


<i>HEALTH AND SAFETY MANUAL</i>	
Title: Work Permit Safety Program	
Approved by: Greg Savoy	Rev. 1/1/08

1 Purpose/Scope:

The purpose of this program is to provide a consolidated work permit process that promotes communication between all parties at a work site and ensures proper safety procedures are followed for all confined space entry, hot work and line breaking activities in order to safeguard people, property and the environment. This program is intended to be used as an addendum to the specific program requirements contained in the Confined Space Entry and the Welding, Cutting and Brazing programs.

Work Permits are required for all confined space entry, hot work and line breaking activities conducted by Company employees. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Company employees and contractors and shall be used on owned premises, or when an operator's program doesn't exist or is less stringent.

2 Definitions/Responsibilities:

2.1 Definitions:

2.1.1 Attendant – a trained person, stationed outside the confined space, who monitors the authorized entrants inside the confined space; formerly known as a “standby”.

2.1.2 Authorized entrant – a trained person, authorized by the Company to enter a confined space.

2.1.3 Confined space – a space that:

- Is large enough and so configured that personnel can bodily enter and perform assigned work;
- Has limited or restricted means for entry or exit;
- Is not designed for continuous occupancy.

2.1.4 Consolidated work permit – a single work permit that covers confined space entry, hot work and line breaking.

- 2.1.5 Entry – when any part of a person’s body breaks the plane of an opening into a confined space.
- 2.1.6 Entry supervisor – the person in charge of the confined space entry operation.
- 2.1.7 Hazardous Atmosphere – an atmosphere that may expose an authorized entrant, person performing hot work or a person performing line breaking to the risk of death, incapacitation, impairment of ability to self rescue, injury or acute illness from one or more of the following causes:
- Atmospheric oxygen concentration below 19.5% or above 23.5%.
 - Flammable gas, vapor or mist in excess of 10% of the Lower Explosive Limit (LEL); also indicated as Lower Flammable Limit (LFL).
 - A toxic atmospheric concentration that could cause an exposure to the employee.
 - Combustible dust accumulation of greater than 1/16 inch within 35 feet of the area where welding/hot work will be conducted.
 - Any atmospheric condition that is Immediately Dangerous to Life and Health (IDLH).
- 2.1.8 Hot work – any activity that produces heat, sparks or open flame that could act as an ignition source for flammable materials.
- 2.1.9 Immediately Dangerous to life and Health (IDLH) – any condition that poses an immediate threat to life and health, exposure to the substance would cause irreversible health effects or would interfere with an individual’s ability to self rescue.
- 2.1.10 Level I Confined Space – a confined space that does not contain, or concerning atmospheric hazards have the potential to contain, any hazard capable of causing death or serious physical harm.
- 2.1.11 Level II Confined Space (also called an OSHA confined space) – a confined space that has one or more of the following characteristics:
- Contains or has the potential to contain a hazardous atmosphere.
 - Contains a material that has the potential for engulfing an entrant.
 - Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section.
- 2.1.12 Line Breaking – the act of opening a closed system containing unknown materials or known hazardous materials.

2.1.13 Person-in-Charge – an employee who is competent and able to recognize hazards, take corrective actions and is authorized by Company management to issue work Permits.

2.1.14 Self rescue – a person’s ability to escape unaided from a confined space or a work area where hot work or line breaking activities are being performed.

2.2 Responsibilities:

2.2.1 Managers/Supervisors are responsible to:

- Ensure that all Persons-in-Charge of issuing work permits are knowledgeable in their specific responsibilities.
- Ensure all program requirements in conjunction with work permitting are followed.
- Employees have the proper tools to complete the work, under a work permit, safely.
- Ensure that all employees are adequately trained to perform the actions required.
- Ensure that all work permits are retained and filed in the area office for one year.

2.2.2 Employees are responsible to:

- Stop the job if unsafe or permit conditions change.
- Understand their responsibilities for the position (entrant, attendant, fire watch, etc.) they are assigned.
- Follow all work permitting and program requirements associated with the job.

