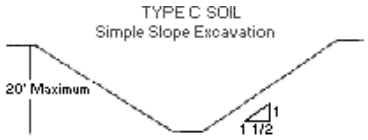
- Visual inspection, and
- Manual inspection.

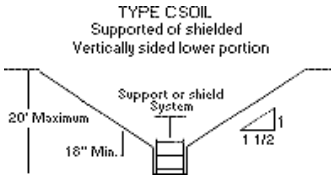
Soil Classification	Description
Type "A"	Clay, hardpan and previously undisturbed earth are some types of "A" soil.
Type "B"	Cohesive soil with an unconfirmed compressive strength greater than 0.5 ton per square feet (tsf) but less than 1.5 tsf. Granular cohesiveness soils including angular gravel (similar to crushed rock), silt, silt loam, sandy loam, and some cases of silty clay loam.
Type "C"	Subject to vibration from heavy traffic, previously disturbed soil, sandy soil and soil from which water is seeping.

NOTE: Frontier has classified all soil, which involve excavations, as Type "C".

Sloping systems

For type "C" soil, excavations shall be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal). 1 1/2H: 1V.





CONFINED SPACES – issue date 06/01/2017

Utility holes, unventilated cable vaults and attics are examples of confined spaces workers may encounter. A "confined space" is any space:

- large enough for a person to enter and work; and
- having limited or restricted means for entry or exit; and
- not designed for continuous employee occupancy.

Confined space policy

Frontier employees or contractors may not enter a confined space unless trained in confined space entry under rules of both Telecommunication Standard (29 CFR 1910.268) and Confined Space Standard (29 CFR 1910.146).

NOTE: Violation of either OSHA standards or Frontier rules will result in immediate termination of work operation.

Stages of manhole entry

Principles apply to all types of confined space, but if in doubt of safety contact supervisor or Regional EHS Manager. Following stages must be followed when entering a manhole:

- Test,
- Purge, and
- Ventilate.

Testing devices

As of January 1, 2015, at least a 3 continuous gas meter is required. The Company standard for gas detection requires the ability of the device to continuously monitor for the presence/levels of the following gases: oxygen, carbon monoxide, and the lower explosive limit (LEL) of known gases. Any meter that tests for the presence of hazardous atmospheres must be in good working order. In general, this requires that the batteries must be charged to a level sufficient for operation for the duration of the monitoring activity. The meter must be properly calibrated and a current calibration sticker must be affixed to each device. Refer to and follow procedures in manufacturer's manual for the device to ensure ability to work safely in confined space.

NOTE: Older style "explosion meters" should be upgraded to Company standard devices when they require repair or replacement. To obtain information on standard devices, contact Regional EHS Manager.

Testing stage

Every utility hole opened for the first time of the day or reopened after having been closed for any period of time, **must** be tested as follows:

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>Insert sampling tube into opening in cover to a depth of six (6) inches.</td></tr>
<tr><td>2</td><td>Squeezing bulb twice for every foot of tubing to obtain a sufficient sample for an accurate reading.

NOTE: If any amount of combustible gas is present, perform test again. If second test shows presence of combustible gas, then do not open cover of utility hole and call supervisor.</td></tr>
<tr><td>3</td><td>Open cover of Utility hole.</td></tr>
<tr><td>4</td><td>Lower sample tubing to middle and bottom to test both locations for further testing prior to entry.</td></tr>
<tr><td>5</td><td>
<table>
<tr><th>IF…</th><th>THEN…</th></tr>
<tr><td>no alarm sounds</td><td>begin purging stage.</td></tr>
<tr><td>alarm sounds</td><td>do not enter.</td></tr>
</table>
</td></tr>
</table>

Hazards

Four types of hazardous atmospheres must be considered and tested before entry and during work operation in confined space. Testing and continuous monitoring are required at all times to ensure a safe working atmosphere.

