



COUNTY OF NORTHERN LIGHTS

POLICY

FLAMMABLE & COMBUSTIBLE SUBSTANCES

CREATED: 2/9/2025

REVISED:

TOTAL PAGES: 7

PURPOSE

The purpose of this program is to provide fire safety planning regarding fire, explosion, combustible materials, and appropriate planning and procedures required to minimize risk to operations.

SCOPE

This program applies to all workers and all locations of company operations.

RESPONSIBILITIES

Safety Officer

The safety officer is responsible for developing procedures for the design of fire safety plans and procedures at each work site. The site manager is responsible for implementing the requirements and training at his or her location. The supervisors are responsible for enforcing the provisions of this section of the safety manual. All workers are responsible for following these provisions.

Worksite Project Manager

Responsible for the implementation and maintenance of the fire and explosion prevention program for their facility and ensuring all assets are made available for compliance with the procedure.

Employees

All workers are responsible for following these provisions and attending specified training.

PROCEDURE

Assessment for Fire and Explosion Hazards

A site-specific assessment for fire and explosions shall be developed for each project. The Safety Officer will perform a written assessment review.

Fire Safety Plan

Management will factor the following into the hazard assessment and development of the site-specific fire safety plan and shall:

- Take all reasonably practicable steps to prevent the outbreak of fire at a place of employment and to provide effective means to protect workers from any fire that may occur;
- Develop and implement a written fire safety plan that provides for the safety of all workers in the event of a fire. A plan developed must include:
 - the emergency procedures to be used in case of fire, including: sounding the fire alarm, notifying the fire department and evacuating endangered workers, with special provisions for workers with disabilities;
 - the quantities, locations and storage methods of all flammable substances present at the place of employment;
 - the designation of persons to carry out the fire safety plan and the duties of the designated persons;
 - the training of designated persons and workers in their responsibilities for fire safety;
 - the holding of fire drills at least once during each 12-month period; and
 - the control of fire hazards.
- Suitable procedures are developed and implemented to prevent the ignition of flammable liquids or explosive dusts that are present at a worksite;



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- All sources or potential sources of ignition are eliminated or controlled where an explosive atmosphere exists or is likely to exist; and
- Static charge accumulations during transfer of flammable liquids or explosive substances from one container to another are prevented by electrically bonding the containers or otherwise designed to control the presence of static electricity.

Other Planning Requirements

- No worker shall enter a workplace where a flammable or explosive substance is present in the atmosphere at a level that is more than 10% of the lower explosive limit of that substance.
- Only if in a life-threatening emergency exposure of emergency response workers is permitted above 10% of the LEL provided that only the minimum number of those qualified and properly trained and equipped workers necessary to correct the unsafe condition is exposed to the hazard and every possible effort is made to control the hazard while this is being done.
- When portable flare stacks are used these must be located a minimum of 25 meters from the hazardous location.
- Good housekeeping and preventative maintenance on all equipment shall be maintained to prevent fire hazards from occurring.
- Smoking must be confined to areas specifically designated by management. Smoking is not permitted while around any active/functioning hydrocarbon clean-up/vacuuming equipment, around compressed gas cylinder storage locations or at any company or client designated "No Smoking" areas.
- Oily/greasy rags, paper waste, and other flammable trash will be removed and disposed of in covered metal containers or appropriately marked safety cans, or in over-pack spill containers, whenever these sources are generated, for the prevention of spontaneous combustion.
- Matches or cigarette lighters should not be taken into any area where an explosive atmosphere may be present.

Fire Potential and Response Procedures

- All leaks of flammable liquids will be reported immediately and repaired if practicable. If immediate repair is not possible, all spark-producing operations within the vicinity of the leak or spill will be stopped and adequate warning signs or barricade tape will be posted until the hazard is controlled or eliminated.
- If a worker's clothing is contaminated with a flammable or combustible liquid, the worker must avoid any activity where a spark or open flame may be created or exists, remove the clothing at the earliest possible time and ensure that the clothing is decontaminated before it is used again. If a worker's skin is contaminated with a flammable or combustible liquid, the worker must wash the skin at the earliest possible time.
- All fires at a worksite shall be reported to supervisory personnel immediately. A written incident report will be filed by the immediate supervisor in charge of that area once the fire has been addressed.

Fire Extinguishing Theory

Fire is a chemical reaction that occurs when a fuel rapidly unites with oxygen in the presence of a heat source, and a flame is produced. Four elements are necessary to produce and support a fire:

- Fuel source (solid - liquid - gas)
- Heat source (a type of energy)
- Oxygen source (gas for ignition and flame support)
- Chemical chain reaction (occurs when fuel, heat & oxygen are united in the proper proportions to create a fire).

