Hot Work Training – Long Harbour Operations

VALE

Hello, welcome to the Long Harbour Hot Work Training module.

Executing hot work procedures is a critical task that requires utmost attention to safety and accuracy. This is because hot work procedures involve activities that generate heat, sparks, and flames that can ignite flammable materials or cause explosions. In order to minimize the risk of accidents and ensure the safety of workers and the environment, it is important to follow strict procedures and guidelines when executing hot work.
In this module, we will focus on the elements of the permit system in Long Harbour that defines how hot work activities are managed to prevent hot work incidents from occurring.

This training applies to all personnel working at the Vale Long Harbour Operations (LHO) site.

You must obtain a minimum score of 80% on the quiz to pass this course.
Enjoy the course.

VES ID: LHO_0120

Module Duration: About 76 minutes

April/09/2024

Lesson 1 of 13

Welcome

00:28

Important Considerations

- *Upon Completion of each section of this module, you will be given an opportunity to **submit questions** to obtain clarification of any content you are not sure of.*
- *At the end of the module, you will also be given the opportunity to **complete a brief survey** designed to support the continual improvement of your Vale learning experience.*
- *You **must complete** all elements in each lesson block (including audio) before advancing to the next section.*

CONTINUE

Vale's Key Behaviours

Obsession with safety and risk management

- Prioritizing safety and people's lives rather than results and assets when raising problems and making decisions.
- Identifying, raising and managing risks for all stakeholders in our activities.
- Being actively involved in the dialogue on security, dilemmas, operational issues and signs of divergence.

Open dialogue and transparency

- Raising problems and learning from mistakes.
- Asking questions and showing a genuine interest in the answers.
- Encouraging everyone to express their ideas and differences.
- Communicating directly and with a positive outlook.

Empowerment with accountability

- Seeking to learn, continuously developing, and encouraging the development of other people.
- Making clear requests, agreeing on actions and assigning responsibility for compliance.
- Assuming full responsibility for delivering on commitments.

Ownership for the Whole

- Working in collaboration to generate better results.
- Anticipating the impact of actions on other parts of the company.
- Using resources in the best interests of the company.
- Challenging the status quo.

Active listening and engagement with society

- Continuously seeking contributions from external stakeholders.
- Listening to stakeholders with curiosity and empathy.
- Demonstrating humility and avoiding assumptions about what is best for communities.
- Making decisions and acting on them,

Got a Question?

Submit your question here using Valeforms, be sure to include your first name last name and contact information.

CLICK HERE!

CONTINUE

You Will Learn

The purpose of this course is to define how hot work activities are managed in Long Harbour to prevent hot work incidents from occurring.

This training applies to all personnel working at the Vale Long Harbour Operations (LHO) site.

Upon completion of this module, you will be able to:

00:51

- *Describe examples of hot work*
- *Understand the purpose of the hot work management program at Long Harbour*
- *Understand the definition of hot work and related terms*
- *Describe the roles and responsibilities related to hot work execution*
- *Understand the requirements for designated hot work areas*
- *Explain the hot work permitting process*
- *Prepare an area for hot work execution*
- *Monitor ongoing hot work*
- *Complete area monitoring after hot work is complete*
- *Describe the types of fire detection and suppression equipment and their use*

Complete the content above before moving on.

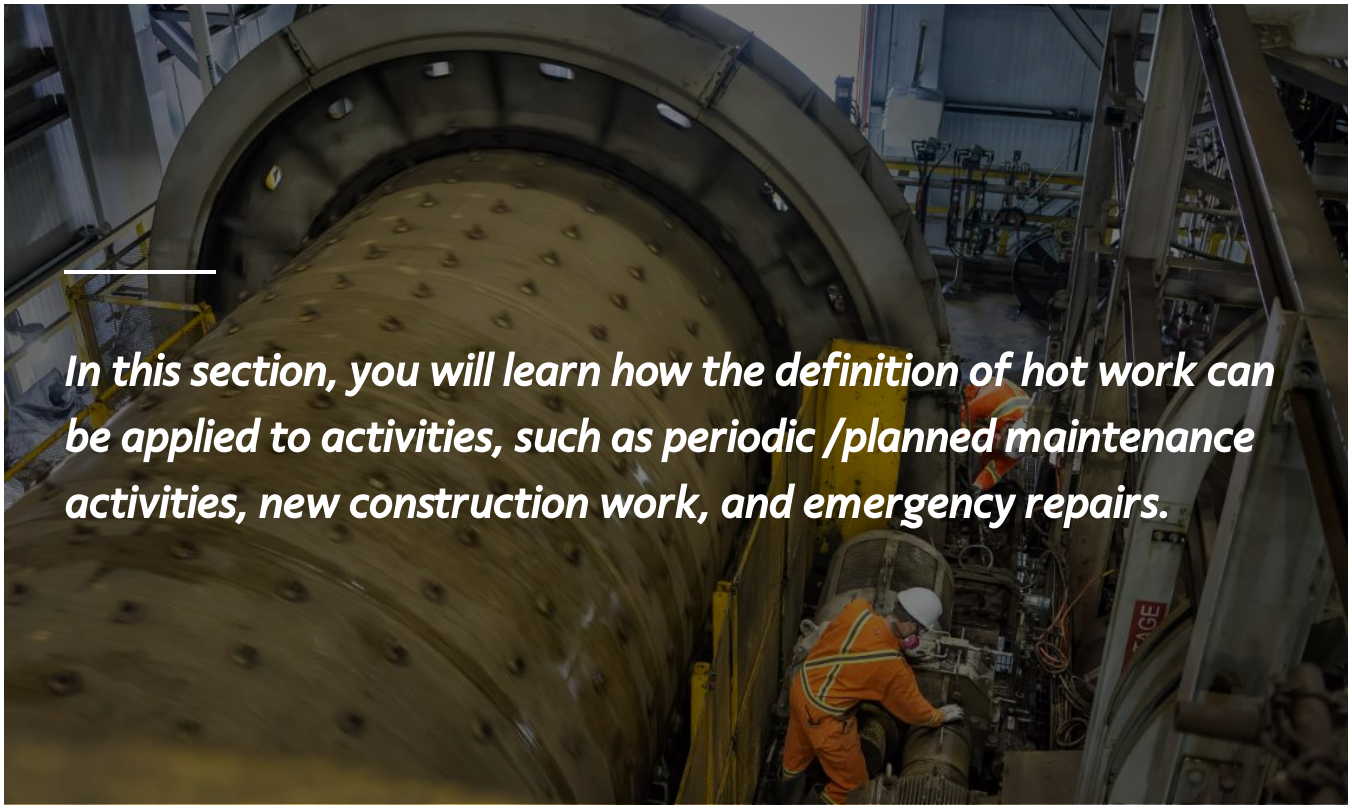
Got a Question?

Submit your question here using Valeforms, be sure to include your first name last name and contact information.

CLICK HERE!

Lesson 3 of 13

What is Hot Work?



Examples of Hot work:

01:02

Please use the following examples of hot work to help guide your thinking throughout this training about what classifies as hot work at Long Harbour.

These can include:

Cutting/Air Gouging

Welding/Soldering

Grinding/Drilling

Torching

Other examples of hot work activities also include;

- *The use of pyrophoric materials*
- *Use of pneumatic hammers and chippers that are NOT non-sparking*
- *Post-weld heating using a gas-fired burner or electrical resistance heater*

- *The use of a handheld heat gun (electrical resistance heater) in the presence of combustible materials*

Definitions:

Listed below are important definitions related to hot work in Long Harbour. Throughout this training, many of these definitions will be covered again. Please take a moment to familiarize yourself with these.
(Click on the tabs below to review)

Hot Work:

A job or task that can produce any type of spark, flame, or ignition source and that may ignite known combustible or flammable materials in the work area.

Pyrophoric:

Substances that ignite spontaneously in air.

Area Monitoring: _

Monitoring an area using methods such as automatic smoke detection with remote alarm, security video cameras, operators routinely present in the hot work area or intermittent patrols by personnel.

Combustible: _

Any material that, in the form in which it is used and under the conditions anticipated, will ignite, and burn or will add appreciable heat to an ambient fire.

Continuous Monitoring (atmosphere): _

Uninterrupted use of gas detection equipment by a competent worker, to monitor the atmosphere during work that has potential hazards that warrant continuous monitoring of the surrounding atmosphere.

Explosive Atmosphere: _

An atmosphere that contains a substance in a mixture with air, under atmospheric conditions and at a concentration between the substance's lower explosive limit and upper explosive limit.

Fire Watch: _

A competent or trained individual stationed in the hot work area that monitors the work area for the beginnings of potential, unwanted fires both during and after hot work.

Gas Testing: _

A recordable method of detecting atmospheric conditions to verify safe work atmospheres.

Combustible Dust: _

Any material (finely divided solid particles) that has the ability to disperse in air and catch fire and explode when exposed to an ignition source.

Hot Work Area: _

The space surrounding a hot work site defined by the horizontal or vertical reach of hot work ignition sources. Within this area combustible, ignitable and flammable materials are temporarily removed or isolated.

Hot Work Designated Area: _

An area that has been deemed safe to perform hot work activities without the requirement of a Hot Work Permit and has met all requirements outlined in this standard.

Hot Work Permit (HWP): _

A document issued prior to the start of hot work, which is used to verify the presence of appropriate fire prevention and protection measures.

Intrinsically Safe: _

Designed to be incapable of producing heat or spark sufficient to ignite an explosive atmosphere.

Lower Explosive Limit (LEL):

The lowest concentration (by percentage) of a gas or vapor in air that is capable of producing a flash of fire in the presence of an ignition source (arc, flame, heat).

Upper Explosive Limit (UEL):

The maximum amount of fuel that must be present in air to burn. If there is too much fuel the air/fuel mixture is considered too rich and will not burn.

Complete the content above before moving on.

00:30

Putting What You Know Into Practice:

The activities below will give you an opportunity to practice using the information you have just learned.

00:07

The definition of hot work is:

- *A job or task that can produce any type of spark, flame, or ignition source, and that may ignite known combustible or flammable materials in the work area.*
- *Work that is completed when it is hot outside.*
- *Work that produces sparks.*
- *Any work completed on a lined vessel.*

SUBMIT

In this activity, you will sort different activities into two categories: Hot Work and Non-Hot Work. Let's get started!

Hot Work Activity

Cutting, Welding, Burning, Soldering	Riveting, Drilling, Grinding, Chipping

Use of Pyrophoric Materials

Use of a heat gun in the presence of combustibles

Non-Hot Work Activity

Work that is completed when it is hot outside

Cleaning with solvents

Electrical work

In this activity, you will drag and drop the Term to match it to the correct Definition. Let's get started!

Match the term to its definition:

Activity

Term	Definition
Combustible	Any material that, in the form in which it is used and under the conditions anticipated, will ignite, and burn or will add appreciable heat to an ambient fire.
Classified Area	An area in which hot work can be conducted with a hot work permit but additional required precautions will be necessary given the increased level of fire or explosion risk.
Area Monitoring	Monitoring an area using methods such as automatic smoke detection with remote alarm, security video cameras, operators routinely present in the hot work area or intermittent patrols by personnel (e.g., every 15 minutes).
Fire Watch	A competent or trained individual stationed in the hot work area that monitors the work area for the beginnings of potential, unwanted fires both during and after hot work.
Hot Work Permit (HWP)	A document issued prior to the start of hot work, which is used to verify the presence of appropriate fire prevention and protection measures.
Lower Explosive Limit (LEL)	The lowest concentration (by percentage) of a gas or vapor in air that is capable of producing a flash of fire in presence of an ignition source (arc, flame, heat).
Upper Explosive Limit (UEL)	The maximum amount of fuel that must be present in air to burn. If there is too much fuel the air/fuel mixture is considered too rich and will not burn.
Pyrophoric	Substances that ignite spontaneously in air.
Gas Testing	A recordable method of detecting atmospheric conditions to verify safe work atmospheres.

Submit

Complete the content above before moving on.