3 Requirements:

3.1 General:

3.1.1 Employees must be designated by their respective manager as a “Person-in-Charge” before that employee is authorized to issue a work permit.

- Individual employees designated as a “Person-in-charge” may issue work permits to themselves.

3.1.2 The work permit is valid for a duration of one shift, a maximum of 12 hours, until the work is completed is less than one shift or 12 hours, or if the conditions change causing a hazard.

- If conditions change causing a hazard, the current permit is cancelled; all work must stop and entrants must exit the confined space.
- The job must be permitted again before any work activities resume.

3.1.3 If work has not started or is suspended for a duration of fifteen (15) minutes, or the job left unattended at any time, following issuance of the permit, the work area must be verified safe by re-monitoring the work area.

- The new set of air monitoring data must be entered on the back of the work permit.

3.2 Confined Space:

3.2.1 All requirements for confined space entry as described in The Company's Confined Space Entry Program and instructions for completing the work permit supplied in this program must be followed.

3.3 Hot Work:

3.3.1 Sections 3.1 and 3.2 of the Company Welding, Cutting and Brazing program must be reviewed and followed for all activities covered by that program including work permitting.

3.3.2 Hot Work Procedure:

- A hot work permit must be issued for all hot work in hazardous areas. The hot work and hot work procedures must be followed to ensure a valid permit is issued and the job can be completed safely.
- Preliminary inspection and preparation of the hot work area. The worksite, within a 35 foot radius around the hot work, must be inspected for any flammable or combustible materials.
 - ✓ If any are found within the perimeter, they must be removed, protected with fire resistive covers or protected by some other means to prevent their ignition.
 - ✓ Ensure that the equipment has been properly prepared and isolated.
 - ✓ Identify fixed fire protection systems in the area which may be activated by hot work and take steps to minimize this possibility.
- Flammability Testing (LEL and O2 checks):
 - ✓ Using an oxygen and combustible gas detector, monitor the area within the 35 foot perimeter of the hot work for oxygen content and combustible gas.

- Safe readings equal 19.5 – 23.5 % oxygen and below 10% of the Lower Explosive Limit (LEL).
- Hot work shall not be conducted if the oxygen level is outside of the set range or if the combustible gas test indicates a concentration of flammable or combustible gas or vapor above 10% LEL.
- ✓ If the LEL reading is above 10% LEL, the following must occur to perform hot work:
 - Lower the LEL to below 10%; or •Lower the oxygen content to a level below 10% by purging with inert gas;
 - Purging or cleaning the equipment in an effort to lower the LEL below 10%.
- ✓ If the possibility exists that gas or vapor could build up, continuous monitoring for LEL must be conducted.

Fire Watch:

- ✓ Hot work activities, except internal sparking tools and vehicle exhaust used for thawing, that may result in the possibility of igniting flammable or combustible materials must have a fire watch present.
 - The fire watch shall be provided during and for a minimum of 30 minutes past the completion of the hot work.
 - The fire watch shall have no other duties except those described below:
 - The area shall be continuously monitored by the fire watch.
 - If the fire watch must leave the area, and is not replaced, the hot work must stop.
 - The fire watch must be trained and knowledgeable in the facility's emergency plan, proper personal protective equipment requirements and safe work practices.
 - The fire watch must be trained in and demonstrate competency with all equipment he/she will be required to operate, e.g., fire extinguishers, firewater, combustible gas detectors, radios, etc.
 - The fire watch shall inspect all equipment prior to use.
 - The fire watch shall alert all personnel entering the permitted area of hazards, such as, grinding, cutting, arc-flashes, etc.

- The fire watch shall stop all hot work when any hazardous condition develops, e.g., release of flammable materials, heat or sparks project outside of permitted area, unintentional flame has developed, etc.
- Communications must be maintained with personnel involved with the hot work.
- The fire watch must know how to communicate with appropriate personnel if an incident occurs that the fire watch cannot control.
- The fire watch is responsible for returning all equipment, required by fire watch, to appropriate storage areas upon completion of the job.

