SPECIAL PROVISION NO. 1

PERMIT SPACE ENTRY

PROCEDURES

CITY OF COUNCIL BLUFFS, IOWA

CONFINED SPACE ENTRY POLICY – B-2

Purpose

This policy establishes the minimum requirements for safe entry, continued work in, and exit from confined or hazardous spaces.

Applicability

This policy applies to all City employees that may, in the course of their employment, be required to work in a confined or hazardous space.

The procedures described in this policy are mandatory for entry and work in confined spaces. Written entry permits are required for all confined space entry and work as follows:

Issuance of Permits

Entrance to a confined space or hazardous area will only be authorized by the signature of the entry permit by the person in charge of entry. The person in charge of entry will only sign the entry permit after completing the permit entry form which will certify that all gas detection testing and required ventilation of the confined space has been accomplished and that all specified safety and hazard warning equipment is available at the site and is in place and that an attendant will be stationed at the entrance to the confined space throughout the period of work in the confined space.

Duties of the Person In Charge of Entry

A. The person in charge of the entry shall:

    1. Assure that the pre-entry portions of the permit are completed before any employee enters a confined space.

    2. Verify that the necessary pre-entry conditions exist.

B. If the person in charge of entry is present throughout the entry and work period, this person may serve as the attendant if they meet the requirements of an attendant.

Duties of the Attendant

The attendant shall:

1. Remain outside the confined space or hazardous area.

2. Maintain continuous communication with all authorized entrants within the confined space by voice, radio, visual observation, or other equally effective means. If it is not possible for one attendant to maintain communication with each entrant because of the work station of the entrant in the confined space or hazardous area, other arrangements shall be made to assure that the attendant is continuously aware of the location and condition of any entrant who is out of range of direct communication in the confined space because of his/her work station;

3. Have the authority to order entrants to exit the confined space at the first indication of a non-permitted condition, an unexpected hazard, indication of a toxic reaction, for example, unusual conduct by the entrants if a situation occurs outside the confined space that could pose a hazard to the entrants;

4. Know the procedure and have the means to summon immediate emergency assistance if needed;

5. Remain in his/her post and not leave for any reason except self-preservation, unless replaced by an equally qualified individual while entry continues. The attendant shall order the entrants to exit the confined space if the attendant must leave and there is no replacement and;

6. Warn unauthorized persons not to enter, or to exit immediately if they have entered, and advise the authorized entrants and division superintendent of entry by unauthorized persons.

Training

Formal training will be conducted on an annual basis for all employees.

A. Training for all Employees:

1. The City shall assure that all employees who may be exposed to confined spaces in the course of their employment are aware of the appropriate procedures and controls for entry.

2. The City shall assure that all employees are aware that unauthorized entry into such spaces is forbidden.

3. The City shall make all employees aware that the consequences of unauthorized entry could be fatal, and that their senses are unable to detect and evaluate the severity of the atmospheric hazards.

Training for Authorized Entrants

1. The City shall assure that every employee, before entering a confined space containing a potentially hazardous environment understands the nature of the hazard and the need to perform appropriate testing to determine if it is safe to enter.

2. Employees shall be taught the proper use of all personal protective equipment, including respirators and clothing required for entry or rescue, and the proper use of protective shields and barriers.

3. Employees shall be trained to exit from a confined space as rapidly as they can without help (self-rescue) whenever an order to evacuate is given by the attendant, whenever an automatic evacuation alarm is activated, or whenever employees recognize the warning signs of exposure to hazardous substances whose presence in the confined space is known or expected.

4. Employees should be made aware of the toxic effects or symptoms of exposure to anticipated hazardous materials that may be inhaled or absorbed through the skin. Employees shall be trained to relay an alarm to their attendant and to attempt self-rescue immediately on becoming aware of these effects.

5. The City shall train employees in any modification of normal work practices that are necessary for work in confined spaces.

6. Employees performing atmospheric tests of the confined space should be properly trained in the use of testing equipment.

Training for Person Authorizing or In Charge of Entry

The person in charge of entry shall be trained to:

1. Recognize the effects of exposure to hazards reasonably expected to be present and;

2. Carry out those duties that the entry permit assigns to the person in charge of entry.

Training for the Attendant

The attendant shall be trained in:

1. Proper use of communications equipment furnished by the City for communicating with authorized entrants or summoning emergency or rescue services;

2. Authorized procedures for summoning rescue or other emergency service;

3. Recognition of the early behavioral signs of intoxication caused by contaminants or asphyxiates whose presence could be anticipated in confined space.