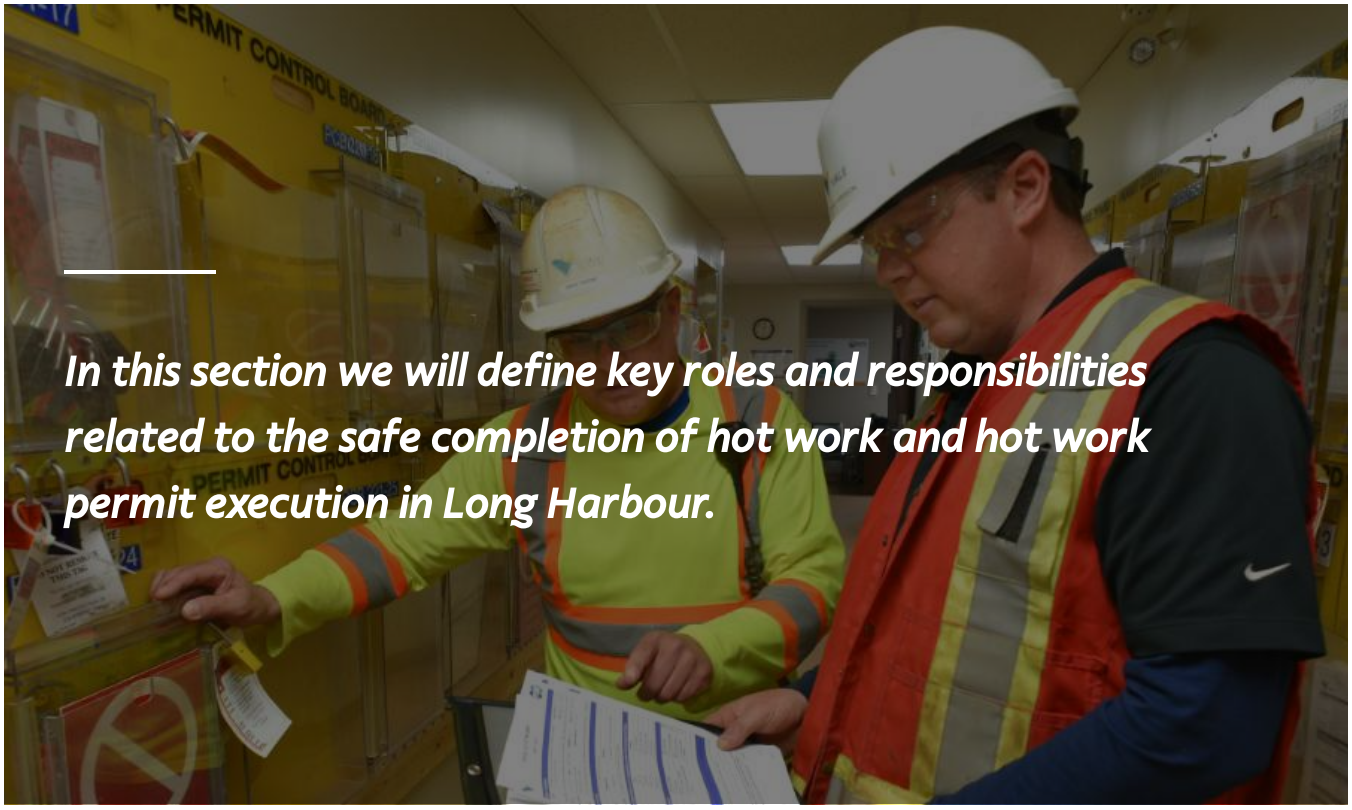
Great! Now that you understand what Hot Work is, let's proceed to the next section where you'll learn about Permit Roles: Execution of Hot Work.

Got a Question?

Submit your question here using Valeforms, be sure to include your first name last name and contact information.

CLICK HERE!

Permit Roles: Execution of Hot Work



In this section we will define key roles and responsibilities related to the safe completion of hot work and hot work permit execution in Long Harbour.

The Key Roles include the following:

00:28

- [ ] *Person in Charge (PIC) or Permit Acceptor*
- [ ] *Operation Area Coach or Supervisor*
- [ ] *Hot Work Contractor*
- [ ] *Hot Work Worker*
- [ ] *Fire Watch*

Responsibilities – *The Person in Charge (PIC) or Permit Acceptor*

So, let's talk about roles and responsibilities.

The ***Person in Charge (PIC) or Permit Acceptor*** *on a hot work permit are responsible for:*

00:44

- ***Ensuring*** *appropriate risk assessments are completed and reviewed before requesting permits.*
- ***Ensuring*** *appropriate measures are in place to mitigate risks to acceptable levels.*
- ***Reviewing*** *the hot work permit and ensuring all listed controls are implemented.*
- ***Appointing*** *a fire watch.*

- ***Suspending, closing, or requesting*** *a new work permit when required.*

- ***Returning*** *permits to the permit office when required.*

- ***Ensuring*** *the requirements outlined in the permit and, hazard and risk assessment are understood and adhered to by all relevant work parties.*

Responsibilities – *Operation Area Coach or Supervisor*

So, let's talk about roles and responsibilities.

*The **Operation Area Coach or Supervisor** is responsible for:*

00:17

- ***Reviewing** all hot work permits for accuracy prior to authorizing the permit.*
- ***Conducting** a final inspection of the hot work area.*

- ***Facilitating*** *the hot work management process in their respective areas.*

Responsibilities – *Hot Work Contractor*

So, let's talk about roles and responsibilities.

Hot Work Contractor *is responsible for:*

00:39

- ***Completing*** *a hazard and risk assessment specific to the scope of work and area where the work will be performed.*

- ***Identifying*** *required risk mitigation measures and ensure they are implemented and adhered to for the duration of the work.*

- ***Preparing*** *the hot work area (in accordance with the Long Harbour Hot Work Standard) prior to requesting a hot work permit.*

- ***Obtaining*** *the appropriate permit(s) prior to commencing hot work activities.*

- ***Always*** *being in possession of a valid hot work permit for the entire duration of the work.*

- *If the scope involves welding:* ***developing and implementing*** *a welding health and safety program (as per CSA Standard W117.2).*

Responsibilities – *Hot Work Worker*

So, let's talk about roles and responsibilities.

*A **Hot Work Worker** must:*

00:28

- ***Be trained** in the requirements of hot work in Long Harbour.*
- ***Participate** in the hazard and risk assessment process for the hot work scope.*
- ***Be familiar** with the content of the permit and the preventive measures to be implemented before the beginning of the work.*

- ***Stop*** *all hot work as soon as an abnormal situation, a change in the environment or other is observed; immediately inform the PIC/Coach/Supervisor/Coordinator.*

Responsibilities – *Fire Watch*

So, let's talk about roles and responsibilities.

A person assigned to ***Fire Watch*** *is responsible to:*

Fire Watch

00:31

- ***Monitor*** *hot work locations and watch for fires as outlined in this training.*
- ***Review and understand*** *the hot work permit and relevant risk assessment(s).*
- ***Ensure*** *the appropriate fire-extinguishing equipment is on hand.*
- ***Be trained and familiar*** *with the operation of portable fire extinguishers and methods to activate building fire alarm systems.*
- ***Be familiar*** *with the premises, location of nearest fire alarm, and know the procedure in the event of a fire.*
  *** May be assigned to conduct the post-hot work area monitoring. ***

Complete the content above before moving on.

Putting What You Know Into Practice:

The activities below will give you an opportunity to practice using the information you have just learned.

00:07

A Fire watch worker is a person that is:

(Select all that apply)

- [ ] *Assigned on a hot work permit.*
- [ ] *A competent or trained individual stationed in the hot work area that monitors the work area for the beginnings of potential unwanted fires but during and after hot work.*
- [ ] *Responsible to monitor the hot work area for 1 hour after the work is complete.*

- [ ] *Responsible to initiate emergency response in the event of a fire.*
- [ ] *Able to extinguish a fire when it is safe to do so.*

SUBMIT

A Person in Charge (PIC) is responsible to:

(Select all that apply)

- [ ] *Review the hot work permit and ensure all listed controls are implemented.*
- [ ] *Ensure the requirements outlined in the permit and, hazard and risk assessment are understood and adhered to by all relevant work parties.*

- [ ] *Appoint a fire watch.*
- [ ] *Ensure appropriate risk assessments are completed before requesting permits.*

SUBMIT

CONTINUE

Got a Question?

Submit your question here using Valeforms, be sure to include your first name last name and contact information.

CLICK HERE!

Great! Now that you understand Permit Roles: Execution of Hot Work, let's proceed to the next section where

you'll learn about Designated Hot Work Area Requirements.

Designated Hot Work Area Requirements

Remember from the definitions:

00:38

Hot Work Designated Area:

"An area that has been deemed safe to perform hot work activities without the requirement of a Hot Work Permit and has met all requirements outlined in the Long Harbour Hot Work Management Standard".

A designated hot work area is a permanent location designed for hot work and must meet the following design/construction requirements:

- *Where possible enclose these areas in a cutoff room to prevent ignition and fuel sources from coming into contact with hot work scenarios.*

If a cutoff room is not feasible, open walls and ceilings must be protected as follows:

- *Erect temporary barriers, such as approved welding curtains or blankets, to control ignition sources at unprotected openings in the cutoff rooms, for example open doorways or partial wall heights or lengths.*

- *Maintain a minimum of 50 feet clear separation distance at the open sides of the cutoff room. Label this separation distance using permanent markings (e.g., strips on the floor) and signage.*
- *Provide sufficient overlap and securement of the welding curtains or blankets.*
- *Label unprotected openings with signage.*

01:07

- *All HVAC ductwork and insulation must be non-combustible.*
- *If particulate filtration is required, use an appropriately rated air filter.*
- *Access to designated hot work areas, must be limited to authorized personnel only (including hot work workers, management, and health/safety personnel). While authorized workers are in the designated area, they can permit entry to other individuals at their discretion.*
- *Clear signage (right) must be posted at the entry to the designated hot work area.*

When working in a designated hot work area, workers must still consider the following requirements:

01:02

- *A MOC must be completed on a proposed designated hot work area and Manager approval provided, before performing any hot work without a permit.*

- *Job/task hazard and risk assessments must still be completed for all hot work performed in a designated area.*

- *The need for atmospheric monitoring of LEL must be determined during the work scope risk assessment.*

- *Ensure fire extinguisher(s) are available in the designated area and rated for the hazard.*

- *Maintain hot work designated areas free of combustible, ignitable, and flammable materials.*

- *If required for work, store combustible materials in metal cabinets, and ignitable and flammable materials in approved storage cabinets for flammable and combustible liquids.*

- *Conduct inspections at least monthly and maintain records for program auditing.*

- *An inventory of all approved Designated Hot Work areas must be kept.*

Complete the content above before moving on.

Putting What You Know Into Practice:
The activities below will give you an opportunity to practice using the information you have just learned.

00:07

The definition of a cutoff room is:

- *A room with no air.*
- *A room where vegetables are cut.*
- *A fully enclosed area constructed with fire-resistive materials where hot work is performed.*

- ◯ *A room between two other rooms.*

SUBMIT

A hot work designated area must consider the following:

(Select all that apply)

- ☐ *Access to hot work designated areas must be limited to authorized personnel.*
- ☐ *Signage must be posted at the entry way to hot work designated areas.*
- ☐ *All HVAC ductwork and insulation must be non-combustible.*

- [ ] *Enclose hot work designated areas in a cutoff room.*

SUBMIT

Complete the content above before moving on.

Got a Question?

Submit your question here using Valeforms, be sure to include your first name last name and contact information.

CLICK HERE!

Great! Now that you understand what Designated Hot Work Area Requirements are, let's proceed to the next section where you'll learn about how the Hot Work Permitting Process works.

Hot Work Permitting Process

00:21

Before hot work can be performed outside of designated hot work areas, a Hot Work

Permit must first be obtained. The first and most desirable option should be to pursue cold work alternatives or relocate the work to a Hot Work Designated Area.

Hot work permit process

00:42

- *Permits can be obtained from the area permit offices. Planners or permit requestors must submit permits to the area's where hot work is being performed.*

- *Hot work permits are issued daily and are for one job only. Permits are valid for 16-hours (on the day of issue only) and are not carried over to the following day. Permits are not transferable from job to job, within a department or throughout LHO.*

- *The PIC is responsible to appoint a person to the Fire Watch role on the permit.*

- *A new hot work permit is required if there are any changes in the conditions or hazards of the work site.*

The requirements for obtaining and executing a hot work permit in Long Harbour includes the following.

