

Hot Work and Permit

SWP-044

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**A MESSAGE FROM YUKON ENERGY
(Hot Work)**

The Yukon Energy Corporation (YEC) recognizes the potential for fire from hot work operations. For that reason this program should be implemented in all departments at YEC to protect employees and property from fire resulting from hot work operations.

This program applies to hot work activities in each department that meet the criteria set forth by this Program. The Program also applies to all contractors that provide a service to the facility by performing hot work operations.

This program does not apply to designated areas that have been equipped for such operations, i.e. maintenance shop (designated) welding areas. Hot work operations conducted outside these designated areas should only occur when all other means to perform the task have been exhausted.

1.0 Purpose

To establish hot work guidelines for safety of personnel, facilities, and equipment while working in/around areas containing flammable/combustible materials, such as wood, paper products, and rags; or, flammable liquids and gases, such as gasoline, diesel fuel, and liquefied natural gas (LNG).

For work on systems containing flammable liquids or gases, separate lockout/tag out (LOTO) procedures and permits may be required.

This Safe Work Practice (SWP) only applies to YEC properties.

A permit is required for all hot work performed on YEC properties.

2.0 Definitions

2.1 **Hot work** is defined as, “work involving burning, welding, or a similar operation that is capable of initiating fires or explosions”¹. This includes, but is not limited to welding, brazing, torch cutting, blade cutting, grinding, and soldering; and, includes hot work performed outdoors.

2.2 **Permit** is a document issued by YEC for the **purpose** of authorizing hot work.

2.3 **Fire watch** is the person identified on the Hot Work Permit to monitor the work area for the ignition of flammable/combustible materials.

2.4 **Person-in-charge (PIC)**, in the case of hot work, is the YEC designate overseeing the hot work for YEC (i.e., Plant Operator, Maintenance Technician, or Project Manager).

2.5 **Hot Work Person-in-charge (HWPIC)**, is the worker, or workers, actually performing the hot work, or overseeing the hot work (i.e., welder, plumber). This can be a YEC worker or a contractor.

2.6 **LNG** is liquefied natural gas; in any state; UN 1972; TDG class 2.1, flammable gas.

¹ Source – NFPA 51B; Standard for Fire Prevention During Welding, Cutting, and Other Hot Work

2.7 **Class I, Div. 2** is defined as an area where ignitable concentrations of flammable gases, vapors, or liquids are present within the atmosphere under abnormal operating conditions. Source – National Fire Protection Association (NFPA)

See Appendix A – YEC LNG Area Classification

3.0 Training Required

- YEC SWP-044; Hot Work & Permit training;

- Proper use and understanding of;
 - applicable YEC Safe Work Practices (SWP);
 - applicable YEC Safety Training Procedures;
 - YEC JSA/Tailboards; and,
 - Other applicable YEC safety programs.

- Proper use of iNet MX4 personal gas detectors and docking station; as required when working at Whitehorse Gas facility (WGO) or in a confined space.

4.0 Responsibilities

4.1 Directors/Managers

Are responsible to ensure that:

- 4.1.2 All aspects of the YEC Hot Work Program are implemented and followed;
- 4.1.3 All workers performing or overseeing hot work are trained and competent to perform the tasks assigned;
- 4.1.4 By way of periodic audits, verify that hot work complies with YEC policies, procedures, and applicable regulations.

4.2 Leadhands, Supervisors, and Project Managers

Are responsible to ensure that:

- 4.2.1 All aspects of the Hot Work Program are implemented and followed;
- 4.2.2 All workers performing or overseeing hot work are trained and competent to perform the tasks assigned;
- 4.2.3 Equipment isolation is performed in accordance with established YEC LOTO procedures;
- 4.2.4 Ensure that workers use the safety equipment necessary to safely perform the hot work;
- 4.2.5 All workers under their direction are made aware of the YEC SWP-044; Hot Work & Permit and of their roles and responsibilities with respect to the Program;
- 4.2.6 A copy of the hot work permit is posted in a conspicuous location;
- 4.2.7 By way of periodic audits, verify that hot work complies with the YEC Hot Work Program, YEC policies and procedures; and, Yukon OH&S Regulations.
- 4.2.8 Periodically review completed hot work permits.

4.3 YEC Person-in-charge (PIC)

Is responsible to ensure that:

- 4.3.1 All aspects of the Hot Work Program are implemented and followed;
- 4.3.2 Site-specific inspections are performed in the hot work area to identify flammable/combustible materials, hazardous processes, or other potential fire hazards that could be present;
- 4.3.3 Flammables/combustibles are protected from sources of ignition by meeting the following criteria:
 - a. Moving hot work to a location free of flammable/combustible materials; or
 - b. If work cannot be moved, remove flammable/combustible materials to a safe distance from the operation or shielding from ignition source.
- 4.3.4 Appropriate PPE is worn based on the hazard assessment for hot work tasks;
- 4.3.5 Appropriate fire extinguishing equipment is in the hot work area;

- 4.3.6 Designate a fire watch person;
- 4.3.7 Complete the hot work permit, review the permit with all workers required to perform tasks in the hot work area;
- 4.3.8 Review cancelled hot work permit, sign and forward to Records Management for retention.