4. The training requirements for entrants of the permit specify that the function of the attendant will alternate among the authorized entrants.

The Entry Permit

The confined space and hazardous area permit must be properly completed for every entry into a confined space or hazardous area. The permit is broken down into five (5) sections.

Section # 1

Location and Description-

This would include such items as a street address of a manhole in the collection system, a pump station, or any other descriptive information that would pinpoint location. Description would be information such as sewer line entry, pump station entry, or any other information that would identify the type of confined space or hazardous area.

Date-

The date the permit was issued for. A permit will only be valid for the date it was issued for, unless otherwise noted.

Confined Space Classification-

The classification of the confined space needs to be checked on the entry permit. A description of the different classes can be found in the definitions section. A breakdown of the different city locations is in appendix A of this policy.

Purpose of Entry-

Briefly describe the type of work to be done.

Time-

Time when the work begins.

Department/Division-

The department and division of the crew performing the work.

Expiration-

The time at which the permit expires. No permit shall be issued for more than an eight hour period (exceptions to the eight hour maximum may be granted under certain circumstances with approval of the Risk Management Division).

Person In Charge-

The supervisor's or foreman's name and his/her title.

Section # 2

Section #2 requires the names of everyone involved in the confined space or hazardous area entry, whether they actually enter the space or not.

Section # 3

This section provides a checklist of special requirements that each job may call for. When completing this section each choice must be completed.

The use of the personal protective equipment listed in this section is mandatory, when necessary. This includes such items as the quadpod, lighting, ventilation, etc.

Section # 4

This section lists the tests that need to be taken for any confined space or hazardous area entry. All applicable tests must be taken.

Prior to entry, tests must be taken at three (3) different levels of the confined space (upper, middle, and lower) to determine if hazards exist at different levels n the confined space.

After the initial readings are recorded on the permit, entrants are required to constantly monitor the gas levels while in the confined space. At a minimum of every hour the gas levels are to be recorded on the entry permit.

In the event the test results indicate an atmosphere that does not fall within the P.E.L. measures will have to be taken to adjust the atmosphere to allow for entry or the job must not be allowed to either begin or continue.

The last line in this section is for the name of the person conducting the tests.

Section # 5

This section is used to record the instruments used for testing as well as the name of the person who performed the duties of the attendant. There is a space provided for the person in charge of the entry to sign off on indicating that all the provisions of the permit have been complied with.

Definitions

Atmosphere:
Refers to the gases, vapors, mists, fumes, and dusts within a confined space.

Attendant:

A person trained in emergency rescue procedures and assigned to remain on the outside of the confined space and to be in communication with those working inside.

Ceiling Level:

The maximum airborne concentration of a toxic agent to which an employee may be exposed for a specified period of time.

Combustible Dust:

A dust capable of undergoing combustion or of burning when subjected to a source of ignition.

Confined Space:

Refers to a space which by design has limited openings for entry and exit; unfavorable natural ventilation which could contain or produce dangerous air contaminants, and which is not intended for continuous employee occupancy. Confined spaces include but are not limited to storage tanks, compartments of ships, process vessels, pits, silos, vats, degreasers, reaction vessels, boilers, ventilation and exhaust ducts, sewers, tunnels, underground utility vaults, pipelines, and manholes.

Confined Space Classifications:

Class "A"

A confined space that presents a situation that is immediately dangerous to life or health (IDLH). These include but are not limited to oxygen deficiency, explosive or flammable atmospheres, and/or concentrations of toxic substances.

Class "B"

A confined space that has the potential for causing injury and illness, if preventive measures are not used, but not immediately dangerous to life and health.

Class "C"

A confined space in which the potential hazard would not require any special modification of the work procedure.

Hazardous Area:

An area that does not fit the definition of a confined space but may contain explosive or toxic gases, fumes, or mists or be oxygen deficient.

Hot Work:

Any work involving burning, welding, riveting, or similar fire producing operations, as well as work which produces a source of ignition, such as drilling, abrasive blasting, and space heating.

Inerting:

Displacement of the atmosphere by a non-reactive gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

Isolation:

A process whereby the confined space is removed from service and completely protected against the inadvertent release of material by the following: blanking off (skillet type metal blank between the flanges), misaligning sections of all lines and pipes, a double block and bleed system, electrical lockout of all sources of power, and blocking or disconnecting all mechanical linkages.