01:34

When taking out a hot work permit, a Hot Work Permit Checklist will also be generated. This sheet has fields that are required to be filled out as part of issuing the hot work permit.

The permit form must include the following information:

Hot Work

Permit Number:	221-PTW-09197
Checklist Number:	221-HW-01446

STOP!
Avoid hot work or seek an alternative/safer method, if possible

This 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, grinding, soldering, torch-applied roofing and welding

Instructions for Permit Issuer

A. Specify the precautions to take.
B. Fill out and keep original form with original PTW documents.
C. Provide copy of hot work form to the person doing the job.
D. Scan copy of hot work form when scope of work is signed complete on the permit, including confirmation that the fire watch and three-hour area monitoring have been completed.

Hot Work by: ☐ Operations ☐ Contractor

(DATE:) (PTW#:)

Specific location/bldg & floor:

I verify the above location has been examined, the Required Precautions have been taken, and permission is authorized for this work.

The documentation for this equipment has been reviewed and it has been confirmed that a flammable liner is not present and the hot work can proceed.

Name (Print) of PIC/Acceptor:

Signature:

Work Party Sign off: Work area and all adjacent areas to which sparks and heat might have spread were inspected during the watch period, and 60 minutes after the watch period and were found fire-safe.

Name (Print):

Signature:

Y	N/A	Fire Watch/ hot work area monitoring
		Fire watch must be provided by the work party during, and for 60 minutes after work, including any break activity.
		Fire watch is supplied with suitable extinguishers, and where practical, a small charged hose.
		Fire watch is trained in use of equipment and in sounding alarm (Contacting ERT by radio).
		Fire watch may be required in adjoining areas, above and below.

Additional Instructions ☐ **Continue Overleaf**

(Version - March 2022)

Y	N/A	Required Precautions Checklist
		I verify the above location has been examined, the precautions checked on the required precautions checklist have been taken to prevent fire, and permission is authorized for this work.
		Does this work require any part of the fire detection system to be disabled? If yes ERT must be notified.
		Control valves to water supply for sprinkler system are open.
		Hose streams and extinguishers are in service/operable.
		Hot work equipment is in good condition.
		All hot work requires continuous monitoring for LEL and O2 unless justified in a JHA/JSA.
		If hot is to occur on equipment with a liner a JSA must be completed.
Y	N/A	**Requirement within 35ft(10M) of hot work**
		Ignitable liquid, dust, lint and oily deposits removed.
		Explosive atmosphere in area eliminated.
		Floors swept clean.
		Combustible floors wet down, covered with damp sand or fire-resistive sheets.
		Remove other combustible material where possible. Otherwise protect with FM approved welding pads, blankets and curtains, fire-resistive tarpaulins or metal shields.
		All wall and floor openings covered.
		FM approved welding pads, blankets and curtains installed under and around work.
		Protect or shut down ducts and conveyors that might carry sparks or distant combustible material.
Y	N/A	**Hot work in 211**
		All hot work in 211 requires a JHA and must be signed off by VALE leadership in the area.
Y	N/A	**Hot work on walls, ceilings or roofs**
		Construction is noncombustible and without combustible covering and insulation.
		Combustible material on the other side of walls, ceilings or roofs is moved away.
Y	N/A	**Hot work on enclosed equipment**
		Enclosed equipment cleaned of all combustible material.
		Containers purged of ignitable liquid/vapour.
		Pressurized vessels, piping and equipment removed from service, isolated and vented.
Y	N/A	**Hot work in a classified area**
		All hot work in a classified area requires Production Area Manager approval.
		Shielding of infra-red detectors is MANDATORY and must be in place and approved by building owner prior to work commencing.
		If hot work is being conducted in a classified area, "work in a Classified Area Permit" must be obtained, and assessment to deem necessary the potential for a "Work on Fire Protection/Suppression system" Permit.
		Proper gas monitor is being used for "work in a Classified Area" (calibrated for proper levels of LEL).

Hot Work Permit Checklist

- *A well-defined scope that includes the details of the work to be done.*

- *The expected issue date and time.*

- *The work location – be as specific as possible to allow for accurate monitoring of the work location after the work is complete (area monitoring). This is also essential to ensure appropriate authorization of the permit. For example, all hot work in a classified area requires approval by an area manager before it is authorized for work by an area coach. Improper selection of work areas could result in this control being bypassed.*

- *All permits are unique and will be assigned their own number.*

- *For all permit required hot work, 3 roles must be assigned to every permit. These are the Person in Charge (PIC) or Permit Acceptor, Hot Work – Worker and Fire Watch. Remember that these roles were covered in the section on roles and responsibilities.*

- *The fire watch must return the completed fire watch form to the permit office so the permit can be placed in area monitoring.*

- *Once the permit is placed in area monitoring, a designate takes over to monitor the hot work area for the prescribed time. Area monitoring form is then returned to the permit office so the permit may be closed out.*

Permit authorization and issuing

Hot Work

Permit Number:	221-PTW-09197
Checklist Number:	221-HW-01446

STOP!
Avoid hot work or seek an alternative/safer method, if possible

This 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, grinding, soldering, torch-applied roofing and welding

Instructions for Permit Issuer

A. Specify the precautions to take.
B. Fill out and keep original form with original PTW documents.
C. Provide copy of hot work form to the person doing the job.
D. Scan copy of hot work form when scope of work is signed complete on the permit, including confirmation that the fire watch and three-hour area monitoring have been completed.

Hot Work by: ☐ Operations ☐ Contractor

(DATE:) (PTW#:)

Specific location/bldg & floor:

I verify the above location has been examined, the Required Precautions have been taken, and permission is authorized for this work.

The documentation for this equipment has been reviewed and it has been confirmed that a flammable liner is not present and the hot work can proceed.

Name (Print) of PIC/Acceptor:

Signature:

Work Party Sign off: Work area and all adjacent areas to which sparks and heat might have spread were inspected during the watch period, and 60 minutes after the watch period and were found fire-safe.

Name (Print):

Signature:

Y	N/A	Fire Watch/ hot work area monitoring
		Fire watch must be provided by the work party during, and for 60 minutes after work, including any break activity.
		Fire watch is supplied with suitable extinguishers, and where practical, a small charged hose.
		Fire watch is trained in use of equipment and in sounding alarm (Contacting ERT by radio).
		Fire watch may be required in adjoining areas, above and below.

Additional Instructions ☐ **Continue Overleaf**

(Version - March 2022)

Y	N/A	Required Precautions Checklist
		I verify the above location has been examined, the precautions checked on the required precautions checklist have been taken to prevent fire, and permission is authorized for this work.
		Does this work require any part of the fire detection system to be disabled? If yes ERT must be notified.
		Control valves to water supply for sprinkler system are open.
		Hose streams and extinguishers are in service/operable.
		Hot work equipment is in good condition.
		All hot work requires continuous monitoring for LEL and O2 unless justified in a JHA/JSA.
		If hot is to occur on equipment with a liner a JSA must be completed.
Y	N/A	**Requirement within 35ft(10M) of hot work**
		Ignitable liquid, dust, lint and oily deposits removed.
		Explosive atmosphere in area eliminated.
		Floors swept clean.
		Combustible floors wet down, covered with damp sand or fire-resistive sheets.
		Remove other combustible material where possible. Otherwise protect with FM approved welding pads, blankets and curtains, fire-resistive tarpaulins or metal shields.
		All wall and floor openings covered.
		FM approved welding pads, blankets and curtains installed under and around work.
		Protect or shut down ducts and conveyors that might carry sparks or distant combustible material.
Y	N/A	**Hot work in 211**
		All hot work in 211 requires a JHA and must be signed off by VALE leadership in the area.
Y	N/A	**Hot work on walls, ceilings or roofs**
		Construction is noncombustible and without combustible covering and insulation.
		Combustible material on the other side of walls, ceilings or roofs is moved away.
Y	N/A	**Hot work on enclosed equipment**
		Enclosed equipment cleaned of all combustible material.
		Containers purged of ignitable liquid/vapour.
		Pressurized vessels, piping and equipment removed from service, isolated and vented.
Y	N/A	**Hot work in a classified area**
		All hot work in a classified area requires Production Area Manager approval.
		Shielding of infra-red detectors is MANDATORY and must be in place and approved by building owner prior to work commencing.
		If hot work is being conducted in a classified area, "work in a Classified Area Permit" must be obtained, and assessment to deem necessary the potential for a "Work on Fire Protection/Suppression system" Permit.
		Proper gas monitor is being used for "work in a Classified Area" (calibrated for proper levels of LEL).

Hot Work Permit Checklist

All hot work permits that are submitted for authorization go to the area for which the permit is being requested. They are reviewed by an area representative before they are authorized for work, the following is a list of conditions related to the authorization and issuing of hot work permits:

01:01

- *Before permits can be issued, the hazard and risk assessment must be reviewed and understood by the person in charge and/or permit acceptor as well as the workers that will perform the work.*
- *Permits are issued by trained permit issuers in each area permit office. Any questions related to issuing a permit can be directed to them.*
- *Permits will only be issued to people who have received this training and have it up to date.*

- *Permits will only be issued after all necessary fire prevention precautions are implemented and the fire watch is present.*

- *Permits considered hot work high-risk operation (such as hot work in a classified area) must include additional considerations in the risk assessment.*

Permit closure

After the hot work scope is complete the permit must be closed. This section outlines the requirements for closing a hot work permit.

00:59

- *When the hot work and mandatory fire watch period (1 hour minimum) is complete, return the permit to the permit office and sign (verifying work completion) to close out the work for the day.*

- *Area monitoring is then initiated for the required period. Area monitoring consists of an assigned person monitoring the area on a regular interval for a period of 3 hours after the work is complete. The minimum is once per hour for area monitoring but can be increased if the scope of work is higher risk.*

- *Area monitoring form is then attached to the hot work permit and the permit can be closed.*

> ***Important note: Closure of hot work permits is required after work is complete. Please ensure area monitoring forms are returned to the permit office so permit issuers can close hot work permits as soon as possible .***

Hot work in production areas

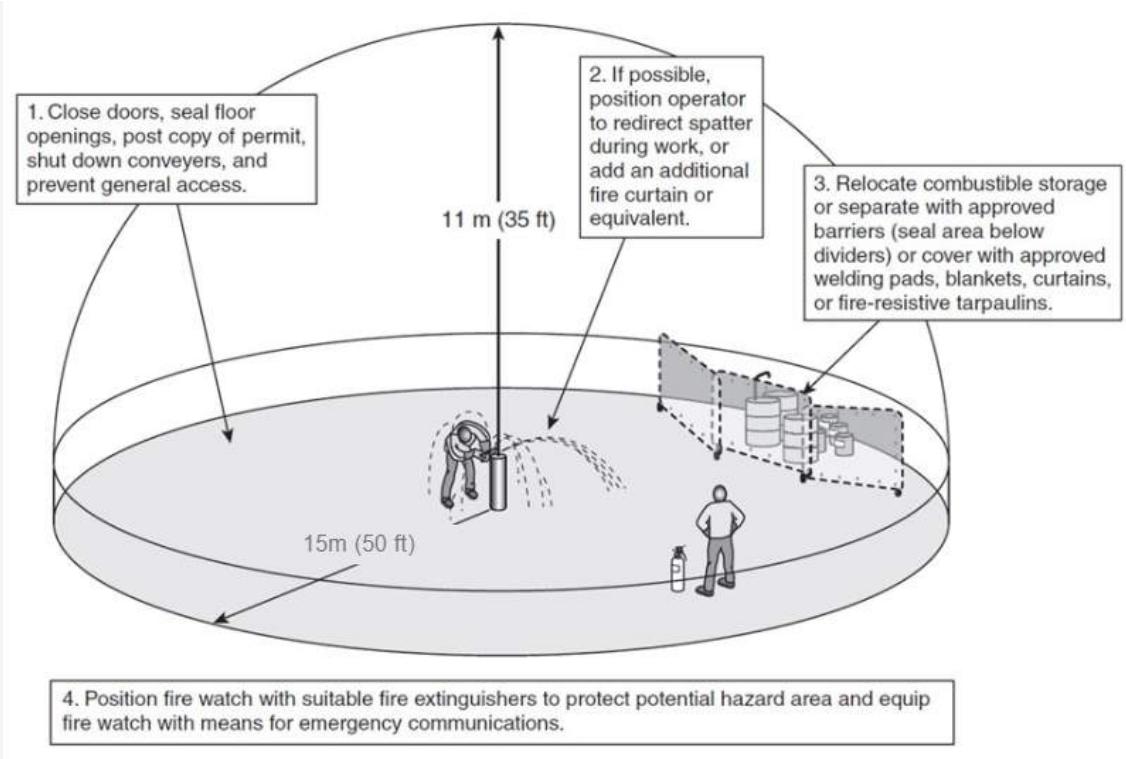
The following slides provide additional Considerations for Hot Work in Progress in production areas. Click the start button to begin.