3.4 Line Breaking:

3.4.1 Breaking a flanged or screwed connection or cutting into piping is in essence breaking into a closed system; regardless of the checks made and instruments employed, it must be assumed that at the point where the line is to be broken there is hazardous materials that will discharge from the opening.

- All lines must be considered hazardous until proven safe for work.

3.4.2 The following actions must be taken before a line is broken:

- The line to be broken shall be traced out by a knowledgeable person in the process.
- In the event positive identification of a buried line cannot be made, either a 1" hot tap saddle shall be clamped on the line or a 1" weld-on-let shall be welded on the line where it is to be cut.

- ✓ The clamp used shall be capable of holding the maximum pressure of the line.

- Before hot tapping, the saddle shall be pressure tested to verify the saddle is sealed to the pressure equivalent to the maximum pressure of the line.
- The line shall be hot tapped through a 21" valve, then verify the line is safe to cut by testing, sampling and/or monitoring the contents.

- All energy sources that could lead to line pressurization, e.g., pumps, blowers, float valves, dump valves, etc. must be locked out via lock out/tag out procedures.

- ✓ The portion of the line being broken shall be isolated from those preceding and following it in the most effective way possible.
- ✓ Lines and adjacent equipment open to the line must be de-pressured and drained, making certain that all drain valves are open and cleared to provide drainage and to prevent the possibility of an air lock.
- ❑ All open lights, fire or other sources of ignition downwind of the line must be controlled.
- ❑ Proper emergency equipment must be available at the point of line breaking for the hazards present in the line.
 - ✓ Flammable liquids or gas require proper fire protection; for corrosive materials, a water supply must be available.
- ❑ Before the moment of line breaking occurs:
 - ✓ A properly executed Line Breaking Permit must be issued.
 - ✓ Where appropriate, the area must be roped off to provide safe isolation to nearby workers and passersby.
 - ✓ Where floor openings are near or work is being performed on an elevated line, exposed areas on floors and below the elevated work shall be isolated by barricades.
- ❑ Shield the joint whenever possible, stand aside to avoid possible spray, use suitable containers to collect the drainage.
- ❑ Initial cuts into the line shall be made using a “cold cutting” device.
- ❑ If a line cannot be opened without burning flange bolts (a hot work permit may be required), all flange bolts shall be replaced one at a time without separating the flange joint; after all bolts are replaced, the joint may be separated.
- ❑ After the initial breaking into the line and after it has been determined that there are no further line breaking hazards, the Line Breaking Permit is voided and further breaking of the line may proceed with out a permit.

3.5 Work Permit Procedure:

- 3.5.1 Before starting any work requiring a permit, the area must be certified safe by the person-in-charge issuing the permit by conducting an inspection of the worksite.

4 References:
 None.

5 Exhibit:

 Attachment A - **Instructions For Completing the Work Permit**

 Attachment B - **Company Work Permit.EXHIBIT W-5.1**

Attachment A

INSTRUCTIONS FOR COMPLETING THE WORK PERMIT

Complete Items 1-5 for all permits:

Items 1 & 2: Enter the work location and a brief description of the work to be performed.

Item 3: Enter notification of appropriate personnel, such as facility supervisor, operator in charge of area, etc.

Item 4: Enter permit duration; the duration of the permit must not exceed the time required to complete the assigned task up to 1 shift or 12 hours maximum.

Item 5: Indicate all personal protective equipment required for the job.

Complete Items 6 – 11 for all confined space (level I & II) entries and all hot work and line breaking:

Item 6, 7 & 7a: Determine that the equipment, line, vessel or confined space is properly identified, cleaned and isolated by blinding, disconnecting, using Lock out/tag out, etc.

