FIRE PREVENTION

Purpose

The purpose of this program is to define the requirements for safely conducting business as a Validus Energy Employee. Although the requirements of this procedure are not intended for contractor compliance, it does represent the minimum lawful requirements from a regulatory standpoint. Validus energy (the Company) requires contractors to utilize their company-provided policies and procedures when performing activities on behalf of the Company.

Scope

This policy applies to all Validus Energy employees.

Background

- Validus Energy is committed to minimizing the threat of fire to employees, contractors, visitors, and property. Validus Energy complies with all applicable laws, regulations and codes pertaining to fire prevention. The company's separate Emergency Action Plan spells out the procedures for responding to fires while this Fire Prevention Plan serves to reduce the risk of fires at company Locations in the following ways:
- Identifies materials that are potential fire hazards and their proper handling and storage procedures;
- Distinguishes potential ignition sources and the proper control procedures of those materials;
- Describes fire protection equipment and/or systems used to control fire hazards;
- Identifies persons responsible for maintaining the equipment and systems installed to prevent or control ignition of fires;
- Identifies persons responsible for the control and accumulation of flammable or combustible material;
- Describes good housekeeping procedures necessary to ensure the control of accumulated flammable and combustible waste material and residues to avoid a fire emergency; and
- Provides training to employees with regard to fire hazards to which they may be exposed.

Responsibilities

Fire safety is everyone's responsibility. All employees and contractors should know how to prevent and respond to fires and are responsible for adhering to company policy regarding fire emergencies.

Management

Management determines the Validus Energy fire prevention and protection policies. Management will provide adequate controls to provide a safe workplace and will provide adequate resources and training to its employees to encourage fire prevention and the safest possible response in the event of a fire emergency. It is an expectation that contractors provide the same to their workers.

Plan Administrator

The HSE Director shall manage the Fire Prevention Plan for Validus Energy and shall maintain all records pertaining to the plan. The Plan Administrator shall also:

- Develop and administer the Validus Energy fire prevention training program.
- Ensure that fire control equipment and systems are properly maintained.
- Control fuel source hazards.

Supervisors
Supervisors are responsible for ensuring that employees receive appropriate fire safety training, and for notifying the HSE Director when changes in operation increase the risk of fire. Supervisors are also responsible for enforcing Validus Energy fire prevention and protection policies.

Employees/ Contractor Employees
All employees shall:

- Complete all required training before working without supervision.
- Conduct operations safely to limit the risk of fire.
- Report potential fire hazards to their supervisors.
- Follow fire emergency procedures.

Plan Implementation

Good Housekeeping
To limit the risk of fires, employees shall take the following precautions:

- Minimize the storage of combustible materials.
- Make sure that locations, doors, hallways, stairs, and other exit routes are kept free of obstructions.
- Dispose of combustible waste in covered, airtight, metal containers.
- Use and store flammable materials in well-ventilated areas away from ignition sources.
- Use nonflammable cleaning products.
- Keep incompatible (i.e., chemically reactive) substances away from each other.
- Perform “hot work” (i.e., welding or working with an open flame or other ignition sources) in controlled and well-ventilated areas.
- Keep equipment in good working order (i.e., inspect electrical wiring and appliances regularly and keep motors and machine tools free of dust and grease.)
- Ensure that heating units are safeguarded.
- Report all oil or gas leaks immediately. The site supervisor shall ensure that all gas leaks are repaired immediately upon notification.
- Repair and clean up combustible or flammable liquid leaks immediately.
- Keep work areas free of dust, lint, sawdust, scraps, and similar material.
- Do not rely on extension cords if wiring improvements are needed and take care not to overload circuits with multiple pieces of equipment.
- Ensure that required hot work permits are obtained when required.
- Turn off electrical equipment when not in use.

Maintenance
The site manager will ensure that equipment is maintained according to manufacturers' specifications. Validus Energy will also comply with requirements of the National Fire Protection Association (NFPA) codes for specific equipment. Only properly trained individuals shall perform maintenance work.
The following equipment is subject to the maintenance, inspection, and testing procedures:

- Equipment installed to detect fuel leaks, control heating, and control pressurized systems;
- Portable fire extinguishers, automatic sprinkler systems, and fixed extinguishing systems;
- Detection systems for smoke, heat, or flame;

- Fire alarm systems; and
- Emergency backup systems and the equipment they support.

Types of Hazards

The following sections address the major workplace fire hazards at Validus Energy's facilities and the procedures for controlling the hazards.

Electrical Fire Hazards

Electrical system failures and the misuse of electrical equipment are leading causes of workplace fires. Fires can result from loose ground connections, wiring with frayed insulation, or overloaded fuses, circuits, motors, or outlets.

To prevent electrical fires, employees shall:

- Make sure that worn wires are replaced.
- Use only appropriately rated fuses.
- Never use extension cords as substitutes for wiring improvements.
- Use only approved extension cords [i.e., those with the Underwriters Laboratory (UL) or Factory Mutual (FM) label].
- Check wiring in hazardous locations where the risk of fire is especially high.
- Check electrical equipment to ensure that it is either properly grounded or double insulated.
- Ensure adequate spacing while performing maintenance.

Portable Heaters

All portable heaters shall be approved by the office manager. Portable electric heaters shall have tip-over protection that automatically shuts off the unit when it is tipped over. There shall be adequate clearance between the heater and combustible furnishings or other materials at all times.