00:09

Step 1

For Elevated Areas:

00:19



As noted previously, a 50 ft perimeter is required in all directions from all active hot work (unless adequately boxed to prevent carryover). This may also require suspension of welding blankets to the level below and directly under the hot work activity.

Step 2

On / In Equipment and Piping:

00:24

- *Isolations must be established in accordance with the LHO Zero Energy Standard.*
- *Drain, purge or flush any piping connected to a system that will have hot work conducted on it.*
- *Ensure piping and vessel linings are researched and hot work planned accordingly. Treat all hot work on lined materials as*

potentially high risk.

Step 3

On / or around thermally conductive materials:

00:15

- *Remove portions of the building assembly around the penetration and use suitable noncombustible replacements.*
- *Monitor the temperature of the thermally conductive material before the penetration.*

Step 4

On combustible building assemblies:

00:44

- *Develop a fire emergency response plan that includes conditions under which ERT should be notified and verify the fire service has access to the work area.*
- *Stop work immediately if material appears to be smoking.*
- *Perform fire watch using an infrared camera to inspect for hot spots. Stop work immediately and initiate emergency action if*

hot spots are detected.

- *Examples of such hot work may include cutting through a non-approved (class 2) insulated steel deck roof or insulated metal panel, or welding seams of insulate metal panels. When performing these operations, follow the guidelines of the building system manufacturer.*

Step 5

Torch applied roofing systems:

00:22

- *Work may include installing, altering, or repairing roof systems.*
- *Develop a roof-fire emergency response plan that includes conditions under which the fire service should be notified and verify the fire service has access to the work area.*

- *Stop work immediately if roofing materials appear to be smoking.*

Complete the content above before moving on.

Putting What You Know Into Practice:
The activities below will give you an opportunity to practice using the information you have just learned.

00:07

Cold work should always be the preferred alternative to hot work:

- ○ *True*
- ○ *False*

SUBMIT

Hot work permits can only be issued for a maximum of _____hours.

- ○ *12*

- ◯ 16
- ◯ 4
- ◯ 8

SUBMIT

The essential roles to be filled on a hot work permit are:

- ◯ *PIC, Fire Watch, Confined Space Attendant*
- ◯ *Fire Watch, Permit Acceptor, Hot Work – Worker*

- ◯ *Hot Work – Worker, PIC, Area Monitor*
- ◯ *PIC, Hot Work – Worker, Fire Watch*

SUBMIT

A hot work permit should be suspended or cancelled under what condition(s):

(Select all that apply)

- ☐ *The risk associated with the hot work has changed.*
- ☐ *A new hazard has been introduced to the hot work area.*

☐ *No fire suppression equipment is present in the hot work area.*

SUBMIT

A copy of the hot work permit must be readily available at the hot work location:

○ *True*

○ *False*

SUBMIT

A hot work permit is required for all hot work conducted in process areas on the plant site:

- ◯ *True*
- ◯ *False*

SUBMIT

Complete the content above before moving on.

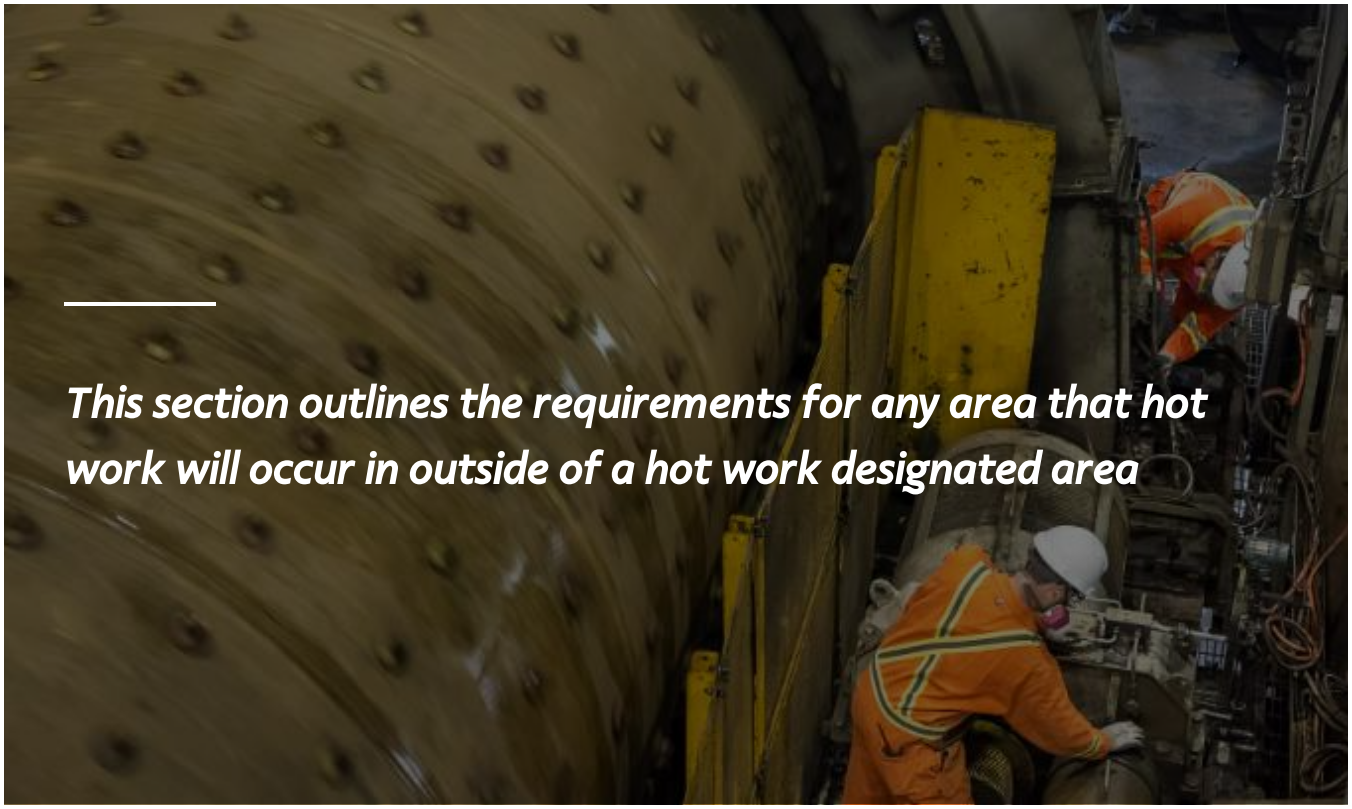
Got a Question?

Submit your question here using Valeforms, be sure to include your first name last name and contact information.

CLICK HERE!

Great! Now that you understand how the Hot Work Permitting Process works, let's proceed to the next section where you'll learn about the Preparation Requirements for Hot Work Execution.

Preparing for Hot Work Execution



Before any Hot Work Permit is issued, the area where work will be performed must be

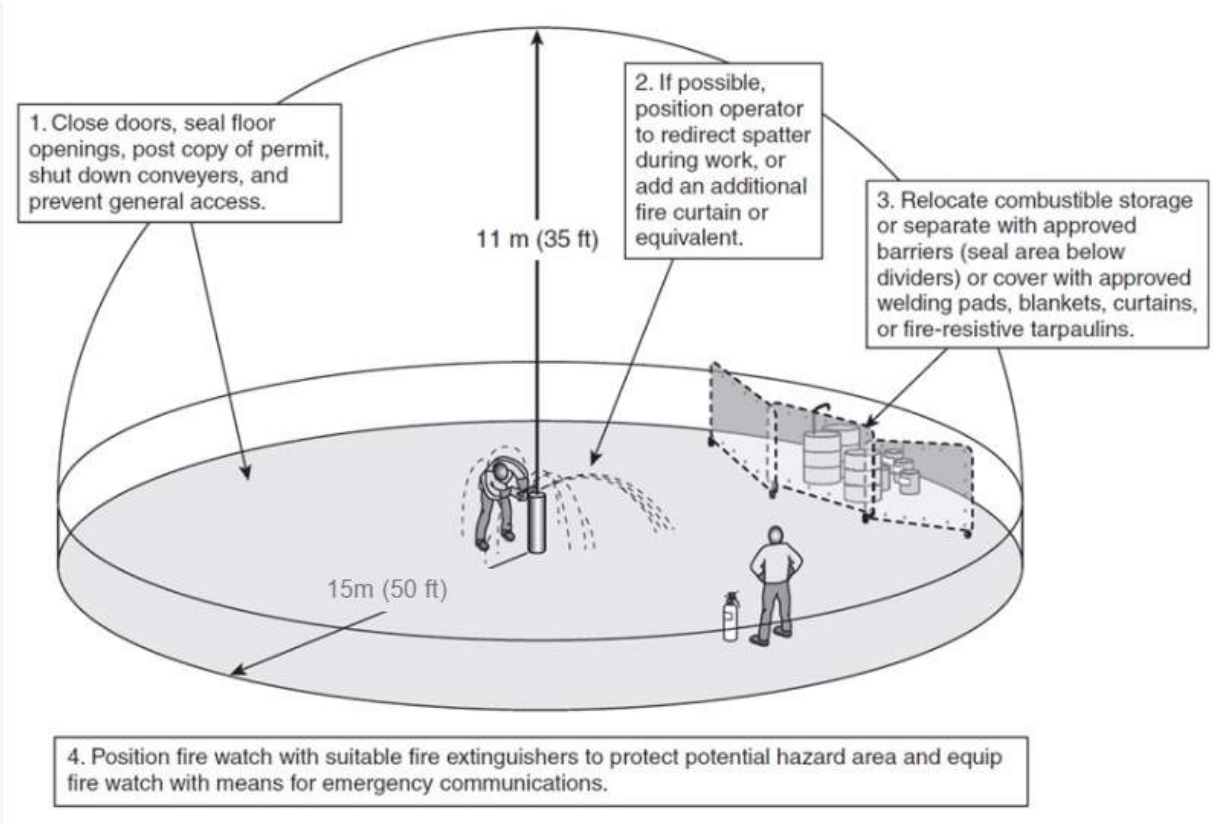
prepared in accordance with the Hot Work Standard as outlined below.

01:54

The 50 ft Rule

All combustible and flammable materials must be removed (where possible) to a distance not less than 50ft (15 meters) from the location of hot work, this is known as "The 50 ft Rule."

If this is not practicable guarding must be installed to protect against possible ignition. You will learn about this in the next section.



The 50 ft Rule

- *Openings or cracks in walls, floors or ducts shall be tightly covered to prevent passage of sparks to adjacent areas.*

- *Fire resistant guards shall be provided to prevent ignition of combustible partitions or ceilings.*

- *If the area where hot work will be conducted has openings or penetrations of any kind that would allow the hot work activity to affect a*

process or person on the other side, the hot work area must be extended.

- *Hot work planners must consider if the hot work site is on or near thermally conductive materials passing through a building assembly, for example – structural steel or metal piping.*

- *The floor where the hot work will be completed must be clean of debris for a radius of 50 ft.*

- *Anyone working nearby must be relocated or suitably protected from heat, sparks, slag, arc flashing and infrared or ultraviolet radiation.*

- *Extra precaution will be required if any hot work is to be performed in a confined space and all requirements for LHO CSE Standard must also be met. All vessels, regardless of size must also be vented to ensure the removal of any hazardous gas that may be present.*

Ventilation / Conveyor

Ventilation

Assess ventilation and conveying systems in the hot work area. These systems may contain combustible materials or transport hot work ignition sources outside the hot work area.