Hazard	Description
Combustible	Flammable or combustible vapors/gases in sufficient concentrations form a combustible atmosphere. Cause of vapors, gases or liquids may have been from above ground, underground storage or piping of liquids or gases such as gasoline, natural gas, LP gas or propane.
Toxic	Two types of toxic atmospheres are carbon monoxide (CO), an odorless gas generated by internal combustion engines, and hydrogen sulfide (H2S), a gas with a rotten egg – like smell created by decomposition of organic matter.
Oxygen deficiency	Normal amount of oxygen in air is 21%. Any atmosphere with an oxygen content below 19.5% is considered to be oxygen deficient. Presence of inert or other gases, decomposition of organic matter, and oxidation can cause oxygen deficiency.
Oxygen enrichment	An atmosphere containing oxygen concentration levels greater than 23% leads to uncontrollable combustion. An oxygen-enriched atmosphere can be caused by oxygen producing equipment or processes and is hazardous.

Purging stage

After testing is complete, next purge utility hole of old atmosphere:

Step	Action
1	Insert blower hose into hole until approximately centered.
2	Run blower for a minimum of ten minutes to ensure elements will be exhausted and to establish flow of fresh air.

NOTE: Refer to training materials for details on exact placement of blower hose, duration of purge and correct procedure in configuration for utility hole.

Ventilation stage

Continuous ventilation **must** be maintained for duration of operation in confined space. If ventilation equipment fails then leave utility hole and correct problem, retest, and purge prior to re-entry. Proper placement of ventilator is important and workers must be aware of hazardous conditions such as proximity to traffic or other sources of exhaust gases.

NOTE: Position detector in breathing zone for duration of presence in utility hole. If alarm sounds while in confined space, leave immediately. Make determination for cause of alarm from a position of safety. Do not re-enter until alarm condition is corrected and atmosphere is re- tested with detector.

Confined space procedures

Stage	Description
1	Upon arrival at the work site, work area protection must be established. See Work Area Protection for additional protections.
2	Railing and ring guards must be used for open utility holes or vaults to prevent incidental falls into opening. Ring guards will protect employees in utility hole from foreign objects entering utility hole such as debris and water. **NOTE:** Utility hole should never be left open when workers are not present.

3	An attendant must be present to assist entrant if another utility has facilities in utility hole. If attendant is required, then an attendant: ♦ Must be trained in first aid. ♦ Must be available on surface to render emergency assistance. ♦ Primary responsibility is safety of the entrant. ♦ May enter utility hole briefly to provide assistance, other than emergency.
4	Prior to pumping (if necessary) determine if water is contaminated (EHS office may be called to help make this determination). Signs of contamination include strong odors, sheen and discoloration. Special environmental measures may be necessary for the proper removal of the water. Consult supervisor or Regional EHS Manager.
5	If vehicular or pedestrian hazards or water hazards cannot be controlled through normal methods, an attendant may be required.

Permit for confined spaces

Generally, a permit is for confined space meeting the following criteria:

- Contains or potential to contain a hazardous atmosphere.
- Contains a material with potential to engulf an entrant.
- Has an internal configuration causing entrant to become trapped or asphyxiated.
- Contains any other recognized serious safety or health hazards.

Permit exceptions

Most telecommunications utility holes are not permit-required spaces and are allowed to abate potentially hazardous atmospheres by the test – purge – ventilate procedure. Most holes are not configured so that an entrant would be trapped. And, except for water, most do not contain material that could engulf an entrant.

Utility holes on private property

If utility hole is on private property and property owner is aware of hazards, a mandate may treat hole as a permit-required space. Be alert to signs on customer premises that would warn of permitted entry requirements such as "Permit Required Confined Space – Do Not Enter" or "Only Qualified Employees May Enter".

Emergency response for confined spaces

To prevent a confined space emergency from creating multiple victims, all employees discovering or responding to an emergency in a confined space should perform the following:

Step	Action
1	Call 911 or emergency medical services. Indicate a medical emergency in a confined space requires special rescue equipment and provide a location address. **NOTE:** Never enter a utility hole to rescue anyone.
2	Ensure ventilation system is in place and operating. If possible, relocate hose opening close to victim's mouth and nose. Re-establishment of proper breathing atmosphere may revive individual. Ensure fresh air is being pumped in and not equipment exhaust fumes. Use gas detection meter while waiting for emergency response personnel to sample atmosphere in the confined space.
3	Make sure area is safe, and if possible, re-arrange space to accommodate emergency responders. Never enter the confined space.
4	Talk with conscious workers to gather information and assure help is on the way.
5	Place call to injured person's supervisor to alert of emergency.
6	Brief emergency response personnel with information pertinent to assist in rescue. **NOTE:** Emergency response personnel will take control upon arrival and will provide any additional actions to be taken.