Lower Flammable Limit (LFL):

The minimum concentration of a combustible gas or vapor in air (usually expressed in percent by volume at sea level), which will ignite if an ignition source is present.

Oxygen Deficiency:

Refers to an atmosphere with a partial pressure of oxygen (PO_2) less than 132 mm Hg. Normal air at sea level contains approximately 21% oxygen at a PO_2 of 160 mm Hg. At an altitude of 5,280 feet normal air contains approximately 21% O_2 at a PO_2 of 132 mm Hg.

Oxygen Enriched Atmosphere:

Any oxygen concentration greater than 25% (PO_2 – 190 mm Hg.) at normal atmospheric pressure.

Permissible Exposure Limit (PEL) and/or Permissible Entry Level:

The maximum 8-hour time weighted average of any airborne contaminant to which an employee may be exposed. At no time shall the exposure level exceed the ceiling concentration as listed in 29 CFR Part 1910 Subpart Z.

Purging:

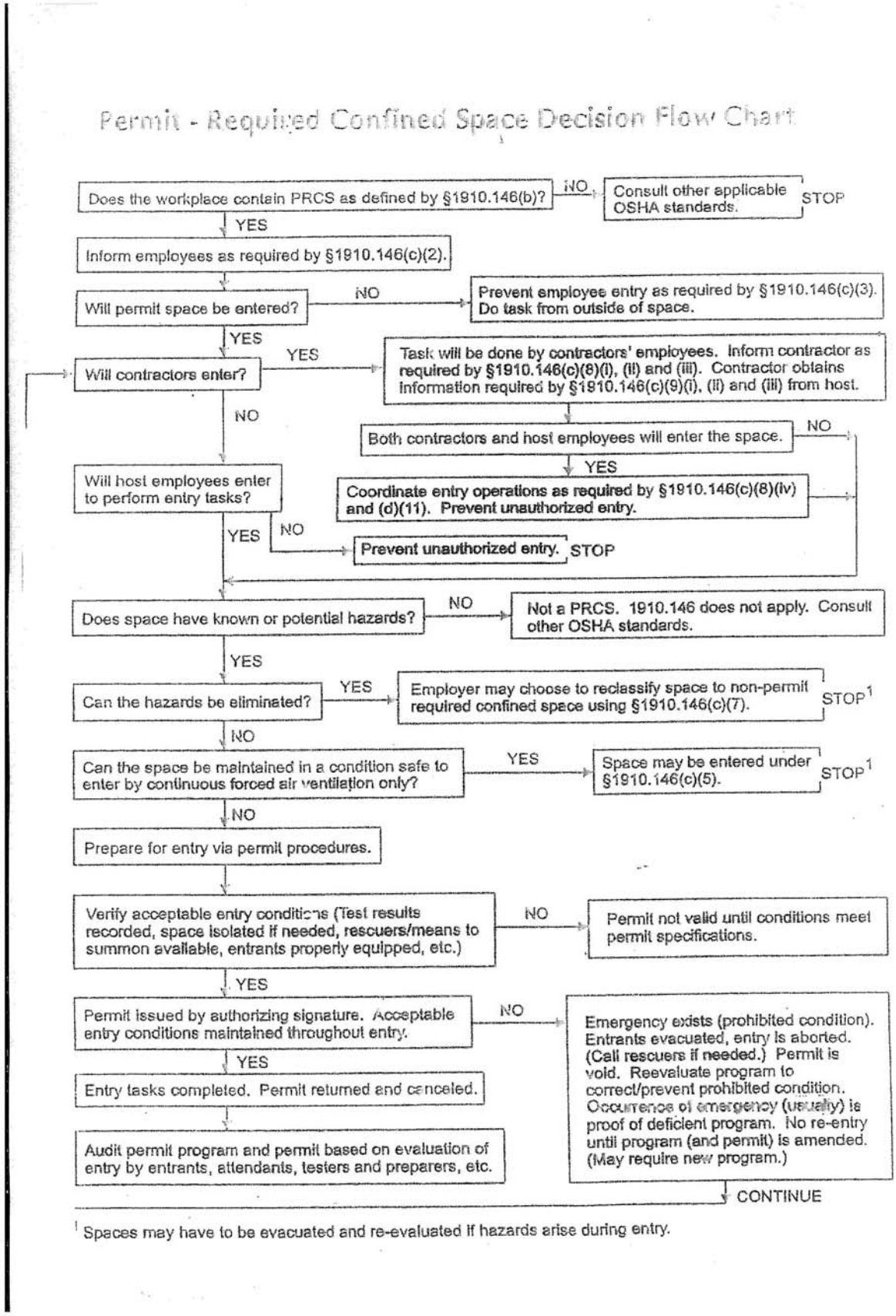
The method by which gases, vapors, or other airborne impurities are displaced from a confined space.