00:44

Fume Extractor

If ventilation is required for an enclosed hot work site, provide the following safeguards:

- *Use a temporary ventilation system constructed of noncombustible components. If particulate filtration is needed, use an approved fire-resistive air filter.*
- *If negative-pressure ventilation is used, extend the hot work area to include the area around the fan discharge.*
- *If positive-pressure ventilation is used, ensure the airflow does not disperse hot work ignition sources outside the hot work area.*

Negative indoor air pressure: *This occurs when the inside pressure is less than the pressure outside causing air to leak into the building. This is called infiltration.*
Positive indoor air pressure: *This results when*

the inside pressure is greater than the outside pressure.

Alternative to the 50 ft Rule

An alternative to the 50-foot rule is to physically isolate the hot work operation from adjacent combustible occupancies or construction using approved fire rated welding curtains and/or blankets (also referred to as "boxing"). "Boxing" can be achieved as outlined below:

Welding Screen

01:26

- *Suspend welding curtains or fire-rated blankets above the highest elevation of the hot work or to the bottom of a solid smooth ceiling or roof and extended to the floor.*

- *In buildings with structural members that create an open space between the top of the member*

and the floor or roof above, this space must be sealed to prevent liberation of sparks, spatter or slag through the open space.

- *The lower elevation of the boxing materials must overlap onto the floor at least one-half foot and this layer should be constructed of approved welding blanket.*

- *Welding curtains should only be used as vertical barriers for hot work operations.*

- *Where these curtains are required to extend onto the floor in the hot work area, the bottom 2 feet of the curtains must be constructed of noncombustible approved welding blanket material.*

- *Welding curtains are typically constructed of translucent plastic materials that are combustible and will fail under extended exposure to severe hot work in positions other than the vertical.*

- *Where severe hot work will be conducted and the area beneath this activity needs to be*

protected against the hot work, approved welding pads should be provided.

General Precautions for all Hot Work:

00:52

- *All precautions outlined in the risk assessment and Hot Work Permit must be adhered to for the duration of work and afterward (where applicable).*
- *Restrict the scope of a hot work permit to that defined on the authorized permit.*
- *Ensure the type of hot work activities and the location of hot work sites do not change once the permit is authorized.*
- *Changes may require redefining the hot work area and modifying the required precautions.*

- *If conditions do change or new hazards are introduced, stop work, and reauthorize the permit before continuing.*
- *Close all valves supplying fuel-fired equipment when unattended.*
- *Stay aware of wind shifts in outside areas that could move flammable/toxic vapors into work areas.*
- *In the event of a plant emergency all Hot Work will be suspended until notified otherwise.*

Complete the content above before moving on.

Putting What You Know Into Practice:
The activities below will give you an opportunity to practice using the information you have just learned.

00:07

The distance around hot work where all combustible materials must be removed is known as:

- ◯ *Minimum safe distance*
- ◯ *The 50 ft rule*
- ◯ *The 30 ft rule*
- ◯ *Fire break*

SUBMIT

All hot work completed in a classified area requires manager approval:

- ◯ *True*
- ◯ *False*

SUBMIT

The term used to describe conditions were the 50 ft rule would not apply due to isolating the hot work area is known as:

- *Delineating*
- *Identifying*
- *Barricading*
- *Boxing*

SUBMIT

If hot work is being completed in a confined space area, the vessel must always be vented to remove any hazardous gas created by the hot work activity:

- ○ *True*
- ○ *False*

SUBMIT

When conducting hot work at elevation you must:

- ○ *Establish a 50ft perimeter in all directions, including suspension of welding blankets or boxing to prevent carryover to the area below.*

- ○ *Do nothing more than for any other scope of hot work.*
- ○ *Never conduct hot work at elevation.*
- ○ *Close the building to all traffic until the hot work is done.*

SUBMIT

Complete the content above before moving on.

Got a Question?

Submit your question here using Vale forms, be sure to include your first name last name and contact information.

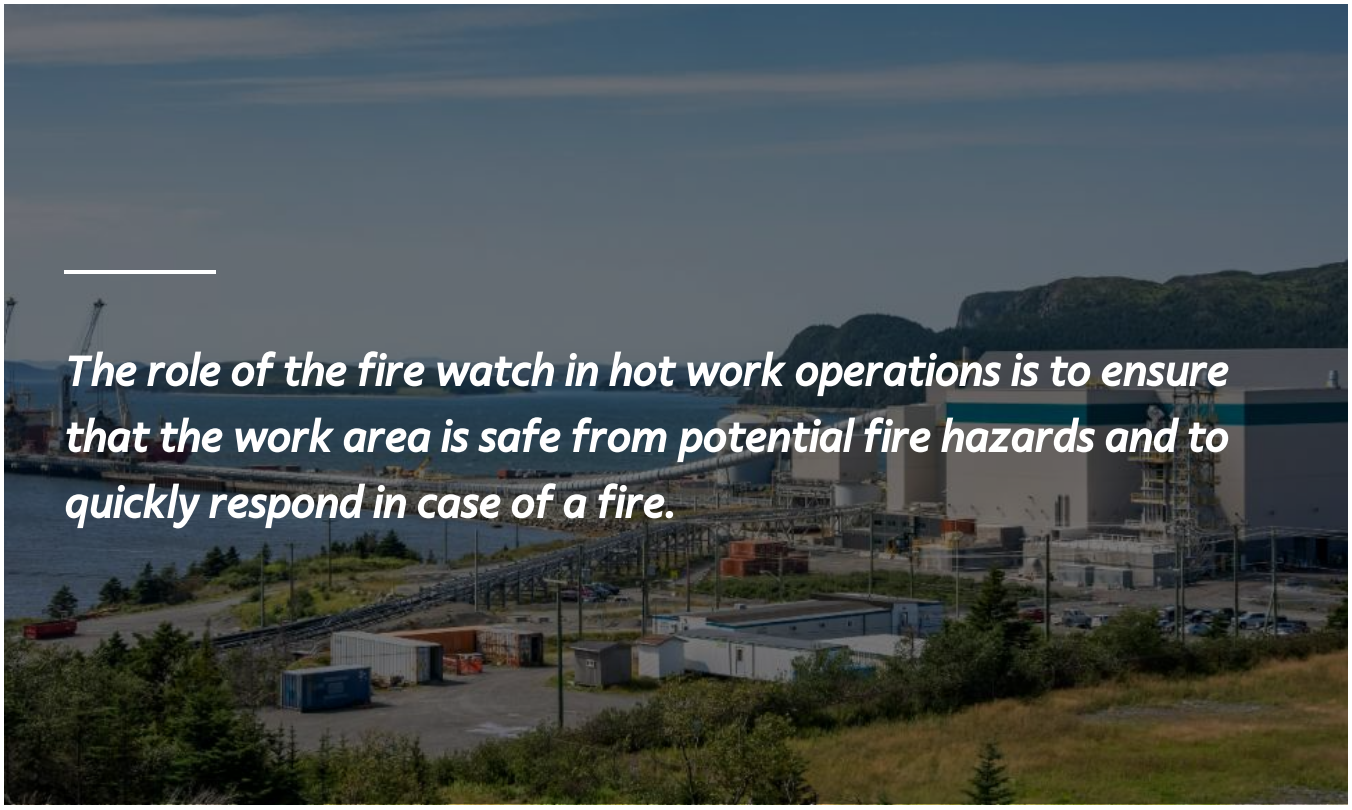
CLICK HERE!

Great! Now that you understand how to Prepare for Hot work Execution,

let's proceed to the next section where you'll learn What to do After Hot Work Operations are complete.

Lesson 8 of 13

What to do After Hot Work Operations



01:37

Fire Watch

A fire watch is required whenever hot work is being performed (except for in designated hot work areas).

The fire watch maintains a constant vigil throughout the duration of the hot work (even during employee breaks and mealtimes) and for a sufficient period after completion of the hot work operation to ensure the hot work area is in a fire-safe condition.

The Firewatch also keeps watch for any stray sparks, smoldering fires, or other fire hazards, and is ready to provide the initial fire response.

The requirements of the fire watch person are as follows:

- *Fire watchers must be trained to understand the hazards present in the workplace and the hazards associated with the hot work activity.*
- *Be familiar with the premises, know the location of the nearest fire alarm, and know the procedure for sounding an alarm if a fire breaks out.*
- *If the fire watch needs to leave the hot work area, assign a temporary or permanent replacement in order to maintain a continuous watch.*
- *Where work is to be done at height or where there is a potential for fire at below grade levels, the fire watch shall include surveillance at the lowest possible level.*
- *Provide constant vigilant fire watch during hot work operations and for not less than 60*

minutes after completion to prevent fire and explosion.

- *Watch and advise workers if any of their clothing becomes contaminated with a flammable or combustible liquid.*

After the mandatory 1-hour fire watch period is complete the hot work permit then goes into area monitoring.

An area monitor is assigned upon completion of the fire watch period.

The Area monitor is responsible to ensure:

00:45

- *The area is monitored a minimum of once per hour for 3 hours.*

- *If the hot work area is a combustible construction with unprotected concealed cavities the area must be monitored for a minimum of 5 hours. (e.g. attic or crawlspace or*

non-process areas not protected by sprinkler systems).

- *Conduct a final check of the hot work area for fire-safe conditions after the post-work fire watch and/or area monitoring periods have been concluded.*

Complete the content above before moving on.

Putting What You Know Into Practice:
The activities below will give you an opportunity to practice using the information you have just learned.

00:07

Firewatch must be performed following a hot work activity for a period of ___ hour before beginning area monitoring:

- ( ) *I hour*
- ( ) *2 hours*
- ( ) *3 hours*
- ( ) *0.5 hours*

SUBMIT

Area monitoring is required after fire watch is completed for a period of ____ hours in ____hour intervals:

- ○ *4, 0.5*
- ○ *3, 1*
- ○ *6, 2*
- ○ *2, 1*

SUBMIT

The requirements of the person performing Fire Watch include which of the following:

(Select all that apply)

- [ ] *Must be trained to understand the hazards present in the workplace and the hazards associated with the hot work activity.*
- [ ] *Be familiar with the premises, know the location of the nearest fire alarm, and know the procedure for sounding an alarm if a fire breaks out.*
- [ ] *Provide constant vigilant fire watch during hot work operations and for not less than 60 minutes after completion to prevent fire and explosion.*
- [ ] *Watch and advise workers if any of their clothing becomes contaminated with a flammable or combustible liquid.*
- [ ] *If the fire watch needs to leave the hot work area, assign a temporary or permanent replacement in order to maintain a continuous watch.*

SUBMIT

Complete the content above before moving on.

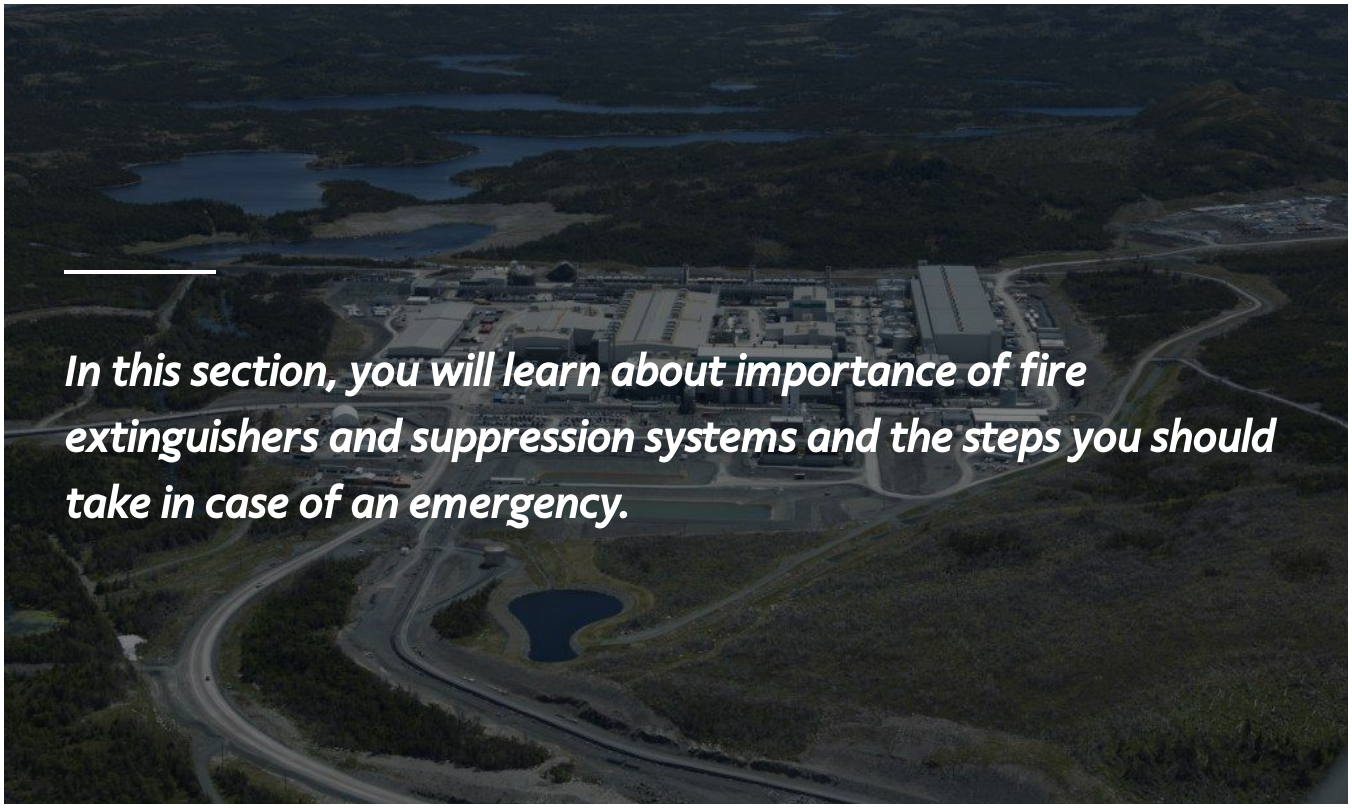
Got a Question?

