

PERMIT REQUIRED CONFINED SPACES PROGRAM
Section 0040

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INTRODUCTION

This Permit-Required Confined Space (PRCS) Program is provided to authorized employees who must enter confined spaces and may be exposed to hazardous atmospheres; engulfment in materials; conditions which may trap or asphyxiate due to converging or sloping walls; or contains any other safety or health hazard.

Many workplaces contain confined spaces, not designed for human occupancy, which due to their configuration hinder employee activities including entry, work, and exit. Asphyxiation is the leading cause of death in confined spaces. Also, there have been cases when employees entering confined spaces were harmed, ground-up by augers, crushed, or battered by moving parts inside vessels, mixers, etc. The nature of confined spaces can cause toxic vapors to become highly toxic and harmful and in some cases immediately dangerous to life and health (IDLH) unless adequate precautions are taken.

The Occupational Safety and Health Administration (OSHA) has estimated that at least 62 fatalities and 12,643 injuries and illness occur annually due to confined space hazards. These deaths, injuries, and illnesses can be prevented by implementing and maintaining an effective confined space entry program. This PRCS Program describes the measure necessary (1) to prevent unauthorized entry into permit-required confined spaces, (2) identify and evaluate permit space hazards, and (3) implement the means, procedures, and practices necessary for safe entry operations.

I. SCOPE AND APPLICATION

This Permit-Required Confined Space (PRCS) Program covers all employees who enter permit confined spaces and contains the practices and procedures for their safe entry.

II. COORDINATION

The PRCS is coordinated through the Office of Safety, which is responsible for maintaining a current copy of the program. Departments with affected employees are responsible for implementing and making it available to all employees. Specific questions about the program and interpretations should be directed to the Office of Safety

III. GENERAL REQUIREMENTS

This PRCS program covers the safety requirements, including a permit system, for employees to enter confined spaces, designated as permit-required confined

spaces (permit spaces) which:

- pose special dangers for entrants;
- have configurations hampering efforts;
- which require protection for entrants from serious hazards including atmospheres which are or may be:
 - toxic,
 - explosive, or
 - asphyxiating

Confined spaces may have other hazards in additional to those listed above that may make the space a permit confined space.

A. Permit-Required Confined Spaces (PRCS)

The University has been evaluated to identify the permit-required confined spaces. Please note that UNCG does not allow the use of alternate procedures during permit space entry. Employees and Entry Supervisors are required to complete an entry permit for every permit space entry and have the permit on site for the duration of the entry. [Appendix B](#) contains the required confined space entry permit. See [Appendix A](#) for a complete list of all the PRCS's.

B. Changes in Space Use or Configuration

When there are changes in the use and configuration of a non-permit confined space that might increase the hazards to entrants, the space is reevaluated and, if necessary, reclassified as a permit-required confined space. Any changes should be brought to the attention of the Office of Safety by the department altering the space.

C. Confined Space Reclassification

A permit-required confined space may be reclassified as a non-permit confined space under the following procedures:

1. If the space poses no actual or potential atmospheric hazards and the hazards are eliminated without entry, and as long as the non-atmospheric hazards remain eliminated.
2. Entry into the space to eliminate the hazards is under an authorized permit and testing and inspection during the entry demonstrate the hazards were eliminated without requiring continuous forced air ventilation.
3. A certification is documented showing the hazards were eliminated. See [Appendix C](#).
4. If hazards arise within a permit space that has been declassified to a non-

permit space, each employee must exit the space and the space is reevaluated to determine if it must be reclassified as a permit space.

D. Contractors

In some cases, contractors and other non- UNCG employees may enter permit spaces to perform work. When contractors and others enter permit spaces, the following procedures are followed:

UNCG Responsibility (Contracting Department's Project Manager)

The contracting department party shall inform the Office of Safety that a contractor may be entering a permit space. The contracting department must also ensure the following steps are taken when contractors enter permit spaces.