Qualified Person:

A person designated by the City, in writing, as capable (by education and/or specialized training of anticipating, recognizing, and evaluating employee exposure to hazardous substances or other unsafe conditions in a confined space. This person shall be capable of specifying necessary control and/or protective action to insure worker safety.

Respirator (Approved):

A device which has met the requirements of 30 CFR Part 11 and is designed to protect the wearer from inhalation of harmful atmospheres and has been approved by the Bureau of Mines and the National Institute for Occupational Safety and Health, and Mine Safety and Health Administration.



Summary Sheet
Confined Space Entry

Use the Flow Chart in Appendix A of 29 CFR 1910.146 to determine the presence and classification of confined spaces.

Entry occurs as soon as **any** part of the entrant's body breaks the plane of an opening into the space.

Non Permit Spaces do NOT contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

Permit Required Space has one or more of the following:

1. Contains or has a potential to contain a hazardous atmosphere
2. Contains a material that has the potential for engulfing an entrant
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section
4. Contains any other recognized serious safety or health hazard.

If Permit Spaces are present you must:

1. Inform exposed employees (posting signs)
2. Develop and implement a written program (if employees will be entering spaces)

Rescue and emergency services
There are requirements for in-house rescue services as well as for subcontracting these services. The responding crew must have access to the space to prepare for the event of an emergency. If you depend upon a local fire or emergency service, you must evaluate their ability to respond correctly and efficiently.

Non-Permit Spaces and Alternate Entry Procedures

RECLASSIFICATION

Every confined space identified during the employer's initial workplace evaluation should be considered a permit-required confined space, until further investigation reveals the nature and extent of its specific hazards.

The employer may determine that a particular confined space, initially classified as a permit-required space, contains only atmospheric hazards. For example, if a mechanical hazard such as a mixer blade can be successfully locked out, that hazard is considered eliminated. If the only hazard remaining is a residue which can be completely cleaned out and remaining fumes from that residue can be removed through ventilation, then the employer can document in writing that the space is hazard free and will remain so as long as a worker is inside.

That would necessitate cleaning, determining work performed in the space will not stir up hazardous atmosphere and demonstrating that activities outside the space will not negatively affect the atmosphere of the space. The employer is permitted at this point to reclassify the space as non-permit confined.

OSHA defines a non-permit confined space as a confined space that does not contain or – in the case of atmospheric hazards – does not have the potential to contain any hazard capable of causing death or serious physical harm to an entrant.

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If testing and inspection confirm one or more hazards in a permit space, but these hazards can be completely eliminated, the standard includes approved procedures for the employer to reclassify it also as a non-permit confined space.

The first procedure for allowing reclassification of a hazardous confined space is to attempt to eliminate all its hazards without anyone entering the space. If every hazard can be completely eliminated in this manner, the permit space may be reclassified as a non-permit confined space.

If the first procedure is not practical and it becomes necessary for an employee to enter a permit space in order to eliminate its hazards, the entry must occur in accordance with the employer's written permit-required confined space program.

This means the entry must be performed in full compliance with paragraphs (d) through (k) of the OSHA standard and include all required compliance measures, such as training, attendants and rescue services.

If testing and inspection during entry demonstrate there are no actual or potential atmospheric hazards and all other hazards within the permit space have been eliminated, the permit space may be reclassified as a non-permit confined space.

Reclassification as a non-permit space is valid only while all hazards remain eliminated. As long as the space remains safe, employee entry into that space is not subject to the employer's permit space program. However, the written program must record the identity of the space and the employer's procedure – such as periodic testing – ensuring that it remains a non-permit space.

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To document the basis for determining that all hazards in a permit space are eliminated, the employer must prepare a certification containing the following information:

- Date of the determination
- Location of the space
- Signature of the person making the determination.

This certification becomes a permanent part of the employer's written permit space program and must be made available to each employee entering the space.

If hazards arise within a permit space that has been declassified to a non-permit space under paragraph (c)(7) of the standard, each employee in the space must immediately exit the space.

The employer then must reevaluate the space, in accordance with other applicable provisions of the standard, to determine whether it must be reclassified as a permit space under the employer's written program.