Submit your question here using Valeforms, be sure to include your first name last name and contact information.

CLICK HERE!

Great! Now that you understand what to do After Hot Work Operations, let's proceed to the next section where you'll learn about the different Types of Fire Detection and Suppression Equipment and their Use.

Types of Fire Detection and Suppression Equipment



01:17

Sprinkler System / Fire Detection System

As part of preparing for hot work in a production area, the local fire detection and suppression systems must be confirmed as working and adequate to respond to a fire.

General Requirements:

- ***Verify*** *automatic fire protection systems (e.g., sprinkler systems) are in service (if provided) and that there are no active or planned fire protection system impairments near the hot work area (during work or after during post-work fire watch).*

- ***Ensure*** *all fire extinguishing equipment required for the work is readily available at the work site.*

- ***Ensure*** *there is an* ***adequate supply*** *of suitable fire-extinguishing equipment shall be maintained in a state of readiness, within immediate reach of workers, for instant use at the work site.*

The equipment shall be appropriate to the potential fire or explosion hazard and may consist of approved portable fire extinguishers, fire hose, pails of water, buckets of sand, or other means depending on the nature and quantity of the combustible material exposed. At a minimum one 4A:40B:C rated extinguisher is required within 40 feet of the activity.

Fire extinguishers must be inspected, approved and rated for the type of potential fire. The extinguisher type, purpose and how to identify them are listed below.

01:11

- ***Class "A" Fires – Ordinary combustibles such as paper, cloth, wood, etc.***

· Typical Extinguishing Agent: Water

· Identifier: Green Triangle

- ***Class "B" Fires – Flammable liquids, gases, greases, etc.***

  ·Typical Extinguishing Agent: Carbon Dioxide or Dry Chemical

  ·Identifier: Red Square

- ***Class "C" Fires – Energized electrical components, appliances, wiring, etc.***

  · Typical Extinguishing Agent: Non-Conductive Agent

  · Identifier: Blue Circle

- ***Class "D" Fires – Combustible metals, potassium, magnesium, etc.***

  · Typical Extinguishing Agent: Metal Specific Powder

  · Identifier: Yellow Star

Fire extinguishers must be taken to the hot work location prior to the commencement of

work and must remain in place until the hot work permit has been cancelled.

System Impairments:

00:58

Where any portion of a fire protection system is offline, additional consideration must be given before proceeding with hot work in that area. Ideally the hot work will be rescheduled, but if it must proceed consider the following:

- *Provide manual firefighting equipment, including supplemental fire extinguishers, for example, in addition to those required by the hot work activity and/or when necessary) firefighting hose laid out and connected to a closed hose valve.*

- *Ensure fire extinguishers are rated and sized appropriately for the hazard.*

- *If automatic fire detection devices present in the immediate area, need to be disabled to prevent nuisance alarms and / or actuation of suppression systems, following the Vale Red Tag Permit fire systems impairment procedures) to ensure restoration when the work is completed. This process is outlined in the Long Harbour Hot Work Management Standard.*

Complete the content above before moving on.

Putting What You Know Into Practice:

The activities below will give you an opportunity to practice using the

information you have just learned.

00:07

In this activity, you will drag and drop the type of fire extinguisher to the type of material it extinguishes. Let's get started!

Match the type to its purpose:

Activity

Type	Purpose	
Class A		*Ordinary combustibles such as paper, cloth, wood, etc. Typically contains water and is identified by a green triangle.*
Class B		*Flammable liquids, gasses, greases, etc. Typically contains carbon dioxide or dry chemical and is identified by a red square.*
Class C		*Energized electrical components, appliances, wiring, etc. Typically contains a nonconductive agent and is identified by a blue circle.*
Class D		*Combustible metals like potassium and magnesium. Typically contains a metal specific powder and is identified by a yellow star.*

Submit

Got a Question?

Submit your question here using Vale forms, be sure to include your first name last name and contact information.

CLICK HERE!

Great! Now that you understand what Types of Fire Detection and Suppression Equipment and their Use is, let's proceed to the next section where you'll learn about High Risk Areas that exist at LHO.

Lesson 10 of 13

High Risk Areas

High Risk Areas at LHO:

01:06

These areas contain hazardous materials that may contribute to an increase in the possibility of a fire or explosion. Therefore, it is essential to have a thorough understanding of these areas to ensure that safety measures are in place to prevent any incidents from occurring.

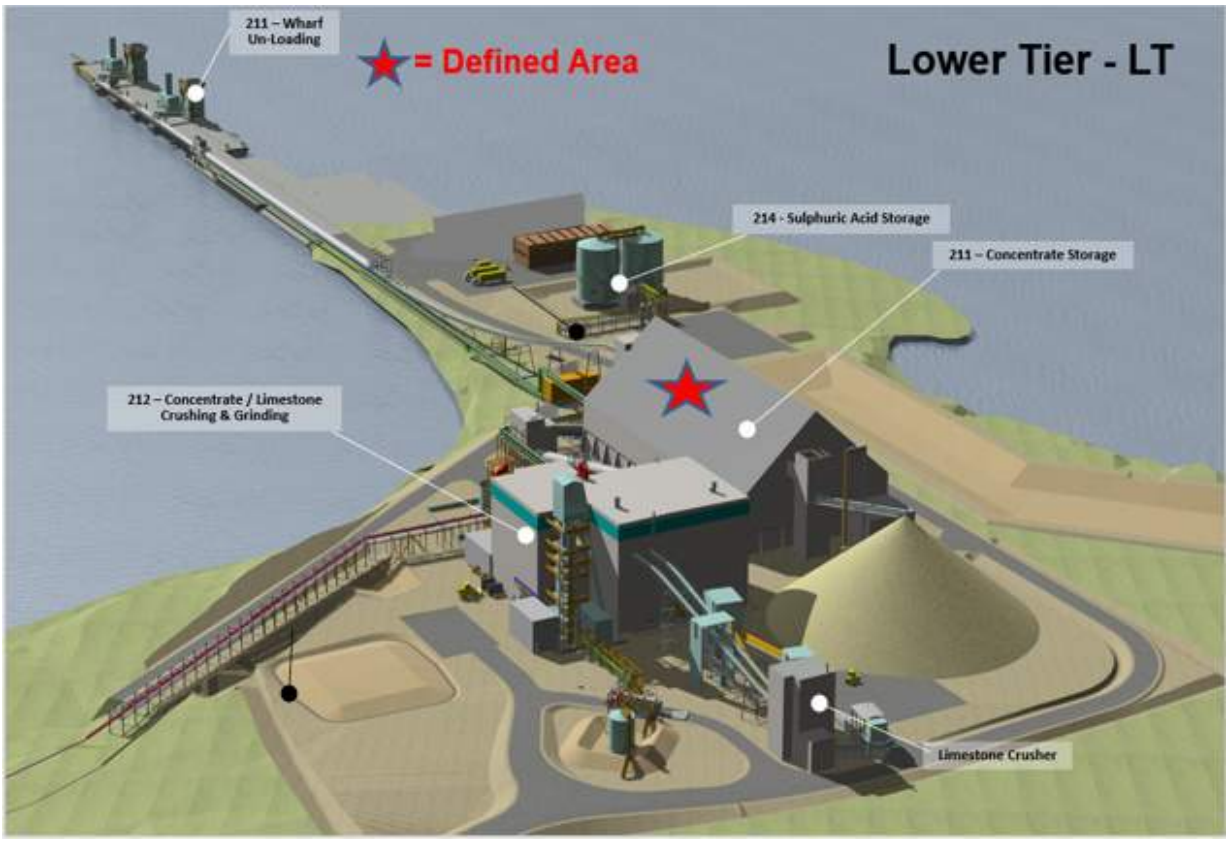
The following areas have been identified as High-Risk Areas at Vale LHO:

- *Area 211 – Concentrate Storage*
- *Area 221 – Pressurized Oxidative Leach (POL)*

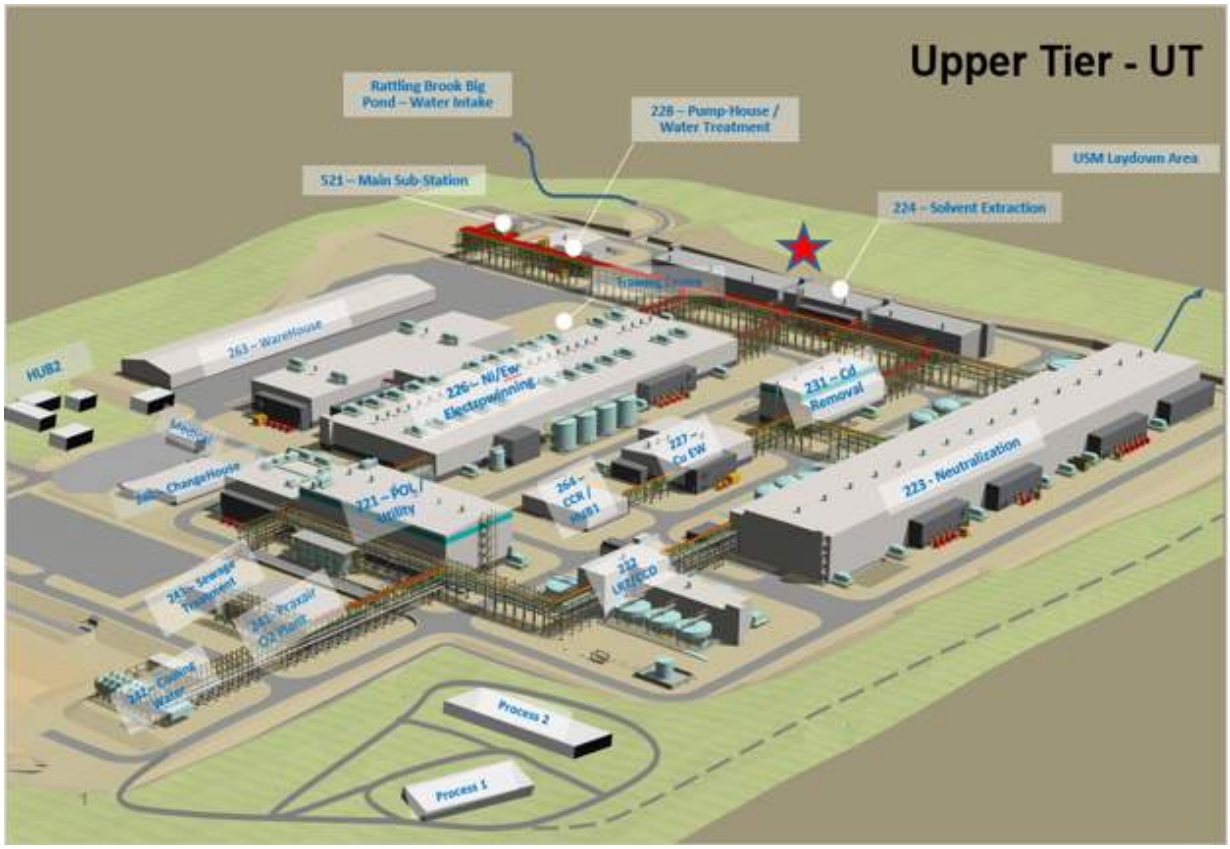
- *Area 224 – Solvent Extraction*
- *Area 231 – Cadmium Removal*
- *Area 229-580 – Boiler fuel offloading and storage*
- *Area 243 – Sewage Treatment*