Office Fire Hazards

Fire risks are not limited to Validus Energy's field facilities. Fires in offices have become more likely because of the increased use of electrical equipment, such as computers, printers and fax machines. To prevent office fires, employees shall:

- Avoid overloading circuits with office equipment.
- Turn off nonessential electrical equipment at the end of each workday.
- Keep storage areas clear of rubbish.
- Ensure that extension cords are not placed under carpets.
- Ensure that trash and paper set aside for recycling is not allowed to accumulate.

Cutting, Welding, and Open Flame Work

The site manager will ensure the following:

- All necessary hot work permits have been obtained prior to work beginning when required.
- Cutting and welding are done by authorized personnel in designated cutting and welding areas whenever possible.
- Adequate ventilation is provided.
- Torches, regulators, pressure-reducing valves, and manifolds are UL listed or FM approved.

- Oxygen-fuel gas systems are equipped with listed and/or approved backflow valves and pressure-relief devices.
- Cutting or welding is prohibited in sprinklered areas while sprinkler protection is out of service.
- Cutting or welding is prohibited in areas where explosive atmospheres of gases, vapors, or dusts could develop from residues or accumulations in confined spaces.
- Cutting or welding is prohibited on metal walls, ceilings, or roofs built of combustible sandwich-type panel construction or having combustible covering.
- Confined spaces such as tanks are tested to ensure that the atmosphere is not over ten percent of the lower flammable limit before cutting or welding in or on the tank.
- Small tanks, piping, or containers that cannot be entered are cleaned, purged, and tested before cutting or welding on them begins.
- Fire watch has been established.

Flammable and Combustible Materials

The HSE Director shall regularly evaluate the presence of combustible materials at Validus Energy (see Drilling and Production safety assessments).

Certain types of substances can ignite at relatively low temperatures or pose a risk of catastrophic explosion if ignited. Such substances obviously require special care and handling.

1. Class A combustibles.

These include common combustible materials (wood, paper, cloth, rubber, and plastics) that can act as fuel and are found in non-specialized areas such as offices.

To handle Class A combustibles safely:

a) Dispose of waste daily.
b) Keep trash in metal-lined receptacles with tight-fitting covers (metal wastebaskets that are emptied every day do not need to be covered).
c) Keep work areas clean and free of fuel paths that could allow a fire to spread.
d) Keep combustibles away from accidental ignition sources.
e) Store paper stock in metal cabinets.
f) Store rags in metal bins with self-closing lids.
g) Do not order excessive amounts of combustibles.
h) Make frequent inspections to anticipate fires before they start.
i) Water, multi-purpose dry chemical (ABC), and halon 1211 are approved fire extinguishing agents for Class A combustibles.

Eliminate overgrowth on locations where ignition sources are present and implement a solid prevention program to maintain a site free of vegetation. In the event a fire does occur involving the production equipment, a good management plan will likely prevent the fire from leaving location and spreading to surrounding wildlands.

Prevent weeds, brush, grass, and other combustible material from gathering on production locations and near burners and flares. If there is an ignition source on a site, including vehicles or hot equipment, the site should be maintained free of vegetation. Any ROW that accommodates vehicle and equipment traffic should be maintained and cut to prevent hazards associated with fires in the dry season and snakes in the warmer seasons.

2. Class B combustibles.

These include flammable and combustible liquids (oils, greases, tars, oil-based paints, and lacquers), flammable gases, and flammable aerosols.

To handle Class B combustibles safely:

a) Use only approved pumps, taking suction from the top, to dispense liquids from tanks, drums, barrels, or similar containers (or use approved self-closing valves or faucets).
b) Do not dispense Class B flammable liquids into containers unless the nozzle and container are electrically interconnected by contact or by a bonding wire. Either the tank or container must be grounded.
c) Store, handle, and use Class B combustibles only in approved locations where vapors are prevented from reaching ignition sources such as heating or electric equipment, open flames, or mechanical or electric sparks.
d) Do not use a flammable liquid as a cleaning agent inside a building (the only exception is in a closed machine approved for cleaning with flammable liquids).
e) Do not use, handle, or store Class B combustibles near exits, stairs, or any other areas normally used as exits.
f) Do not weld, cut, grind, or use unsafe electrical appliances or equipment near Class B combustibles.
g) Do not generate heat, allow an open flame, or smoke near Class B combustibles.
h) Know the location of and how to use the nearest portable fire extinguisher rated for Class B fire.

Water should not be used to extinguish Class B fires of flammable liquids. Water can cause the burning liquid to spread, making the fire worse. To extinguish a fire caused by flammable liquids, exclude the air around the burning liquid. The following fire-extinguishing agents are approved for Class B combustibles: carbon dioxide, multi-purpose dry chemical (ABC), halon 1301, and halon 1211. (NOTE: Halon has been determined to be an ozone-depleting substance and is no longer being manufactured. Existing systems using halon can be kept in place.)

Smoking

Smoking is prohibited in all Validus Energy buildings. Certain outdoor areas may also be designated as no smoking areas. The areas in which smoking is prohibited outdoors are identified by NO SMOKING signs.

Training

The HSE Director shall present basic fire prevention training to all employees upon employment, and shall maintain documentation of the training, which includes:

- Review of 29 CFR 1910.38, including how it can be accessed;
- This Fire Prevention Plan, including how it can be accessed;
- Good housekeeping practices;
- Proper response and notification in the event of a fire;
- Instruction on the use of portable fire extinguishers (as determined by company policy in the Emergency Action Plan); and
- Recognition of potential fire hazards.

Supervisors shall train employees about the fire hazards associated with the specific materials and processes to which they are exposed and will maintain documentation of the training. Employees will receive this training:

- At their initial assignment;
- Annually; and
- When changes in work processes necessitate additional training.

Program Review

The HSE Director shall review this Fire Prevention Plan at least annually for necessary changes.