If any one of these four elements is eliminated, the fire will go out. There are four ways that a fire can be extinguished:

- Isolate, contain, separate, cover, or remove the fuel source.
- Remove the heat source by applying a cooling agent which absorbs the heat. Water is the most common cooling agent used to remove the heat from the reaction.



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- Separate the oxygen from other essentials that make a fire by smothering the fire with a wet blanket, throwing soil or sand on it, or covering it with a chemical foam or water fog.
- Stop the chemical reaction by applying certain chemical substances that break up this chain reaction, such as sodium bicarbonate (baking soda) or potassium bicarbonate ("purple K") or sodium monophosphate (ABC dry chemical). Application of these chemicals will result in a reduction of the combustion rate and the fire can be extinguished.

Fire Classification

There are 3 basic fire classification types present within company operations and most host-facility jobsites. A specific class of fire extinguishers may be required based on the type of situation. The classifications are:

CLASS "A" - Fires that involve paper, wood, cardboard, textiles, etc. Foam or water-based liquids are used to extinguish this type of fire.

CLASS "B" - Fires that involve flammable liquid such as gasoline, diesel, grease, oil, paint, solvents, etc., dry chemicals, carbon dioxide or water in a spray-fog form are used to extinguish this type of fire.

CLASS "C" - Fires involving electrical equipment. Dry chemical or carbon dioxide is used to extinguish this type of fire.

Warning: Never use water to extinguish this type of fire due to the potential for electrical shock hazards.

Incipient Stage – Portable Firefighting Procedure

If personnel discover a fire in its early incipient (small) stage, initiate the following procedure if on company locations: (if servicing a host-facility client, observes that client's contractor requirements concerning fire prevention.)

- Remain calm
- Report the fire to appropriate supervisory personnel
- If personnel believe the fire can be controlled through the use of a fire extinguisher and personnel are properly trained in the use of a fire extinguisher, seek out and remove the closest fire extinguisher from its securing location in the area of occurrence and put out the fire.

Miscellaneous

Garbage that may constitute a fire hazard is stored in covered receptacles. Where garbage may constitute a fire hazard is present Management shall provide covered receptacles for the garbage that are suitable to the nature of the hazard. A person must not enter or work at a work area if more than 20 percent of the lower explosive limit of a flammable or explosive substance is present in the atmosphere. Atmospheric testing results will be assessed before a worker is exposed. Hydrocarbon resistant gloves will be worn to prevent skin absorption by the hands.

Vehicle & Combustion Related

- No worker shall undertake any servicing or maintenance of a vehicle while a flammable liquid or gas or an explosive substance is loaded into or unloaded from the vehicle or is present in the vehicle in any place other than the fuel tank.
- Any driver who operates a vehicle that contains a flammable liquid or gas or an explosive substance shall ensure that the engine of the vehicle is shut off during the connection or disconnection of the lines for the loading or unloading of the flammable liquid, gas or explosive substance.
- All internal combustion engines in a hazardous location shall have combustion air intakes and exhaust discharges that are equipped with a flame arresting device or they will be located outside the hazardous location. Whenever possible, internal combustion engines should be located outside the hazardous location.
- Internal combustion engines in a hazardous location should not be running if possible. Management must ensure that an internal combustion engine in a hazardous location has a combustion air intake and exhaust discharge that are equipped with a flame arresting device located outside the hazardous location. Management must ensure that all the surfaces of an internal combustion engine that are exposed to the



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atmosphere in a hazardous location are at a temperature lower than the temperature that would ignite a flammable substance present in the hazardous location or shielded or blanketed in such a way as to prevent any flammable substance present in the hazardous location from contacting the surface.

- All diesel engines to be used with in hazardous locations shall be equipped with positive air intake shutoff valves.

Procedures for Handling and Storage of Cylinders & Gases

Each facility will follow Alberta requirements regarding storage and use of compressed and liquefied gas. There shall be safe handling and storage of flammable substances. Management must ensure that flammable substances stored or used at the work area will not be in sufficient quantity to produce an explosive atmosphere if inadvertently released, are not stored within 30 metres of an underground shaft, are not stored in the immediate vicinity of the air intake of a ventilation supply system an internal combustion engine, or the fire box of a fired heater or furnace, and are stored only in containers approved to CSA Standard B376-M1980 (R2008), Portable Containers for Gasoline and Other Petroleum Fuels (or current version).