TRAILERS/FORKLIFTS/TRUCKS

Purpose

Only trained, competent persons are permitted to operate forklifts or other types of powered industrial trucks.

Training- initial

All new operators must demonstrate knowledge and skill necessary to operate powered industrial trucks safely. Formal instruction will be conducted so an operator will be knowledgeable on:

- Specific hazards associated with type truck.
- Basic principles of stability.
- Specific hazards associated with location and materials employee will encounter on job.
- Proper maintenance and fueling/charging practices.
- Demonstration in the ability to safely handle powered industrial truck will be required.

NOTE: Supervisors **must** be trained and certified.

Training- refresher

Refresher training will be required if:

- Operator is involved in an incident or near miss incident.
- Operator has been observed operating the vehicle in an unsafe manner.
- Evaluation reveals deficiencies.
- Changes in workplace or materials handled affect safe operation of truck.
- Operator is assigned to a different vehicle.

Periodic evaluation

Evaluation of each operator's performance will be conducted at three-year intervals.

Vehicle refueling/recharging

Fuels used for powering an industrial truck are potential hazards. Instructions contained in the owner's manual for refueling or recharging must be followed.
Federal, state and local codes for the safe handling and storage of fuels must be followed, including use of personal protective equipment, storage of flammables or placement of eyewash stations. Contact Regional EHS Manager for details and assistance.

Load path safety

Loads moved with any material handling equipment must not pass over any personnel. Equipment supported by material handling equipment must have a redundant supporting system capable of supporting all loads that could be imposed by failure of the mechanical handling equipment. Lower load to working surface and secure material handling equipment before leaving unattended. Never leave a suspended load unattended.

WORK AREA PROTECTION

Purpose

This section provides general issues for Work Area Protection. Telecommunication Standard, for OSHA, requires warning signs and/or flags or other traffic control devices when workers are exposed to vehicular or pedestrian traffic. Devices must be placed conspicuously to warn and channel approaching traffic. All states and most local municipalities have rules, and use USDOT's Manual on Uniform Traffic Control Devices.

Fundamentals

Check with local authorities for guidance on work area protection requirements or contact your Regional EHS Manager for specific local requirements. Three fundamental concepts are involved with Work Area Protection:

Fundamental	Concept
Warn	Motorists and pedestrians must be alerted when approaching an area where work is taking place.
Guide	Motorists and pedestrians must be shown how to proceed safely around or through the work area.
Protect	Work area boundaries must be clearly established by placement of vehicles, equipment, barricades, cones, tapes or other markings, which are appropriate for conditions.

Work site evaluation

Begin the process of Work Area Protection in the cab of vehicle by observing site. Consideration should be given to sight lines to area (curves, hills), weather conditions which impact reaction time and stopping distances and portion of roadway occupied during work. Speed of traffic should always be a factor in work area set up. Typical scenarios and appropriate work area set- ups can be found in various federal and state publications. For more information contact Regional EHS Manager.

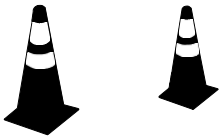
Warning devices

Advance warning devices for traffic control should be placed in a sequence starting from the furthest point and removed last from the work zone. Signs placed will provide motorists time to react. Signs may include pictograph type such as a person working, flag person or script such as "No Shoulder" or "Lane Closed".

NOTE: Follow local requirements for placement sequence, intervals and distances. Contact Regional EHS Manager or refer to training materials for details.

Channeling devices

Effective device used for channel traffic around or through a work zone is the traffic cone. Company standard traffic cone is 28 inches in height, high visual orange with two reflective horizontal stripes. Placement, spacing and length of cone tapers are governed by local regulation.



Protection in work zone

Motor vehicles equipped with flashers and/or rotating beacons may serve as a very effective barrier for vehicular traffic. Vehicles should be placed between work area and oncoming traffic, and hit first if a motorist enters the workspace.

- Company requires Class 3 Hi-Viz safety vest in work zones.
- Company requires workers in public right of way to wear safety glasses and hard hat. Check local regulations for additional requirements.
- Reflective tape and lighting are required at night. Beacon and four way flashers must be utilized.
- Care should be taken to protect pedestrian when setting up work zones.