WARNING: ***OSHA procedures for downgrading the classification of a permit space to a non-permit space do not apply to any space that poses actual or potential atmospheric hazards.***

If hazardous atmospheric conditions have the potential of developing within the space either naturally or from any activity conducted during entry and work, OSHA does not allow reclassification as a non-permit space.

OSHA also states that control of atmospheric hazards using forced air ventilation does not constitute elimination of those hazards. Permit spaces with actual or potential atmospheric hazards that can be controlled but not eliminated by ventilation cannot be downgraded to non-permit confined spaces.

OSHA does, however, provide less-restrictive alternate procedures for entering permit-required confined spaces containing atmospheric hazards only. Paragraph (c)(5) of the standard covers permit space entry when the employer can demonstrate that forced air ventilation alone will control all hazards in the space.

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ALTERNATE ENTRY PROCEDURES

The confined space standard specifies the conditions to be met before an employer may use the OSHA alternate procedures for entering a permit space with a potentially hazardous atmosphere.

In the same manner as the reclassification procedures discussed above, if an initial entry of a permit space by any employee is necessary in order to obtain required test data, the entry must occur in accordance with the employer's written permit-required confined space program [(c)(5)(i)]

This means the initial entry must be performed in full compliance with paragraphs (d) through (k) of the OSHA standard and must include all required compliance measures. Monitoring and inspection data may be collected either through entry or from outside the space as long as the data is complete and accurate for the entire space. [(c)(5)(i)(D)]

As a result of the initial entry, it may be determined that all hazards within the space – including actual or potential atmospheric hazards – can be completely eliminated (rather than merely controlled). In this event, the employer may reclassify the permit space to a non-permit confined space under the terms of paragraph (c)(7) of the standard.

If, however, testing and monitoring results show a controllable hazardous atmosphere as the only hazard, the space must remain a permit space but may be entered using the alternate procedures detailed in the standard.

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To justify the use of alternate entry procedures, the employer must develop monitoring and inspection data that demonstrate both of the following:

- First, actual or potential hazardous atmosphere is the only hazard posed by the permit-required confined space. [(c)(5)(i)(A)]

- Second, continuous forced air ventilation alone is sufficient to maintain the permit space safe for entry.

To ensure that the entrant has sufficient time to escape the space should ventilation fail for any reason, such as loss of power, the atmosphere within the space may not be expected to approach a hazardous level. As a guideline it is suggested that no more than 50 percent of the level of flammable or toxic substances that would be considered hazardous be used in making this determination [(c)(5)(i)(B)]

For example, if the acceptable LFL for hydrogen sulfide (H_2S) is 10 ppm, to ensure this non-permit space safety factor, the atmosphere would be expected to remain at no more than 5 ppm.

These two determinations and the required monitoring and inspection data are documented in writing by the employer and made available to each entrant. When alternate procedures are used for entering a permit space, the employer must verify that the space is safe for entry and that all required procedures and safety measures have been taken. [(c)(5)(i)(C)]

OSHA requires a written certification with the date, the location of the space, and the signature of the person providing the certification. The certification is made before each entry and must be made available to each employee entering the space. [(c)(5)(i)(E)]

An employer whose employees enter a permit space using the approved alternate procedures still must comply with all the general requirements in paragraph © of the standard, as well as the training requirements in paragraph (g).

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The employer need not comply, however, with paragraphs (d) through (f) and (h) through (k) of the standard, provided that the mandatory procedures specified in the standard are observed.

ENTRANCE COVERS

If conditions exist making it unsafe to remove an entrance cover to the permit space, these conditions must be eliminated before removing the cover. [(c)(5)(ii)(A)]

Once an entrance cover has been removed, guard the opening promptly by a barrier such as a railing or temporary cover. The temporary barrier must be installed so that it:

- Prevents employees from accidentally falling through the opening
- Protects each employee working in the space from foreign objects falling into the space. [(c)(5)(ii)(B)]

ATMOSPHERIC TESTING

Before any employee enters the space, test the internal atmosphere with a calibrated direct-reading instrument. Tests for the following conditions must be made in order:

- First, test for oxygen content.
- Next, test for flammable gases and vapors.
- Finally, test for potential toxic air contaminants. [(c)(5)(ii)(C)]

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VENTILATION

No hazardous atmosphere can be allowed to develop within the space at any time an employee is inside the space. To ensure this condition is met, the following procedures for continuous forced air ventilation must be used:

- No employee may enter the space until continuous forced air ventilation has controlled any hazardous atmosphere in the space.