Item 8: Determine that the equipment, line, vessel or confined space has been drained and cleaned.

Item 9: Enter the atmospheric monitoring results.

- Certifying that the area is safe requires that the work area is inspected and tested for oxygen level (19.5% - 23.5%), combustible gas level (level I entries, single person entry 0% LEL; attended entry <10% LEL and hot work < 10% LEL), and toxic materials using appropriate equipment.
- Toxic gas concentration must be at or below the Threshold Limit Value (TLV) for the specific material if respiratory protection will not be used.
- Use the back of the form to record additional monitoring or test results.
- If work has not started within 15 minutes of issuing the permit, the atmosphere must be re-tested, verified safe and recorded on the back of the permit.
- Continuous monitoring for flammability or toxic material is required if there is a possibility of flammable gas or vapor building up in the area.

Item 10: Determine the need for forced air ventilation.

Item 11: A trained attendant is required to monitor the authorized entrants who will be in the confined space.

- Enter the name of the current Attendant on the permit.
- If the attendant changes, up date the permit to reflect the change.

Complete Items 12 – 18 for all OSHA confined space entries (Level II):

- Item 12: Enter the communication method used between the attendant and the entrants, such as radio, hand signals, etc.
- Item 13: If applicable, enter emergency rescue equipment available at the site.
- Item 14 – 16: Enter emergency rescue service and emergency medical service names and telephone numbers.
- Enter method of summoning medical service in Item 14.
- Item 17: Enter the alarm system that will be used by the attendant to alert entrants of an emergency or potential emergency condition.
- Item 18: Describe any additional hazards of the space.

Complete Items 19 – 22 for all hot work:

- Item 19: To certify the area free from flammable and vapors and combustibles, inspect and test a 35 foot radius around the work area.
- Flammable or combustible materials within the 35 foot radius must be removed, covered or otherwise controlled to prevent ignition.
 - No hot work shall be conducted in the area if the combustible gas detector indicates a concentration of flammables above 10% LEL.
 - If the level is above 10% LEL, the area must be:
 - Ventilated or purged to bring the concentration of flammables down to 10% LEL or less.
 - When purging with an inert gas, the oxygen content must be taken to a level below 10% O₂; or
 - Cleaning the equipment or area to the extent required to bring the concentration of flammables within the acceptable range.
- Item 20 & 21: The person-in-charge of the job must ensure that a fire watch and adequate fire extinguishers are available at the work site.
- A fire watch must be present when flammables or combustibles may be ignited by hot work, except for internal sparking tools and vehicle exhaust used for thawing.
 - The fire watch must remain at the site for 30 minutes after completion of the hot work, to ensure that all ignition sources have been eliminated before leaving the work area.
- Item 22: The Person-in-charge of the job must declare if the equipment, area, vessel or line is ready for hot work.

Complete Items 23 – 25 for all permits:

- Item 23: Describe any additional special precautions not entered elsewhere on the permit.
- Item 24: When the job is completed, use the work completion checklist to help determine that the work is complete and ready to be placed back into service.

Item 25: To complete the permit process, the Person-in-Charge must review the permit with all persons responsible for performing the work.

- The permit must be signed by the person-in-charge and displayed at the worksite for the duration the permit is in force.
- For all confined space entries: the entry supervisor and the authorized attendant must print their name, sign and indicate function on the front of the permit.
- All entrants must sign in and check out of the space on the back of the permit.
- For all hot work and line breaking: The Person-in-Charge, fire watch and person(s) doing the work must print name, sign and indicate function on the front of the permit.

If the area is declared safe and a properly executed permit is present, the job can now be performed.

WORK PERMIT

NOTE: Download WORK PERMIT from Safety Website..

