



HOT WORK

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Purpose

The purpose of this program is to define the minimum requirements for safely performing **Hot Work** activities on a Validus Energy worksite.

Scope

This program applies to all employees and worksites operated by Validus Energy.

Process

Any Hot Work activity that can be relocated to a **Designated Hot Work Area** shall be.

All Hot Work not done in a Designated Hot Work Area must have a Hot Work permit filled out prior to beginning the work.

A dedicated **Fire Watch** must be present for the duration of the work plus an additional 30 minutes.

Any Hot Work done during red flag conditions must be approved in writing by the appropriate superintendent.

Responsibilities

Leadership	Commit to, follow, and reinforce the requirements set forth in this program. Provide sufficient resources for implementation.
Supervisors	Ensure Validus employees have the knowledge and skills to follow this program. Ensure no Validus Energy employee conducts Hot Work unless a Hot Work permit is completed and the employee is trained to conduct the task.
EHS	Provide guidance on Hot Work permits and activities. Facilitate training as necessary. Monitor compliance with this program through an assessment process.
Validus Employees	Complete training and adhere to the requirements set forth in this program. Do not conduct Hot Work unless permits are completed and you authorized and trained to do the work.



Definitions

Brazing and Soldering - soldering and brazing use molten metal to join two pieces of metal. The metal added during both processes has a melting point lower than that of the workpiece, so only the added metal is melted, not the workpiece. Brazing produces a stronger joint than does soldering, and often is used to join metals other than steel, such as brass. Brazing can also be used to apply coatings to parts to reduce wear and protect against corrosion.

Cutting/Grinding - Any process which produces sparks capable of igniting combustible or flammable materials.

Designated Hot Work Area - A permanent location designed for or approved for Hot Work operations to be performed regularly.

Fire Watch - Trained personnel who are in attendance during the entire Hot Work operation and are immediately available to extinguish a fire or take other effective action if needed.

Hazards - includes, but not limited to the following: fires and explosions, skin burns, Welding "blindness", and respiratory hazards from fumes and smoke.

Hot Work - Any process that can be a source of ignition when flammable material is present or can be a fire hazard regardless of the presence of flammable material in the workplace. Common Hot Work processes are Welding, soldering, cutting, and brazing.

Hot Work Permit - A document issued for the purpose of authorizing a specified fire ignition potential activity.

Person in Charge (PIC)- is the site manager or supervisor ultimately responsible for the safe execution of all activities on a SIMOPS site.

Welding - Joining together (metal pieces or parts) by heating the surface to the point of melting using a blowtorch, electric arc, or other means, and uniting them by pressing, hammering, etc.



Policies

General

Before Hot Work is done, a minimum 35-foot safe zone must be cleared of all explosive, flammable, and combustible materials. Where relocation is not practical, combustibles shall be protected with flameproof covers, shielded with metal, guards, curtains, or wet down to help prevent ignition.

A foreman or above must authorize Hot Work to be performed on any active or producing Validus Energy wellsite.

A Fire Watch is required for all Hot Work activities and must be present for an additional 30 minutes after the work is completed. The Fire Watch cannot have any other duties. The Fire Watch must have a suitable fire extinguisher available.

Contractors conducting hot work must be trained by their employer on the operation of the equipment and hazards presented by Hot Work. The contractor must complete a hot work permit and provide an appropriate fire watch.

Air Monitoring must be conducted to ensure that hot work is not being done in a flammable atmosphere.

Welding Equipment

All personnel operating, installing, and maintaining Welding equipment shall be qualified or trained to operate and maintain the equipment.

Prior to Welding, verify that ground connections are mechanically strong and adequate for the required current.

All leads shall be periodically inspected and replaced if insulation is broken, or splices are unprotected. Leads shall not be repaired with electrical tape.

When arc Welding is stopped, electrodes shall be removed from the holders.

Designated Hot Work Area requirements

Indoor floors swept and cleaned of combustibles within 35 feet of work area.

Flammable and combustible liquids and material will be kept 35 feet from the hot-work area and ventilation potentials shall be terminated and exhausted prior to commencement of Hot Work.

The area must have adequate ventilation.

At least one 20-pound dry chemical fire extinguisher shall be within immediate access of the Designated Hot Work Area.