1. Contractors are informed that the workplace contains permit spaces and that they must follow a permit space entry program per OSHA Standard 29 CFR 1910.146 and use an authorized permit for entry.
2. Apprise the contractor of the elements, including the hazards identified and the experience with the space making it a permit space;
3. Apprise the contractor of the precautions or procedures implemented for protection of employees in or near permit spaces: and
4. Debrief the contractor at the conclusion of the entry regarding the permit space program followed and any hazards confronted or created in space(s) during entry operations.

Contractor Responsibility

All contractors performing permit space entry are required to:

1. Obtain and use the available information provided;
2. Coordinate entry operations with other working in or near permit spaces; and
3. Inform the host employer during debriefing or entry of the permit space program that will be followed, and any hazards confronted or created in the space(s).

IV. PERMIT-REQUIRED CONFINED SPACE PROGRAM

A. General

The permit-required confined space program is designed to prevent unauthorized entry into permit confined spaces, identify and evaluate hazards, and establish procedures and practices for safe entry including testing and monitoring conditions.

The following measures have been implemented as necessary to prevent unauthorized employee entry into permit spaces.

1. All affected employees have been informed through safety training about the characteristics and presence of permit spaces.
2. Some permit spaces are also posted with danger signs to supplement the safety training. However, the posting of danger signs is not all inclusive and each employee must know what a permit space is, the usual hazards involved, and what precautions are required to ensure safe entry so they can help ensure their own protection (see appendix).

The following means, procedures, and practices necessary for safe permit space entry operations have been implemented:

(1) Acceptable Entry Conditions

All permit spaces entrants are protected against atmospheric hazards including oxygen deficiency (less than 19.5%) or increased oxygen concentration (greater than 23.5%), toxic materials (above the exposure limit), flammable gases and vapors, asphyxiating, and engulfment, configuration or any other recognized hazards. The atmosphere of every permit space will be tested prior to entry. Oxygen concentrations, flammable gas concentrations, carbon monoxide concentrations and hydrogen sulfide (H₂S) concentrations will be measured on every permit confined space. The atmosphere will be considered unacceptable if the following conditions are present:

- oxygen level is below 19.5%
- oxygen level above 23.5%
- flammable gas levels exceed 10% of the LEL
- carbon monoxide levels above 17 ppm
- hydrogen sulfide (H₂S) above 10 ppm

The internal atmosphere of the permit space must be tested periodically (every 30 min) during the entry to ensure that acceptable conditions are being maintained in the space. The periodic readings must be recorded on the entry permit along with the initial atmospheric readings.

(2) Isolating the Permit Space

All hazardous energy sources associated with permit spaces which may expose

entrants to potential injury are isolated, locked out and/or tagged out prior to entry:

(3) Purging, Inerting, Flushing, or Ventilating Permit Spaces

All permit entry spaces are thoroughly purged, inerted, flushed, and/or ventilated as necessary to ensure the elimination and/or control of all hazards which may cause entrants injury and /or illness.

(4) External Hazards

Pedestrian, vehicle, or other barriers are provided as necessary to protect entrants from external hazards.

(5) Verifying Acceptable Conditions

Conditions in permit spaces are tested and monitored throughout entry as necessary to ensure that they are acceptable for the duration of the authorized entry.

B. Equipment

The following equipment is provided at no cost to employees, maintained properly, and used properly to ensure the safety of employees entering permit spaces.

1. Equipment required to be used during every permit space entry

- Air monitoring equipment (Oxygen, Lower Exposive Limit (LEL), Carbon Monoxide (CO) & Hydrogen Sulfide (H₂S) at a minimum)
- Communications equipment
- Barriers and shields
- Ingress and egress equipment
- Rescue body harness
- Life line
- Retrieval tripod with personnel wench

2. Additional equipment that may be required during some entries

- Ventilating equipment
- Other personal protective equipment
- Lighting equipment

C. Evaluating Permit Space Conditions

Permit space conditions shall be evaluated (tested/monitored) before entry is conducted. The entry conditions will be tested as follows:

(1) Testing and Monitoring

The entry conditions in the permit space are tested to determine if acceptable entry conditions exist before entry is authorized to begin. If isolation of the space is infeasible because the space is large or is part of a continuous system (such as a steam tunnel), pre-entry testing is performed to the extent feasible before entry and entry conditions are continuously monitored in work areas.