All compressed gas cylinders will be stored in their appropriately marked secured (chained) locations and capped when not in use. If in use, all hook-up hoses and equipment used for hot-work purposes will be inspected prior to use. Defective equipment found shall not be used, but instead, tagged out of service or repaired before being used again. There will be safe storage and handling of compressed and liquefied gas. Management must ensure that:

- Compressed or liquefied gas containers are used, handled, stored, and transported in accordance with the manufacturer's specifications.
- A cylinder of compressed flammable gas is not stored in the same room as a cylinder of compressed oxygen, unless the storage arrangements are in accordance with Part 3 of the Alberta Fire Code (1997).
- Compressed or liquefied gas cylinders, piping, and fittings are protected from damage during handling, filling, transportation, and storage.
- Compressed or liquefied gas cylinders are equipped with a valve protection cap if manufactured with a means of attachment.
- Oxygen cylinders or valves, regulators, or other fittings of the oxygen using apparatus or oxygen distributing system are kept free of oil and grease.

Oxygen is never to be used as a substitute for compressed air in pneumatic tools, to create pressure, for ventilating purposes or to blow out a pipeline.

All regulators and its flexible connecting hose are to be tested immediately after connections to a gas cylinder to ensure that there is no leak of the gas supply. If a leak of the gas supply develops during gas welding or an allied process, the supply of gas is immediately shut off by the worker performing the welding or allied process and the work is not resumed until the lead is repaired.

Storage compartments for compressed and liquefied gas cylinders must meet local legislative requirements.

All welding services will be provided from vehicles that comply with CSA Standard W117.2-06 - Safety in Welding, Cutting and Allied Processes. All storage cylinders for compressed gas shall be secured in an upright position.

Fire Extinguishers

- Fire extinguishing equipment is readily available. Each work site shall be provided with readily accessible fire extinguishers adequately marked locations at a project.
- Every worker who may be required to use fire extinguishing equipment shall be trained in its use.
- Management will ensure that portable fire extinguishers are selected, located, inspected, maintained, and tested so the health and safety of workers at the place of employment is protected.
- Fire extinguishers that have been partially or completely used will be removed from service and replaced by similar equipment that has been inspected and authorized for service. Spent containers will temporarily be placed at either any work site trailer or each individual main office location.



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- Every fire extinguisher shall be inspected for defects or deterioration at least once a month by a competent worker who shall record the date of the inspection on the tag attached to it.
- All portable fire extinguishers shall also be checked annually by a competent fire extinguisher supplier.
- Portable fire extinguishers are to be selected, located, inspected, maintained, and tested so that the health and safety of workers at the place of employment is protected. Management shall ensure that portable fire extinguishers are placed not more than nine meters away from each industrial open-flame portable heating device, tar pot or asphalt kettle that is in use and each welding or cutting operation that is in progress.
- All fire extinguishers shall be maintained as follows:
 - Fully charged and in operable condition
 - Clean and free of defects
 - Readily accessible at all times

NOTE:

A Class B (or ABC) fire extinguisher must be readily available while working with or near flammable and combustible liquids.

In the event of a fire, one trained worker will get the nearest fire extinguisher and use it to attempt to put the fire out. All other workers in the immediate area will prepare to evacuate if needed. All other workers in the building need to be advised that a fire is in progress. The worker attempting to extinguish the fire will break the safety seal on the handle and pull the pin. He will then aim his extinguisher at the base of the fire and discharge it with a sweeping motion from side to side; continuing until the fire is out or the extinguisher is emptied. Remember that a standard fire extinguisher will be emptied in about 10 to 15 seconds. If the fire is not out when the extinguisher has been completely discharged, the workers must evacuate the area.

Flammable Liquids and Substances

- Flammable liquids such as various fuels or solvents will be transported in appropriately marked safety cans with their contents identified. No glass container use will be allowed.
- The use of gasoline as a cleaning agent on company property is strictly forbidden. Only low flash point liquids are permissible for use in cleaning parts and machinery. Also, no worker shall use gasoline to start a fire or use gasoline or replenish a tank on a heating device with a flammable or combustible liquid while the device is in operation or is hot enough to ignite the liquid.
- All flammable and combustible substances are stored separately from substances they might react with.
- All materials combustible and flammable liquids contaminated by flammable liquids are placed in receptacles that meet the requirements of the National Fire Code of Canada 1990, including any Revisions and Errata published from time to time, respecting the storage of flammable and combustible liquids that. All shall be non-combustible and have close-fitting metal covers, are labelled "flammable," and are located at least one meter away from other flammable liquids.
- No tar pot, while in use, will be placed within three meters of an entrance to or exit from a building.
- When a flammable gas or a flammable liquid is handled, used or stored, all sources of ignition must be eliminated or adequately controlled including open flame, spark-producing mechanical equipment, welding and cutting processes, smoking, static discharge and any electrical equipment or installation that is not approved for hazardous locations, as specified by local regulatory requirements and national codes.
- Metallic or conductive containers used to transfer flammable liquids must be electrically bonded to each other or electrically grounded while their contents are being transferred from one container to the other.
- Only containers approved to CSA Standard B376-M1980 (R1998), NFPA Standard 30, or ULC Standard C30-1995 shall be used to store flammable substances.
- Containers of flammable substances will be stored in fire-proof cabinets and no appreciable combustible materials will be stored within 12 meters of any spark producing operation.