- Blowers, vents or ducts must be placed and directed in a manner that will ventilate the immediate areas where workers will be present within the space. Forced air ventilation must continue until all employees have left the space.

- The air supply for the forced air ventilation system must originate from a clean source and may not increase the atmospheric hazards in the space. [(c)(5)(ii)(E)]

- The atmosphere within the space must be periodically tested to ensure that continuous forced air ventilation is preventing the accumulation of atmospheric hazards. [(c)(5)(ii)(F)]

- Non-permit confined spaces must be reevaluated whenever changes in the use or configuration of the space might increase hazards to entrants. [(c)(6)]

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HAZARD DETECTION

If a hazardous atmosphere is detected during entry:

- Each employee must evacuate the space immediately.
- The space must be evaluated to determine how the hazardous atmosphere developed.
- Measures must be implemented to protect employees from the hazardous atmosphere before further entry is allowed. If atmospheric hazards cannot be controlled, alternate entry procedures are no longer valid and future entries must comply with the employer's written permit-required confined space program. [(c)(5)(ii)(G)]

NOTE: *Since no attendant is required for this entry, it is imperative that the employer be totally certain there is no hazard in the space which could overcome an entrant to the extent that self-rescue is impossible.*

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HOTWORK PERMIT

GENERAL INFORMATION

Permit No.

Worksite Identification:

Hotwork to be Performed:

Location/Building:

Authorized Duration of Permit: Date: to

Time: to

SOURCE OF IGNITION

- ❑ Acetylene torch
- ❑ Abrasive saw
- ❑ Electric arc
- ❑ Electric tools
- ❑ Heliarc welding
- ❑ Propane torch
- ❑ Soldering
- ❑ Drilling
- ❑ Other:

SOURCE OF IGNITION

THIS HOTWORK PERMIT MAY BE SIGNED AND HOTWORK AUTHORIZED ONLY AFTER SATISFACTORY COMPLIANCE WITH ALL ITEMS OUTLINED IN THIS PERMIT.

- ❑ Floors swept clean of combustibles?
- ❑ Remaining combustible or flammable materials 35 feet horizontally as well as vertically from source of heat?
- ❑ Non-movable combustible or flammable materials isolated, covered/shielded with fire retardant material?
- ❑ Vertical and horizontal openings within 35 feet sealed or covered for spark/vapor control?
- ❑ Heat transmission, conduction, radiation controlled?
- ❑ Hazardous material transfers disconnected within 60 feet of hot work?
- ❑ Lockout/tagout of electrical, mechanical, chemical, blanking, cap piping implemented?
- ❑ Vessels, equipment drained, purged, ventilated, cleaned?
- ❑ Inert gas blanket required?
- ❑ Welding, cutting fume ventilation or respirator required?
- ❑ Building/area air currents and outdoor wind direction known?
- ❑ Hazardous material spill release equipment and countermeasures available.
- ❑ Supervisor notified work location and time of operation?
- ❑ Involved personnel and contractor employees advised of hazards?
- ❑ Means of egress identified and available?
- ❑ Fire protection equipment available and operational?
- ❑ Automatic fire sprinkler system operational?
- ❑ Oxygen-rich environment evaluated?
- ❑ Continuous monitoring of atmospheric conditions maintained?
- ❑ Checking for flammable/combustible gas and oxygen levels?
- ❑ Special danger, caution, warning signs posted?
- ❑ Trenches over four feet deep shored or sloped?
- ❑ Firewatch provided during work and 30 minutes after completion of work?
- ❑ Work areas and adjacent areas where sparks may have spread checked out 30 minutes after work completed?

APPROVALS AND AUTHORIZATIONS

This permit is valid only so long as work conditions existing at the time of issuance continue. It expires on any change in condition that adversely affects safety of the work area while work is in progress.

STOP WORK IMMEDIATELY IF PLANT EMERGENCY ALARM SIGNALS AN EMERGENCY IN OR NEAR YOUR WORK AREA. FOLLOW FIREWATCH INSTRUCTIONS.

I have personally inspected the location where the above work is to be done. I have checked for compliance with the safety precautions listed on the permit and authorized the work to be performed.

Title	Printed Name	Signature	Date
Originator/Approver			
Safety Officer			
Welder			
Firewatch			

THIS PERMIT MUST BE POSTED ON JOB SITE · GOOD ONLY ON INDICATED DATE

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