The tests and monitoring will be conducted periodically to determine if acceptable entry conditions are being maintained during the course of entry operations. When conducting tests for atmospheric hazards, oxygen tests are conducted first, then combustible gases and vapors, and then for toxic gases and vapors. The tests are conducted in order to ensure that test instruments function properly since an oxygen deficient atmosphere may adversely affect the test results.

D. Attendants

(1) General

At least one attendant is required outside the permit space for the duration of the authorized entry operation. All attendants are required to have completed the UNCG permit confined space training before they are allowed to serve as attendants.

(2) Duties

All attendants are required:

- (a) To know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- (b) To be aware of possible behavioral effects of hazard exposure in entrants;
- (c) To continuously maintain an accurate count of entrants in the permit space and ensures a means to accurately identify authorized entrants;
- (d) To remain outside the permit space during entry operations until relieved by another attendant. Once properly relieved, they may participate in other permit space activities.
- (e) To communicate with entrants frequently, to monitor entrant status, and alert entrants of the need to evacuate;
- (f) To monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the entrants to

immediately evacuate if: the attendant detects a prohibited condition, detects entrant behavioral effects of hazard exposure, detects a situation outside the space that could endanger the entrants; or if the attendant cannot effectively and safely perform all the attendant duties;

- (g) To summon rescue and other emergency services as soon as the attendant determines that entrants need assistance to escape the permit space hazards;
- (h) To take the following action when unauthorized persons approach or enter a permit space while entry is underway:
 - (1) Warn the unauthorized persons that they must stay away from the permit space,
 - (2) Advise the unauthorized persons that they must exit immediately if they have entered the space, and
 - (3) Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space;
- (i) To perform non-entry rescues as specified by the rescue procedure and entry supervisor; and
- (j) Not to perform duties that might interfere with the attendant's primary duty to monitor and protect the entrants.

E. Entrants

(1) General

All entrants must be authorized by the entry supervisor to enter permit spaces, have received the required training, use the proper equipment, and observe the entry procedures and permit. The following entrant duties are required:

- (a) Know the hazards that may be encountered during entry, including information on the mode, signs or symptom, and consequences of the exposure;
- (b) Properly use the equipment required for safe entry;
- (c) Communicate with the attendant frequently to enable the attendant to

monitor the status of the entrants and to enable the attendant to alert the entrants of the need to evacuate the space if necessary;

- (d) Alert the attendant whenever: the entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or any prohibited condition is detected: and
- (e) Exit the permit space as quickly as possible whenever: the attendant or entry supervisor gives an order to evacuate the permit space, the entrant recognizes any warning sign or symptom of exposure to a dangerous situation, the entrant detects a prohibit condition, or an evacuation alarm activities.

F. Entry Supervisors

(1) General

Entry supervisors are responsible for the overall permit space entry and must coordinate all entry procedures, tests, permits, equipment and other relevant activities. The following entry supervisor duties are required:

(2) Duties

- (a) Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- (b) Verifies, by checking that the appropriate entries have been made on the permit, all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin;
- (c) Terminate the entry and cancel the permit when the entry is complete or there is a need for terminating the permit;
- (d) Verify that rescue services are available and that the means for summoning them are operable;
- (e) Remove unauthorized persons who enter or attempt to enter the space during entry operations; and
- (f) Determine, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with the permit terms and that acceptable entry conditions are maintained.

G. Testers and Monitors

(1) General

The accuracy of testing and monitoring equipment may be significantly affected under certain conditions of humidity, pressure, temperature, or by the presence of interfering chemicals. However, if equipment is properly selected, calibrated, maintained and operated by well trained employees, the confined space testing and monitoring needs can be effectively met. All persons performing tests and monitoring for permit space entry must be properly trained in the use and maintenance of the specific equipment to be used during the entry.