Flag person

Flag persons shall be utilized in work situations where signs, signals and/or barricades do not provide necessary protection or guidance.

- Follow local guidelines on flag directing.
- Flag persons protect fellow workers and public by safely directing traffic through work area.
- Flag persons must be physically capable and mentally alert at all times.
- Frontier requires the use of flag persons with documented training.
- Some localities require a flag person to have attended formal training, certified, and wear Class 3 Hi-Viz vests.

Guidelines for flag person

Following are guidelines for flag persons:

- Consult local authorities for exact procedures required in work area.
- Flag person shall wear a Class 3 Hi-Viz vest with night reflective material while flagging. Some states require flag persons to wear a different colored vest than rest of crew such as Illinois.

- Preferred method of signaling is by use of paddle. Consult local rules for the specifications for paddle. However, paddles should not be used in locations where display in opposite direction would be inappropriate or misleading.
- Signaling by flag person may be by use of orange flags at least 24 inches square
- Signal light, such as flashlight with orange wand, is used in darkness at a lighted flag station.
- Flag person shall control traffic in accordance with DOT Regulation Hand or Sign Signals.

No signal intended

If signaling device is present, but not to be used, the following will apply:

IF signaling device is…	THEN…
flag	flag should be held at rest with staff in a vertical position at side.
light	light should be extinguished or held at rest in a vertical position at side.
paddle	paddle should be removed from view of approaching traffic.

Signal traffic to stop

Steps for signaling traffic to stop:

Step	Action
1	Face traffic being directed to stop.
2	Hold signaling device in hand closer to path of traffic. **NOTE:** Free hand may be raised with open palm facing traffic being directed to stop for more emphasis.
3	**IF signal device is… THEN…** paddle — rotate paddle to "STOP" is visible to motorist. flag — signal flag should be extended horizontally and held in a stationary position over the affected travel path so full flag area is visible.

NOTE: Never turn back on stopping traffic until vehicles have come to a complete stop.

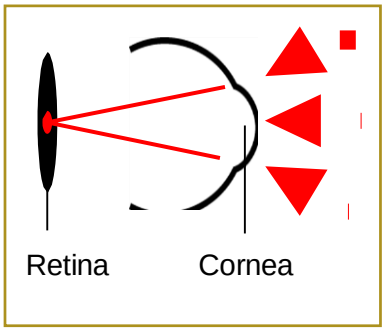
Signal traffic to reduce speed

Step	Action
1	Face approaching traffic being directed to reduce speed.
2	Hold signaling device in hand closer to traffic flow path. Arm should not be raised above the shoulder height. **NOTE:** Flag person may slowly raise and lower the free hand with the palm down.
3	**IF signal device is... THEN...** paddle — turn the paddle to "SLOW" facing toward approaching traffic. flag or light — Device should be moved up and down slowly in an arc between a vertical downward position and a horizontal extended position.

Signal traffic to proceed

Step	Action
1	Face the traffic directed to proceed.
2	**IF signal device is... THEN...** paddle — rotate "SLOW" side of paddle. signal flag or light — Lower flag or light to a rest position by side.
3	Turn parallel to traffic flow.
4	Direct traffic to proceed with a horizontal motion of the free hand along the traffic flow direction. **NOTE:** Flag must not be waved.

LASER/FIBER OPTICS



Hazards of laser exposure

Laser energy can damage the retina and/or cornea when it is high-powered. High-energy lasers may also cause severe burns to skin. At no time should an employee ever look directly into a high- powered laser beam, or reflection of a beam, even when wearing laser safety glasses.

Activities with potential exposure

Activities with potential radiant exposure are:

- Mechanical splicing/connections.
- Viewing fiber/connector with microscope or loop.
- Testing:
- Fusion Splicing,
- Light sources,
- Network analyzer (e.g., T-BERD 310A),
- OTDR,
- Power meters, or
- Repairing severed cable.

Laser classification

Optical Fiber Communication Systems (OFCSs) are Class 1 systems. Systems are rated Classes 1, 2, 3 or 4, based on ability to damage eyes and/or skin. Under normal operation and maintenance, Class 1 systems are incapable of producing potentially hazardous radiation levels.