***Note: A classified area is defined as an area containing hazardous substances that may result in a fire or explosion.*

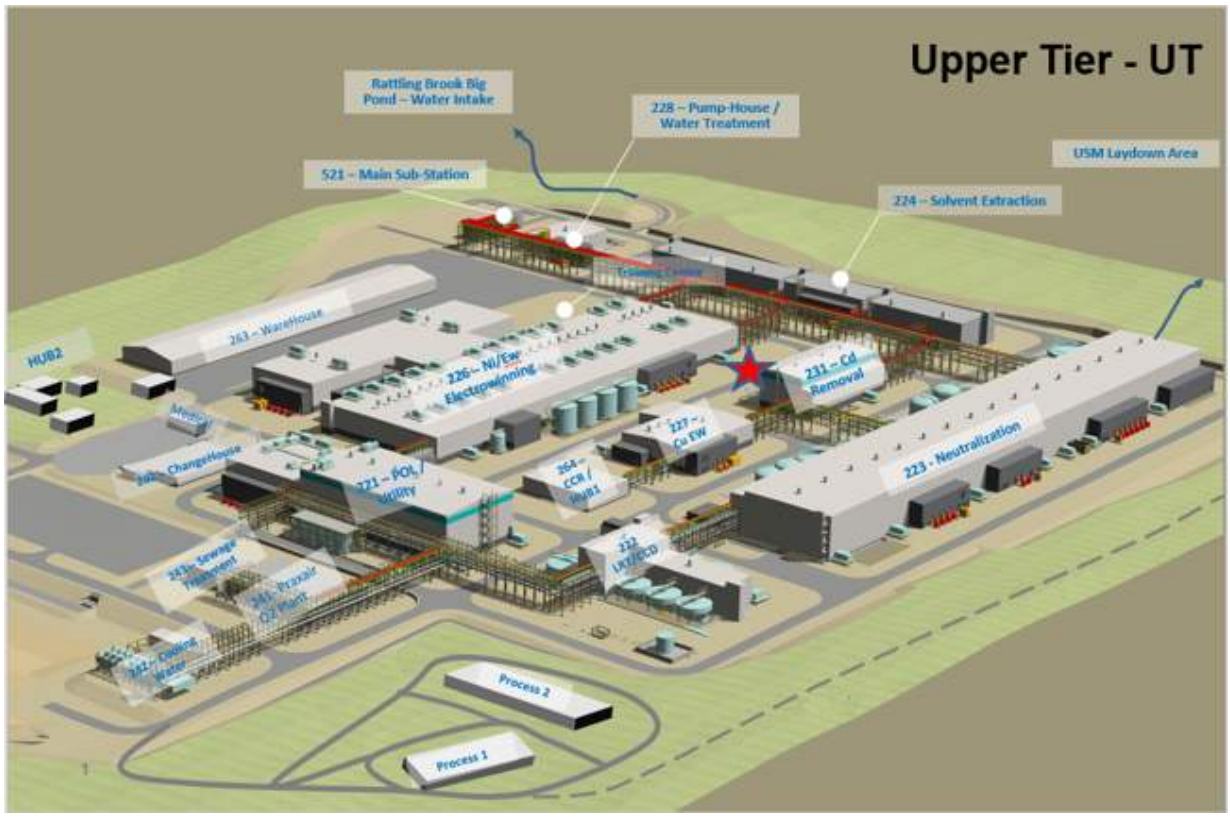
Click on the arrows to learn more about the High-Risk Areas at LHO



Area 211 – Concentrate Storage: *Concentrate dust has the potential ignite under the right conditions and for that reason, a higher level of risk assessment is required to complete hot work. A Job Hazard Analysis (JHA) is required for all hot work completed in area 211 and must be signed off by an area representative (coach, superintendent) as well as the work party. The JHA must outline how the work party intends to control any risk associated with the hot work they are completing and the controls they will use to prevent an incident.*



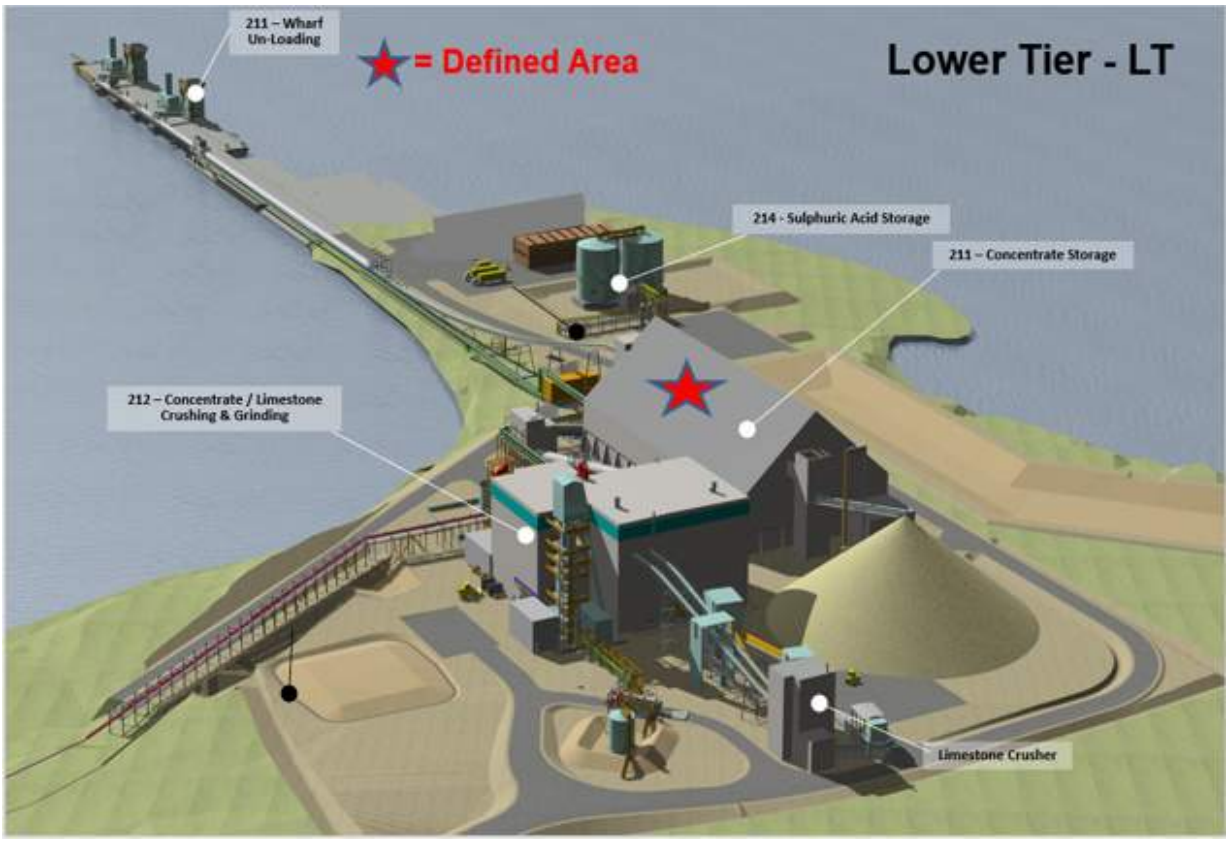
Area 224 – Solvent Extraction: *SX houses a large quantity of combustible material as part of the refining process used to create our final products. There is enough of this material present to create a potentially explosive atmosphere under the right conditions. As a result, this is considered a classified area and will require manager approval before any hot work can be completed.*



Area 231 – Cadmium Removal: *Cd removal contains an area where H2S "tonners" are stored for use in the process. In sufficient quantity these can produce an ignitable or explosive mixture. As a result, this is considered a classified area and will require manager approval before any hot work can be completed.*

Area 229–580 – Boiler fuel offloading and storage: *This area contains the fuel oil storage tank, transfer pumps, water separator and filtration. As it contains boiler fuel, risk of fire and explosion are possible. As a result, this is considered a classified area and will require manager approval before any hot work can be completed.*

Area 243 – Sewage Treatment: *Sewage treatment facilities may contain an explosive atmosphere in the form of Methane and H2S. These are a naturally occurring gases related to the decomposition of the material. As a result, this is considered a classified area and will require manager approval before any hot work can be completed.*



Area 221 – Pressurized Oxidative Leach (POL): *POL receives high-pressure oxygen used in the autoclaves as part of the leaching process. Any hot work conducted on or around the autoclaves must be properly risk assessed to ensure appropriate controls are in place to prevent a fire or explosion from occurring. This would likely include isolation and purging of sections of the oxygen supply system prior to the start of work.*

CONTINUE

Putting What You Know Into Practice:

The activities below will give you an opportunity to practice using the information you have just learned.

00:07

Classified areas on our site include:

- *231, 222, 224, 243*
- *224, 229, 231, 211*
- 224, 229, 231, 243
- *There are no classified areas on our site.*

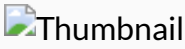
SUBMIT

Area 221 (POL) contains a high pressure oxygen system that requires special consideration prior to conducting hot work:

- ○ *True*
- ○ *False*

SUBMIT

Several areas of Long Harbour's processing facility contain materials that increase the risk of conducting hot work. Match the are to the associated risk:
Let's get started!



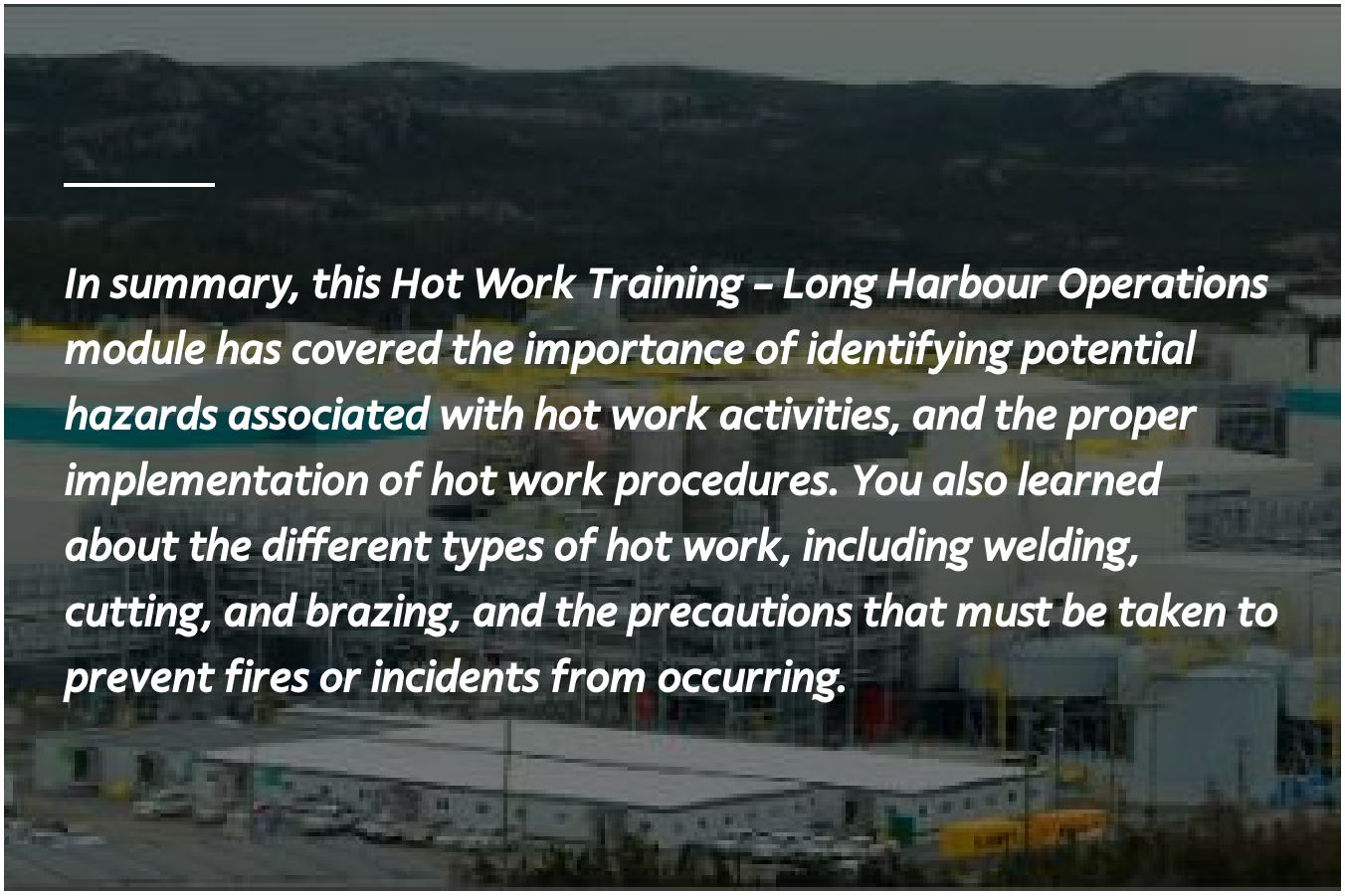
Got a Question?