(2) Procedures for Atmospheric Testing

Atmospheric testing is required for two distinct purposes: evaluation of the hazards of the permit space and verification that acceptable entry conditions for entry into that space exists.

- (a) **Evaluation Testing:** The atmosphere of a confined space should be analyzed using equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous atmosphere that may exist or arise, so that an appropriate permit entry procedure can be developed and acceptable entry conditions stipulated for that space. Evaluation and interpretation of these data, and development of the entry procedure, is performed by, or reviewed by, a technically qualified professional (e.g., certified industrial hygienist, registered safety engineer, certified safety professional, etc.) based on evaluation of all serious hazards.
- (b) **Verification Testing:** The atmosphere of a permit space which may contain a hazardous atmosphere is tested for residues of all contaminants identified by evaluation testing using permit specified equipment to determine that residual concentrations at the time of the testing and entry are within the range of acceptable entry conditions. Results of testing (i.e., actual concentration, etc.) are recorded on the permit in the space provided adjacent to the stipulated acceptable entry condition.
- (c) **Duration of Testing:** Measurement of values for each atmospheric parameter are made for at least the minimum response time of the test instrument specified by the manufacturer.
- (d) **Testing Stratified Atmospheres:** When monitoring for entries involving a descent into atmospheres that may be stratified, the atmospheric envelope is to be tested a distance of approximately 4 feet (1.22m) in the direction of travel and to each side. If a sampling probe is used, the entrant's rate of progress is slowed to accommodate the sampling speed and detector response.

H. Permit System

(1) General

The entry permit is a vital part of the permit space entry program, which documents that the required measures have been taken to ensure entrant safety. All pertinent safety requirements must be recorded on the permit including the isolation, ventilation, tests and monitoring, personal protective equipment, and other equipment necessary for entrant safety.

(2) Requirements

The following requirement must be recorded on the entry permit. See [Appendix B](#) for permit.

- (a) Permit space to be entered, purpose of the entry, and date and authorized duration of the entry permit;
- (b) Names of authorized entrants (or suitable tracking system);
- (c) Current attendants' names;
- (d) Entry supervisor's name and signature, including original authorizing supervisor,
- (e) Hazards of the space;
- (f) Measures used to isolate the space and to eliminate or control the space hazards, before entry;
- (g) Acceptable entry conditions;
- (h) Results of initial and periodic tests accompanied by the names or initials of the testers and time of the tests;
- (i) Available rescue and emergency services and how to summon them;
- (j) Communication procedures used by entrants and attendants to maintain contact during entry;
- (k) Equipment, such as personal protective equipment, alarm systems and rescue equipment, to be provided;
- (l) Any other pertinent information necessary to ensure entrant safety; and
- (m) Additional permits, such as hot work, that have been issued to authorize work in the space.

(3) Contractors

All contractor entry into permit spaces must comply with all sections of this procedure.

I. Training

(1) General

All entry supervisors, attendants, and entrants are properly trained initially and refresher training provided when duties and space hazards change or whenever an evaluation determines inadequacies in the employee's knowledge. The training provides employees with the necessary understanding, skills and knowledge to safely enter, work in and exit permit spaces. All training is documented with the employees names, signature or initials of the trainer, and training date.

(2) Requirements

Specific training requirements include, but are not limited to:

- (a) Each affected employee is trained;
- (b) Training is provided:
 - (1) Before employee is first assigned permit space entry duties;
 - (2) Whenever there is a change in permit space operations that present a new hazard unknown by the employee;
 - (3) Whenever there is reason to believe either there are deviations from the entry procedures or inadequacies in the employees knowledge or use of the procedures;
- (c) The training establishes employee proficiency in the required duties and introduces new or revised procedures, as necessary;
- (d) The training is certified and contains each employees name, signatures or initials of the trainers, and training dates.
- (e) The training certification is available for inspection by employees and their authorized representatives by contacting the Office of Safety.