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Confined Space

Validus Energy Employees may not conduct any hot work operations in a confined space.

Contractors conducting hot work in a confined space must meet the requirements of the OSHA Confined Space Standard (1910.146) and the applicable requirements outlined in Subpart Q of 1910 for the work being conducted.

Simultaneous Operations (SIMOPS)

Prior to conducting Hot Work on a Validus Energy site where simultaneous operations (SIMOPS) are under way, the Validus Energy Person in Charge (PIC) must approve the scope of work.

Hot Work must be shut down if any of the following conditions occur:

- Any emergency alarm sounds
- Smell or monitor reading of gas
- Evacuation
- Emergency drill
- Any other emergency

Hot-work activities may not resume following any of the above conditions without reauthorization from the PIC.

Prior to starting Hot Work under an approved Hot Work permit, an announcement shall be made to notify the PIC that Hot Work is beginning. The notification shall be made at the completion of work as well.

Respiratory Protection

Employees conducting Hot Work activities will refer to the Validus Energy Respiratory Protection Program to determine the appropriate minimum respiratory protection that shall be used during Welding operations.

All Welding and cutting operations shall be adequately ventilated to prevent the accumulation of toxic fumes or exhaust. This applies not only to the welder, but also to helpers and other personnel in the immediate vicinity.

Personal Protection

Employees conducting Hot Work must use proper personal protective equipment rated for the activity being done to protect the hands, body and eyes.

During all activities that create an arc, the employee must wear an appropriately shaded hood/lens combination to protect their head and eyes from light and sparks/debris. Refer to Appendix 1 for a shade chart.



Cylinders

Compressed gas cylinders shall be DOT-approved and legibly marked near the shoulder to identify the contents.

Compressed gas cylinders shall be always secured and stored in an upright position unless they are being loaded, hoisted, or carried.

All cylinders shall be kept away from sources of heat and flame.

Stored oxygen cylinders shall be kept at least 20 feet from the fuel gas cylinders or combustible materials or separated by a non-combustible barrier at least 5 feet high with a fire rating of at least 30 minutes.

Valve protection caps shall always be in place and hand-tight except when cylinders are in use or connected for use.

Assigned storage spaces shall be located where cylinders cannot be knocked over or damaged by falling objects or subject to tampering by unauthorized persons.

Cylinders and safety devices shall not be tampered with, nor should any attempt be made to repair them.

Training

Awareness Training

All Validus Energy Field employees will receive Hot Work Awareness training that consists of:

- The definition of Hot Work
- Permit Requirements
- Definition of a Firewatch
- How to report an emergency

Hot Work Worker training

Validus Energy Employees that will be doing Hot Work will receive training that consists of:

- Permit Requirements and how to complete the Validus Energy Permit
- Position Responsibilities
- PPE requirements
- Equipment Operation
- Fire Watch Training



Fire Watch Training

Employees doing Hot Work or doing fire watch duties will receive training that consists of:

- Verification that the ONLY task is Fire Watch.
- When they can terminate the watch.
- How to use the provided fire extinguishing equipment or media(s).
- Be familiar with facilities and how to activate the fire alarm if the fire is beyond the incipient stage.
- Permit requirements.
- Fire extinguisher training.



**Appendix 1
Welding Shade Chart**

Welding Operation		Shade Number
Shielded metal — arc Welding 1/16, 3/32, 1/8-5/32 inch electrodes		10
Gas-shielded arc Welding (nonferrous) 1/16, 3/32, 5/32 inch electrodes		11
Gas-shielded arc Welding (ferrous) 1/16, 3/32, 1/8, 5/32 electrodes		12
Shielded metal arc Welding: 3/16	7/32, 1/4 inch electrodes	12
	5/16, 3/8-inch electrodes	14
Atomic hydrogen Welding		10 – 14
Carbon arc Welding		14
Soldering		2
Torch brazing		3 or 4
Light cutting, hp to 1 inch		3 or 4
Medium cutting, 1 inch to 6 inches		4 or 5
Heavy cutting, 6 inches or over		5 or 6
Gas Welding (light) up to 1/8 inch		4 or 5
Gas Welding (medium) 1/8 - 1/2 inch		5 or 6
Gas Welding (heavy) 1/2 inch or over		6 or 8

