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| <br><b>DEE CRAMER</b><br>HEATING COOLING SHEET METAL<br><i>Dedicated People. Delivering Quality.</i> | Dee Cramer, Inc.<br>Safety Management System |                      |  | Doc No:            | FIRE            |
|                                                                                                                                                                                       |                                              |                      |  | Initial Issue Date | 1/1/2017        |
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| <b>FIRE PROTECTION</b>                                                                                                                                                                |                                              |                      |  | Revision No.       | 0               |
|                                                                                                                                                                                       |                                              |                      |  | Next Review Date:  | 1/1/2018        |
| Preparation: Safety Mgr                                                                                                                                                               | Authority: President                         | Issuing Dept: Safety |  | Page:              | Page 1 of 8     |

## 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.

## Scope

This program applies to all Dee Cramer, Inc. workers and all Dee Cramer, Inc. locations.

## Responsibilities

The safety manager is responsible for developing procedures for the design of fire safety plans and procedures at each Dee Cramer, Inc. 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.

## Responsibilities

### Safety Manager

Develops local first aid plans or procedures for all worksites in accordance with this procedure and ensures workers are aware of the requirements of the fire and explosion prevention program plans or procedures.

### 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 on Fire Prevention and Combustible & Flammable Liquids Storage/Handling


### Assessment for Fire and Explosion Hazards

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

### Fire Safety Plan

Dee Cramer, Inc. 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:

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- 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;
- 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 are exposed to the hazard and every possible effort is made to control the hazard while this is being done.

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 Dee Cramer, Inc. management. Smoking is not permitted while around any active/functioning hydrocarbon clean-up/vacuuming equipment, around compressed gas cylinder storage locations or at any Dee Cramer, Inc. 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.

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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 Dee Cramer, Inc. 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.
- 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 Classifications

There are 3 basic fire classification types present within Dee Cramer, Inc. operations and most host-facility job-sites. 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.

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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 Dee Cramer, Inc. 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 Dee Cramer, Inc. 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.


#### **Control Measures for Internal Combustion Engines in Hazardous Locations**

- Dee Cramer, Inc. 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 or located outside the hazardous location. Dee Cramer, Inc. must ensure that all the surfaces of an internal combustion engine that are exposed to the 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.
- 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.
- 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.

#### **Safe Storage and Handling of Compressed Gas Cylinders**

Dee Cramer, Inc. must ensure that:

- Compressed or liquefied gas containers are used, handled, stored, and transported in accordance with the manufacturer's specifications.

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- 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 MIOSHA and/or NFPA regulations.
- 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.

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.

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 storage cylinders for compressed gas shall be secured in an upright position.

The control valve of a storage cylinder for compressed gas, other than a cylinder connected to a regulator, supply line or hose, shall be covered by a protective cap that is secured in its proper position.


A spent storage cylinder shall not be stored inside a building.

No storage cylinder for propane shall be placed closer than 10 feet to a source of ignition or fire.

#### **Flammable Liquids and Substances Storage and Transport**

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. Only containers approved shall be used to store flammable substances.

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.

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All materials combustible and flammable liquids contaminated by flammable liquids are to be stored in receptacles that meet national standards. All shall be non-combustible and have close-fitting metal covers, are labeled "flammable" and are located at least 3 feet away from other flammable materials.

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.

### Hot Work

Dee Cramer, Inc. 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 intended to be handled, used, stored, produced or disposed of at any Dee Cramer, Inc. 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.

Dee Cramer, Inc. 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 be 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. COMPANY 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 Manager 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 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 vapor is removed or alternate methods of rendering the area safe are implemented.



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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.

## Training

Employees are provided training on the fire safety plan. Dee Cramer, Inc. 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.

Dee Cramer, Inc. shall also provide training for:

- Where Dee Cramer, Inc. has provided portable fire extinguishers for employees use in the workplace it also shall provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved in incipient stage firefighting.
- The safe work procedures for fire, flammable substances and explosive hazards in the workplace including hot work and how to implement the procedures developed.

## Retraining

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
- Dee Cramer, Inc. 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.

## Training Documentation

- 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 Dee Cramer, Inc. management for the serviceable life of this equipment.