J. Rescue and Emergency Services

(1) General

Rescue and emergency services are provided by the Greensboro Fire Department (on-site and/or off-site). Description(s) of the service(s) is provided below.

(2) Off-Site Services

The Greensboro Fire Department will be summoned by the UNCG Police by calling

334-4444 or directly by calling 911. The fire department will respond and perform all necessary rescue with the assistance of Guilford County Emergency Medical Services.

- (a) The following has been provided the off-site rescue service:
Information concerning the hazard they may confront when called to perform rescues; and Access to all permit spaces from which rescue may be necessary so they can develop appropriate rescue plans and practice rescue operations.

(3) Non-Entry Rescue

Retrieval systems and methods have been developed for entrants to use when entering permit spaces, when the equipment does not increase the overall risk of entry and would not contribute to the rescue of the entrant. The systems include two tripods with retrieval winches and one trailer with a retrieval winch.

- (a) Each authorized entrant uses a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, or above the entrant's head.
- (b) Wristlets are only used in lieu of the chest or full body when it has been demonstrated that use of the chest or full body harness is infeasible or creates a greater hazard and wristlet use is the safest and most effective alternative.
- (c) Retrieval lines are attached to a mechanical device or a fixed point outside the space so rescue can begin immediately after the rescuer becomes aware that rescue is necessary.
- (d) Mechanical devices are available to retrieve entrants from vertical type permit spaces more than 5 feet deep.
- (e) Material Safety Data Sheets (MSDS) or similar written information is kept at the worksite when entrants are exposed to substances requiring such information, so it can be made available to the medical facility treating exposed entrants.

K. Permits and Forms

- (1) See Appendix A - Permit-Required Confined Spaces Inventory
- (2) See Appendix B - Confined Space Entry Permit
- (3) See Appendix C - Certification for Reclassifying Confined Spaces

V. REFERENCES AND SOURCES OF INFORMATION

- U.S. Department of Health, Education, and Welfare. Public Health Service. Center for Disease Control. National Institute for Occupational Safety and

Health. Criteria for a Recommended Standard. Working in Confined Spaces, DHEW(NIOSH) Publication No. 80-106. Cincinnati: NIOSH, December 1979 (Ex. 139).

- U.S. Department of Labor. Occupational Safety and Health Administration. Directorate of Policy. Selected Occupational Fatalities Related to Toxic and Asphyxiating Atmospheres in Confined Work Spaces as Found in Reports of OSHA Fatality/Catastrophe Investigation, Washington D.C., July 1985 (Ex.13-15).
- U.S. Department of Labor, Occupational Safety and Health Administration. Directorate of Technical Support. Selected Occupational Fatalities Related to Fire and/or Explosion in Confined Work Spaces as Found in Reports of OSHA Fatality/Catastrophe Investigation, Washington, D.C., April 1982 (Ex. 13-10).
- National Safety Council, Accident Prevention Manual, 10th Edition, Part 1, Pages 7 and 8, Part 4, Page 91, and Part 14, Page 431
- U.S. Department of Labor, Occupational Safety and Health Administration(OSHA) Standards for the Construction Industry, 29 CFR 1926.20 (b)(6)(i) and (ii).

Appendix A, Section 0040

**Permit- Required
Confined Spaces Inventory**

Date:

This Permit- Required Confined Spaces Inventory form is provided to employers to assist them in complying with OSHA standard 29 CFR 1910.146- Permit- Required Confined Spaces. Refer to the complete standard (1910.146) for proper compliance.