Hot Work

Management must develop and implement safe work procedures for fire and explosive hazards in the workplace, including hot work if hot work is performed in the workplace additionally, where a flammable substance is or is



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intended to be handled, used, stored, produced or disposed of at any company location the Safety Manager shall develop written procedures to ensure the health and safety of workers who handle, use, store, produce or dispose of a flammable substance that may spontaneously ignite or ignite when in combination with any other substance or perform hot work where there is a risk of fire.

Our site-specific procedures are to ensure that hot work is not begun until a hot work permit is issued which must include the nature of the hazard, the type and frequency of atmospheric testing required, the safe work procedures and precautionary measures to be taken, and the protective equipment required.

Management requires where a flammable substance is or may be present no hot work is to be permitted or performed until suitable tests have been conducted that indicate whether the atmosphere contains a flammable substance in a quantity sufficient to create an explosive atmosphere or risk of fire. We will confirm that the work may safely be performed through suitable work steps, tests taken at intervals appropriate to the work being performed and record the results and procedures developed and implemented to ensure continuous safe performance of the work.

Any container or piping that contains or has contained a flammable substance shall be purged using an effective method to remove the flammable substance from the container or piping before any hot work is begun on that container or piping. Management does not require nor permit any welding or cutting of metal that has been cleaned with a flammable or combustible liquid until the metal has thoroughly dried.

No hot tapping will occur until the Safety Officer develops a hot tap plan specific to the type or class of hot tap work being performed. There will be no exceptions to this requirement.

Welding Restrictions

- All welding will comply with the requirements of CSA Standard W117.2-06, "Safety in Welding, Cutting and Allied Processes."
- All welding or allied process equipment is erected, installed, assembled, started, operated, used, handled, stored, stopped, inspected, serviced, tested, cleaned, adjusted, carried, maintained, repaired and dismantled in accordance with the manufacturer's specifications. Additionally, the area surrounding the operation is inspected and all combustible, flammable, or explosive material, dust, gas or vapour is removed or alternate methods of rendering the area safe are implemented.
- If a welding or allied process is performed above an area where a worker may be present the supervisor shall ensure that adequate means are taken to protect a worker below the operation from sparks debris and other falling hazards.
- An operator of an electric welding machine must not leave the machine unattended without removing the electrode.
- All appropriate welding and ground leads are used to fasten the electric supply cable securely.

TRAINING

Employees are provided training on the fire safety plan. Management shall ensure that:

- Designated persons and workers who have been assigned fire safety duties are adequately trained in, and implement, the fire safety plan;
- The fire safety plan is posted in a conspicuous place for reference by workers; and
- A fire drill is held at least once during each 12-month period

Management shall also provide training for:

- The proper use of portable fire extinguishers, for incipient (small stage) fire-fighting purposes only, upon initial hire and annually thereafter if they are required to use fire extinguishing equipment.
- The safe work procedures for fire, flammable substances, and explosive hazards in the workplace including hot work and how to implement the procedures developed.



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Retraining shall re-establish worker proficiency and introduce new or revised control methods and procedures, as necessary. Retraining shall be provided for all authorized and affected workers whenever there is:

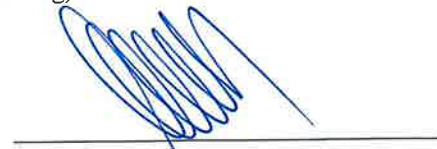
- An annual basis or
- A change in job assignment or
- Management has reason to believe that there are deviations from or inadequacies in the worker's knowledge or use of fire extinguishers or fire prevention procedures.

All training will be documented and each worker's understanding will be subject to a "hands-on" test. Documentation will consist of; as a minimum, the worker's name, the trainer's name, the date of the training, and an outline of training provided. All training records will be maintained in the worker's safety file. All fire extinguisher inspection and maintenance records will be maintained by management for the serviceable life of this equipment

COMMUNICATION

As per the company's Safety Management System Manual, and corporate communication policy, all applicable policies and procedures are reviewed with all new employees prior to engaging in any work activities (during orientation) and annually with seasonal/returning employees (refresher training).


Chief Elected Official


Chief Administrative Officer