4.4 Hot work person-in-charge (HWPIC)

Is responsible to ensure that:

- 4.4.1 All aspects of the Hot Work Program are followed;
- 4.4.2 All flammable/combustible materials in the hot work area are removed;
- 4.4.3 All flammable/combustible materials in the hot work area, that cannot be removed, are protected from sources of ignition by meeting the following criteria:
 - a. Moving hot work to a location free of flammable/combustible materials; or
 - b. If work cannot be moved, remove flammable/combustible materials to a safe distance from the operation or shielding from ignition source.
- 4.4.4 Screens to protect personnel in adjacent work areas from heat, flames, UV, radiant energy and weld splatter, are adequately placed;
- 4.4.5 Ensure all equipment used for the hot work is in good operating condition.

4.5 Health & Safety

The H&S department to ensure that:

- 4.5.1 Hot Work Program documents are current and accurate;
- 4.5.2 Hot Work SWP training for YEC workers is provided, as required.

5.0 Hot Work Guidelines

- 5.1 A permit is required for all 'hot work', at all YEC facilities and work areas, when fire/explosion hazards exist and have been identified using the hazard assessment process (JSA/Tailboard), including 'hot work' undertaken outdoors.

- 5.2 A hot work is not required in areas specifically designed and equipped for the purpose (i.e., welding shop/room).
- 5.3 Workers engaging in 'hot work' must wear appropriate PPE, as required, including but not limited to:
- a. Safety headwear;
 - b. Eye and face protection;
 - c. Safety glasses or goggles;
 - d. Clothing selected to minimize the potential for burning or ignition (i.e., FR clothing; 100% cotton or other non-melting fabric);
 - e. Hearing protection;
 - f. Suitable welding helmet (as required);
 - g. Respiratory PPE (as required);
 - h. Gloves.
- 5.4 Workers adjacent to welding areas shall be protected from radiant energy by shielding, wearing adequate PPE, or restricted access.
- 5.5 The Hot Work Permit must be completed and reviewed by the Person-In-Charge (PIC) and the Hot Work Person-In-Charge (HWPIC) for each day that the 'hot work' is required.
- 5.6 A Hot Work Permit must not be issued if the fire protection system or equipment has been taken out of service.
- 5.7 The completed, approved permit must be posted at the work site in an accessible and conspicuous location.
- 5.8 When required, adequate ventilation shall be provided for all 'hot work' operations.
- 5.9 Adequate fire extinguishing equipment shall be immediately available at the 'hot work' location and remain at the location for the duration of the work.
- 5.10 DO NOT relocate in-service fire extinguisher(s) to the hot work location.
- 5.11 Fire watch is required for a ***minimum 30 minutes after the completion of the 'hot work'***, and anytime the work area is left unattended for more than 15 minutes.
- 5.12 Fire Watch is also required whenever flammable or combustible material may be easily ignited; or flammable or combustible material could be ignited by conduction or radiation through metal partitions, walls, ceilings, or roofs.

- 5.13 A documented inspection for all 'hot work' equipment must be performed prior to use to ensure it is in good operating condition.
- 5.14 Flammable and combustible materials within 10 meters of the 'hot work' area must be removed or adequately shielded or protected.
- 5.15 Ensure an effective fire emergency plan is completed and reviewed by all workers on the Hot Work permit.

6.0 Hot work at YEC LNG facility

- 6.1 A permit is required for all hot work at the YEC LNG property.
- 6.2 Hot work in the WG0 area designated as **Class I; Zone 2** (see App. A - YEC LNG Area Classification) must be approved by the YEC Operations department.
- 6.3 Hot work at WG0 may only be performed when the proper procedures are used and permits are in place.
- 6.4 No hot work may only be performed on piping, vessels, or other equipment that contain/contained LNG unless the proper procedures are used; and permits are in place.
- 6.5 Workers performing hot work at YEC LNG property are required to wear a personal gas monitor at all times.
- 6.6 Personal gas monitors must be calibrated within 30 days of use; and, bump tested prior to each days use.
- 6.7 Workers using personal gas detectors must be trained and competent to use the equipment.
- 6.8 Workers performing hot work at YEC LNG property are required to test the area for potential gas (methane; CH₄) leaks prior to starting the hot work.

Appendix A – YEC LNG Area Classification (Class I; Zone 2)