WORK PERMIT				
CHECK ALL THAT APPLY		<input type="checkbox"/> CONFINED SPACE ENTRY	<input type="checkbox"/> HOT WORK	<input type="checkbox"/> LINE BREAKING
COMPLETE ITEMS 1-5 FOR ALL PERMITS				
1	Location of work _____			
2	Description of work _____			
3	Have appropriate HGC personnel been notified of the work?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Time _____ Date _____				
4	Permit duration:	From: _____ Date _____		
		To: Time _____ Date _____		
NOTE: An issue on one of the following causes the permit to void - After 12 hours, - End of Shift, - End of job, or - Conditions change that alter the permit				
5	PPE (check all that are required for the job):			
<input type="checkbox"/> Hard hats <input type="checkbox"/> Safety Glasses <input type="checkbox"/> Rubber boots <input type="checkbox"/> Head protection <input type="checkbox"/> Skin creams <input type="checkbox"/> Goggles <input type="checkbox"/> Welders helmet/glasses <input type="checkbox"/> Face shield <input type="checkbox"/> Hearing protection <input type="checkbox"/> Electrical equipment <input type="checkbox"/> Lifeline <input type="checkbox"/> Safety harness/lanyard <input type="checkbox"/> Retrievable line <input type="checkbox"/> Chemical impervious clothing <input type="checkbox"/> Respiratory protection (if applicable) _____ <input type="checkbox"/> Other (explain): _____				
6	Has the equipment line, vessel, or confined space been properly identified?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
7	Has the equipment line, vessel, or confined space been isolated?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
7a	Isolation techniques used (check all that apply):			
<input type="checkbox"/> Blinding, blanking <input type="checkbox"/> Plugging (lead or other) <input type="checkbox"/> Locking lines <input type="checkbox"/> Lockdown protection off <input type="checkbox"/> Drugging valves <input type="checkbox"/> Double block & bleed <input type="checkbox"/> Mechanical lockout <input type="checkbox"/> Stored energy eliminated Electrical lockout (explain): _____ Electrical tagout (explain): _____ Other (explain): _____				
8	Has line, vessel, or confined space been deaired and altered?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
How? <input type="checkbox"/> Wanking <input type="checkbox"/> Air purging <input type="checkbox"/> Ventilating <input type="checkbox"/> Inert gas purging				
Other (explain): _____				
9a	Atmospheric testing results _____ X O2 (safe - 19.5-23.5%) _____ X L.E.L. (safe <10% L.E.L.)			
Toxicity testing _____ (analytical name) Measurement _____ (ppm) Tester's initials & line _____				
10	Is forced ventilation required?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
11	Name of attendant _____			
COMPLETE ITEMS 12-18 FOR AN OSHA CONFINED SPACE (LEVEL III) ENTRY				
12	Communication method used by attendant to monitor entrants (explain) _____			
13	Emergency rescue equipment at site?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
List equipment _____				
14	Emergency rescue rescuer name and telephone no. _____			
15	Emergency medical rescuer name and telephone no. _____			
16	How will medical rescuer be summoned? (list the method) _____			
17	Alarm system to be used (describe) _____			
18	Any additional hazards of the space? (explain) _____			
COMPLETE ITEMS 19-22 FOR HOT WORK				
19	Is hot work area free from flammable vapors and all combustibles?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
20	Name of fire watch _____			
21	Is fire extinguisher(s) at site of hot work?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
22	Is area, vessel, or line ready for hot work?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
COMPLETE ITEMS 23-25 FOR ALL PERMITS				
23	Additional special precautions (explain): _____			
24	Work Completion Checklist			
a. Is equipment purged or pressure'd? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A b. Are equipment vessels altered? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A c. Is completed work checked with operator? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A d. Is area clear of oil and other flammables? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A e. Are all tools and equipment removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A f. Is the work area clear of debris? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A g. Are equipment blinds removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A h. Are valves open with locks/tag removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A i. Are utilities altered with locks/tag removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A j. Are required pressure tests complete? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A				
25	Personnel: _____			
PRINTED NAME		SIGNATURE		FUNCTION (ENTRY SUPERVISOR, ATTENDANT, FIREWATCH, ETC.)