Submit your question here using Valeforms, be sure to include your first name last name and contact information.

CLICK HERE!

Great! Now that you know where the high risk areas are at LHO, let's proceed to the summary section where you'll review what you have learned.

Summary



In summary, this Hot Work Training – Long Harbour Operations module has covered the importance of identifying potential hazards associated with hot work activities, and the proper implementation of hot work procedures. You also learned about the different types of hot work, including welding, cutting, and brazing, and the precautions that must be taken to prevent fires or incidents from occurring.

Completion of hot work in production area's must be properly risk assessed and always requires a permit. To re-iterate:

01:33

- *Always seek a cold work alternative or alternate designated hot work area to complete hot work.*

- *If alternatives are not possible, go to the area where the hot work will need to be completed to understand and plan for any hazards associated with completion of the hot work. This includes the removal of combustibles and use of fire blankets where needed. Always consider the 50ft rule.*

- *Obtain a hot work permit before starting the work. The hot work permit will outline a number of necessary steps as part of the process and may require area manager approval depending on the location of work. This will include the assignment of fire watch and area monitors for after the work is complete.*

- *Workers need to make sure they have chosen the correct fire extinguisher for the type of hot work they will be conducting. They also need to*

know what types of fire detection systems are in place in the hot work area.

- *If at any point, there is a change in the area or type of hot work – STOP and reassess. Additional or alternative hot work permits may be required.*

Complete the content above before moving on.

Well Done!

You have finished the module content. Now it's time to proceed with the final quiz.

Got a Question?

Submit your question here using Valeforms, be sure to include your first name last name and contact information.

CLICK HERE!

Online Training Survey

Submit your evaluation here using Valeforms, all submissions are anonymous.

Thankyou.

CLICK HERE!

Quiz

You will now take an evaluative test regarding the content of this training.

The test contains 21 questions about the the Permit to Work system in Long Harbour.

You must obtain a score of 80% or greater to successfully complete this module.

Good luck.

Question

01/21

The definition of hot work is:

- *A job or task that can produce any type of spark, flame, or ignition source, and that may ignite known combustible or flammable materials in the work area.*
- *Work that is completed when it is hot outside.*
- *Work that produces sparks.*
- *Any work completed on a lined vessel.*

Question

02/21

A Fire watch worker is a person that is:

(Select all that apply)

- [ ] *Assigned on a hot work permit.*
- [ ] *A competent or trained individual stationed in the hot work area that monitors the work area for the beginnings of potential unwanted fires but during and after hot work.*
- [ ] *Responsible to monitor the hot work area for 1 hour after the work is complete.*
- [ ] *Responsible to initiate emergency response in the event of a fire.*

Question

03/21

A Person in Charge (PIC) is responsible to:

(Select all that apply)

- [ ] *Review the hot work permit and ensure all listed controls are implemented.*
- [ ] *Ensure the requirements outlined in the permit and, hazard and risk assessment are understood and adhered to by all relevant work parties.*
- [ ] *Appoint a fire watch.*
- [ ] *Ensure appropriate risk assessments are completed before requesting permits.*

Question

04/21

The definition of a cutoff room is:

- *A room with no air.*
- *A room where vegetables are cut.*
- *A fully enclosed area constructed with fire-resistive materials where hot work is performed.*
- *A room between two other rooms.*

Question

05/21

A hot work designated area must consider the following:

(Select all that apply)

- [ ] *Access to hot work designated areas must be limited to authorized personnel.*
- [ ] *Signage must be posted at the entry way to hot work designated areas.*
- [ ] *All HVAC ductwork and insulation must be non-combustible.*
- [ ] *Enclose hot work designated areas in a cutoff room.*

Question

06/21

Cold work should always be the preferred alternative to hot work:

- ◯ *True*
- ◯ *False*

Question

07/21

Hot work permits can only be issued for a maximum of _____hours.

- ◯ *12*
- ◯ *16*
- ◯ *4*
- ◯ *8*

Question

08/21

The essential roles to be filled on a hot work permit are:

- ◯ *PIC, Fire Watch, Confined Space Attendant.*
- ◯ *Fire Watch, Permit Acceptor, Hot Work – Worker.*
- ◯ *Hot Work – Worker, PIC, Area Monitor.*
- ◯ *PIC, Hot Work – Worker, Fire Watch.*

Question

09/21

A hot work permit should be suspended or cancelled under what condition:

(Select all that apply)

- [ ] *The risk associated with the hot work has changed.*
- [ ] *A new hazard has been introduced to the hot work area.*
- [ ] *No fire suppression equipment is present in the hot work area.*

Question

10/21

A copy of the hot work permit must be readily available at the hot work location:

- ◯ *True*
- ◯ *False*

Question

11/21

A hot work permit is required for all hot work conducted in process areas on the plant site:

- ◯ *True*
- ◯ *False*

Question

12/21

The distance around hot work where all combustible materials must be removed is known as:

- *Minimum safe distance.*
- *The 50 ft rule.*
- *The 30 ft rule.*
- *Fire break.*

Question

13/21

All hot work completed in a classified area requires manager approval:

- ◯ *True*
- ◯ *False*

Question

14/21

The term used to describe conditions were the 50 ft rule would not apply due to isolating the hot work area is known as:

- *Delineating*
- *Identifying*
- *Barricading*
- *Boxing*

Question

15/21

If hot work is being completed in a confined space area, the vessel must always be vented to remove any hazardous gas created by the hot work activity:

- ◯ True
- ◯ False

Question

16/21

When conducting hot work at elevation you must:

- *Establish a 50ft perimeter in all directions, including suspension of welding blankets or boxing to prevent carryover to the area below.*
- *Do nothing more than for any other scope of hot work.*
- *Never conduct hot work at elevation.*
- *Close the building to all traffic until the hot work is done.*

Question

17/21

Firewatch must be performed following a hot work activity for a period of ___ hour before beginning area monitoring:

- ◯ *I hour*
- ◯ *2 hours*
- ◯ *3 hours*
- ◯ *0.5 hours*

Question

18/21

Area monitoring is required after fire watch is completed for a period of ____ hours in ____hour intervals:

- *4, 0.5*
- *3, 1*
- *6, 2*
- *2, 1*

Question

19/21

The requirements of the person performing Fire Watch include which of the following:

(Select all that apply)

- [ ] *Fire watchers must be trained to understand the hazards present in the workplace and the hazards associated with the hot work activity.*
- [ ] *Be familiar with the premises, know the location of the nearest fire alarm, and know the procedure for sounding an alarm if a fire breaks out.*
- [ ] *Provide constant vigilant fire watch during hot work operations and for not less than 60 minutes after completion to prevent fire and explosion.*
- [ ] *Watch and advise workers if any of their clothing becomes contaminated with a flammable or combustible liquid.*
- [ ] *If the fire watch needs to leave the hot work area, assign a temporary or permanent replacement in order to maintain a continuous watch.*

Question

20/21

Classified areas on our site include:

- *231, 222, 224, 243*
- *224, 229, 231, 211*
- *224, 229, 231, 243*
- *There are no classified areas on our site.*

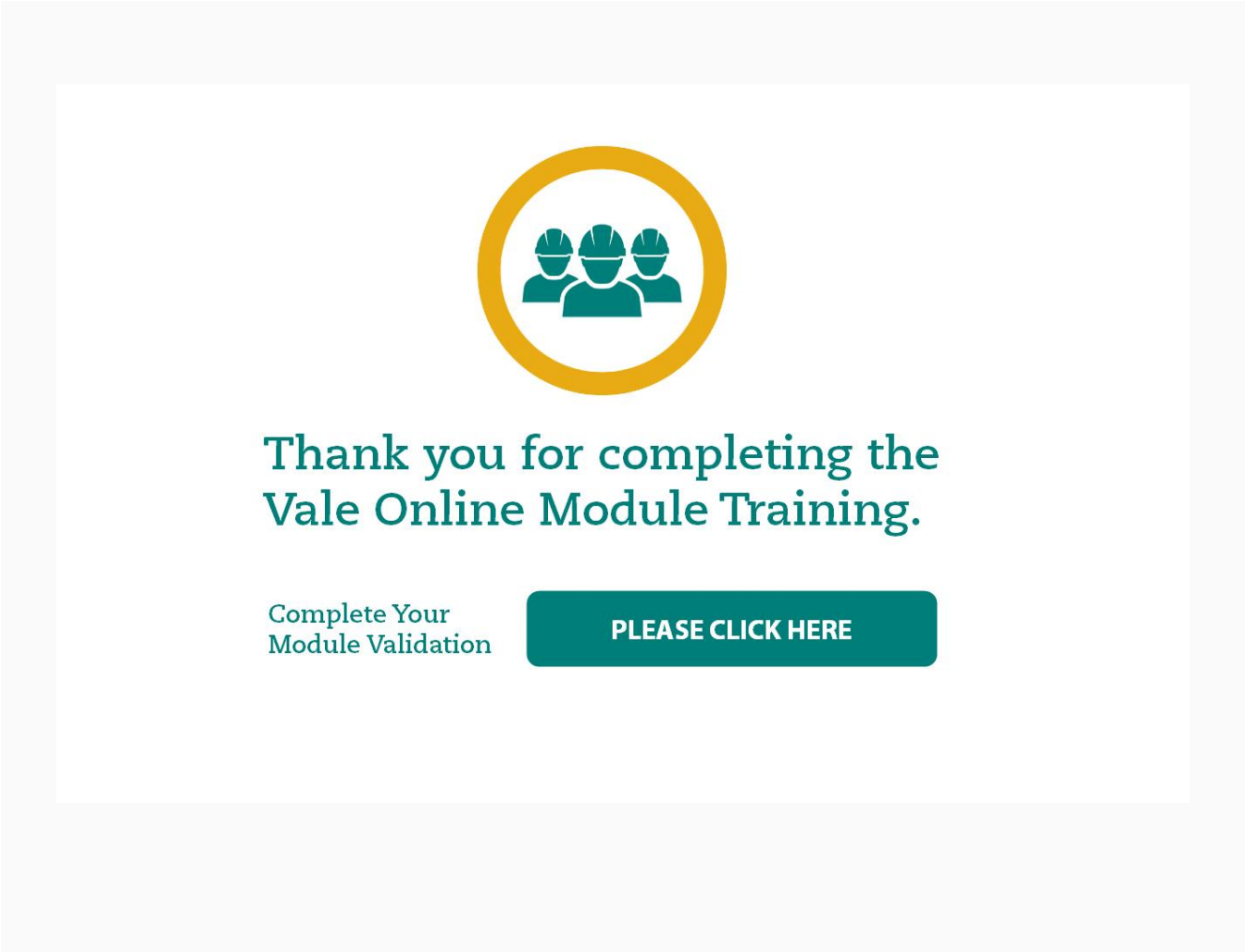
Question

21/21

Area 221 (POL) contains a high pressure oxygen system that requires special consideration prior to conducting hot work:

- ◯ *True*
- ◯ *False*

Conclusion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