Service group

Service Group	Potential Hazard
SC-3a	May be viewed with unassisted eye protection (corrective lenses OK) for short periods but requires additional controls if viewing with loop or microscope.
SC-3b	May cause eye damage when viewed with unassisted eye protection even for short periods of time. Requires medical surveillance and protective eyewear for diffused light.

NOTE: Only authorized trained personnel may install or perform service on SG-3a, SG-3b, or SG-4.

Broken, severed or disconnected cable

- Never examine, stare or look directly into cable.
- Assume fiber is energized until off verification is made and will not become energized.
- Contact others to turn off circuit when feasible.
- Use power meter to verify circuit is off.
- De-energize affected part of OFCS.
- Arrange for trained service person to de-energize OFCS and repair/replace optical fiber or cable.
- Control area to prevent risk to others.

Safe practices

- Read and follow all labels, cautions, and warnings.
- Assume every cable or fiber is energized.
- Never look directly into an open ferrule or connector.
- Cap any open connector.
- Wear appropriate eyewear, as required.

OPTICAL/LASER EYEWEAR SAFETY DIRECTIVE

Purpose

This directive is to ensure safety and health of Company employees working on or around Optical Fiber Communication Systems (OFCS) containing laser diodes.
Directive is not intended to supersede or replace other safety precautions to be followed when working on lasers, such as powering down prior to commencement of work.

Applicability of directive

Applies to employees, and contractors regularly working on or around OFCS containing laser diodes equal to or greater than 850nm, but no greater than 1700nm. Employees or contractors regularly performing work on or around OFCS with a laser greater than 1700nm must contact the Environmental Health and Safety office prior to commencing work.

Directive

Employees must wear laser eyewear, approved by the Environmental Health and Safety Office, whenever working on or around OFCS with a laser diode equal to or greater than 850 nm and in SG3b or SG4 service groups (SG3a group if optical instruments are used). Eyewear can be obtained through employee's manager/supervisor, in same manner as other personal protective equipment.

Contractors, working on behalf of Frontier, on or around OFCS containing laser diodes equal to or greater than 850nm must wear and provide own protective laser eyewear.

Eyewear standard

All laser eyewear used by Frontier employees and contractors must meet applicable laser standards as defined in ANSI Z136.2, and safe use of laser requirements in ANSI Z87.1.

Nominal Hazard Zone classification

Nominal hazard zone classifications are:

Service Group	Classification
SG2 and SG3a	10cm
SG3b	100 cm
mode field diameter is 8.8 um and the wavelength is 0.825 um	700 cm

Precautions and using eyewear

- Never look directly into a laser beam, even if wearing protective laser eyewear.
- Check to ensure wavelength(s) listed on eyewear corresponds to wavelength(s) of laser being used.
- Read Warning Labels on OFCS and instructions provided with laser eyewear prior to commencing work.
- Laser eyewear provides no protection for direct or reflected beams, only stray light and diffuse viewing.
- Ensure laser eyewear fits securely to provide optimal protection.
- Inspect laser eyewear for damage prior to each use, such as pitted,
- cracked, crazed, scratched, discolored or other damage. Replace damaged eyewear prior to commencing work.
- Never use laser eyewear as sunglasses or while operating a motor vehicle.
- Never make any modifications or remove any part of laser eyewear.

Medical monitoring

Included in medical monitoring program are personnel assigned to routinely work on energized SG3b and SG4, SG3b optical test equipment, or SG1 test sets on OFCS containing SG3 or SG4 amplifiers, or performing splicing operations on SG3b or SG4 OFCS. Employees working in the general vicinity of OFCS but not routinely within the nominal ocular hazard zone or nominal hazard zone of an emitting optical fiber will not be included in the program. Participants in the medical program should have a baseline eye exam consistent with Appendix E of ANSI Z136.2.

Caring for laser eyewear

- Keep laser eyewear in protective case when not in use.
- Wash laser eyewear in mild soap and water. Rinse in clean water. Air- dry or pat dry with clean, soft tissue.
- Do not use ammonia, alkaline cleaners, or abrasive cleaning compounds or solvents on laser eyewear.
- Certain solvents may lower the impact resistance of laser eyewear.