Man hole No.	Type	Work Area	Process of Equipment	Specific Permit- Required Space	Existing Or Potential Hazards						Electrical	Other Comments
					Asbestos	Heat Stress	Oxygen Content	Toxic	IDLH	Live Stream		
1	*SMH	Behind Garage	Steam Valves		Yes	Yes	Yes	No	No	Yes	No	
2	SMH	Behind garage	Steam Valves		Yes	Yes	Yes	No	No	Yes	No	
3	SMH	Between Curry Bldg. and Ferguson	Steam Valves		Yes	Yes	Yes	No	No	Yes	No	
4	SMH	East of Ferguson on Highland Ave.	Steam Valves		No	Yes	Yes	No	No	Yes	No	
5	SMH	Service drive between Graham Bldg. and Cone Art Bldg.	Steam Valves		No	Yes	Yes	No	No	Yes	No	
6	SMH	No Manhole										
7	SMH	No Manhole										
8	SMH	No Manhole										
9	SMH	Between Curry and Ferguson	Steam Valves		No	Yes	Yes	No	No	Yes	No	
10	SMH	In tunnel across College Ave.	Steam Lines		Yes	Yes	Yes	No	No	Yes	No	
11	SMH	In tunnel across College Ave.			Yes	Yes	Yes	No	No	Yes	No	
12	SMH	West of Foust Bldg. on College Ave.	Steam Valves		No	Yes	Yes	No	No	Yes	No	
13	SMH	Northeast of Alumni House	Steam Valves		No	Yes	Yes	No	No	Yes	No	
13A	SMH	Northeast corner of Elliot University Center (EUC)	Condensate Valves		Yes	Yes	Yes	No	No	No	No	

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Confined Spaces Inventory**

Date:

Man hole No.	Type	Work Area	Process of Equipment	Specific Permit- Required Space	Existing Or Potential Hazards						Electrical	Other Comments
					Asbestos	Heat Stress	Oxygen Content	Toxic	IDLH	Live Stream		
14	SMH	Southeast corner of EUC	Condensate Valves		Yes	Yes	Yes	No	No	No	No	
15	SMH	Beginning of Tunnel at Store Bldg.	Steam Valves		Yes	No	No	No	No	Yes	No	
15a	SMH	Northeast of Stone Bldg.	Steam Tunnel Valves		Yes	Yes	Yes	No	No	No	No	
15T	SMH	Northeast of Forney	Steam Valves Tunnel		Yes	Yes	Yes	No	No	Yes	No	
16	SMH	No Manhole										
17	SMH	Sidewalk North of Stone	Steam Valve Tunnel		No	Yes	Yes	No	No	Yes	No	
18	SMH	Loading Dock at Stone	Steam Valves		Yes	Yes	Yes	No	No	Yes	No	
19	SMH	Walkway between Stone and Petty	Steam Valves		Yes	Yes	Yes	No	No	Yes	No	
20	SMH	East of Moore Nursing Northeast of Eberhart	Steam Valves		No	Yes	Yes	No	No	Yes	No	
21	SMH	Yard	Steam Valves		Yes	Yes	Yes	No	No	Yes	No	
22	SMH	Northwest of Eberhart on Melver St.	Steam Line		Yes	Yes	Yes	No	No	Yes	No	
23	SMH	Northwest yard of Mary Foust	Steam Valves		Yes	Yes	Yes	No	No	Yes	No	
24	SMH	South steps east of Reynolds, South of Grogan	Steam Valves		Yes	Yes	Yes	No	No	Yes	No	
25	SMH	North yard of Mary Foust at North Drive	Steam Valves		Yes	Yes	Yes	No	No	Yes	No	
26	SMH	Terrace between Cone and Grogan	Steam Valves		Yes	Yes	Yes	No	No	Yes	No	
27	SMH	Woods behind Cone	Steam Valves			Yes	No	No	No	Yes	No	

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Confined Spaces Inventory**

Date:

Man hole No.	Type	Work Area	Process of Equipment	Specific Permit- Required Space	Existing Or Potential Hazards						Electrical	Other Comments
					Asbestos	Heat Stress	Oxygen Content	Toxic	IDLH	Live Stream		
79	SMH	No Manhole										
80	SMH	No Manhole										
81	SMH	No Manhole										
82	SMH	No Manhole										
83	SMH	No Manhole										
84	SMH	No Manhole										
85	SMH	West of Chancellor's yard	Steam Valves		Yes	Yes	Yes	No	No	Yes	No	Very Hot
86	SMH	Northeast corner of Forest and Spring Garden St.	Steam Line Mini Tunnel		Yes	Yes	Yes	No	No	Yes	No	
87	SMH	Southeast corner of Forest and Spring Garden St.	Steam Line Mini Tunnel		Yes	Yes	Yes	No	No	Yes	No	
88	SMH	West yard between Park Gym and McNutt Bldg.	Steam Lines		Yes	Yes	Yes	No	No	Yes	No	
89	SMH	No Manhole										
90	SMH	No Manhole										
91	SMH	No Manhole										
92	SMH	No Manhole										
93	SMH	No Manhole										
94	SMH	No Manhole										
95	SMH	Between McNutt and Park Gym	Steam Valves		Yes	Yes	Yes	No	No	Yes	No	

**Permit- Required
Confined Spaces Inventory**

Date:

Man hole No.	Type	Work Area	Process of Equipment	Specific Permit-Required Space	Existing Or Potential Hazards						Electrical	Other Comments
					Asbestos	Heat Stress	Oxygen Content	Toxic	IDLH	Live Stream		
96	SMH	South Service drive behind Curry	Valves		Yes	Yes	Yes	No	No	Yes	No	170°
97	SMH	South yard behind Curry	Large Valves		Yes	Yes	Yes	No	No	Yes	No	Two MH
		Confined Spaces located in the steam plant										
N/A	Brine Tank	Lower Level North side Steam Plant	N/A		No	No	No	No	No	No	No	Water Engulfment
N/A	Condensate Tank	Lower Level North side Steam Plant	N/A		No	Yes	Yes	No	No	No	No	
N/A	Flash Tank	Lower Level East side Steam Plant	N/A		No	Yes	Yes	No	No	No	No	
N/A	De-aerator Tank	Upper Level North side Steam Plant	Steam Jets		No	Yes	Yes	No	No	Yes	No	
N/A	No.1 Boiler	Upper level steam plant	Steam H2O Circulation		No	Yes	Yes	No	No	Yes	No	
N/A	No.2 Boiler	Upper level Southwest side steam plant	Steam H2O Circulation		No	Yes	Yes	No	No	Yes	No	
N/A	No.3 Boiler	Upper level Northwest side Steam plant	Steam H2O Circulation		No	Yes	Yes	No	No	Yes	No	
N/A	No.1 Economizer	Beside Boiler No. 1 Steam plant			No	Yes	Yes	Yes	No	No	No	Pollutants
N/A	No.2 Economizer	Beside Boiler No. 2 Steam plant			No	Yes	Yes	Yes	No	No	No	Pollutants
N/A	No.3 Economizer	Beside Boiler No. 3 Steam plant	Traps Pollutants		No	Yes	Yes	Yes	Yes	Yes	No	Pollutant Hot H2O
N/A	No.1 Fire box	Boiler No.1 Steam Plant	Boiler Firebox		No	Yes	Yes	Yes	Yes	Yes	No	Flammable Soot

**Permit- Required
Confined Spaces Inventory**

Date:

Man hole No.	Type	Work Area	Process of Equipment	Specific Permit-Required Space	Existing Or Potential Hazards						Electrical	Other Comments
					Asbestos	Heat Stress	Oxygen Content	Toxic	IDLH	Live Stream		
		Electrical Power Distribution (Underground)										
1	*EMH	Between McIver and Taylor Bldgs.	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
2	EMH	Beside Aycock Auditorium	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
3	EMh	Behind Foust	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
4	EMH	Front of Faculty Center in College Ave.	Pull Box		No	No	Yes	No	No	No	Yes	Some Water
5	EMH	Beside Elliot University Center (EUC)	RAM Switch Sump Pump		No	No	Yes	No	No	No	Yes	Some Water
6	EMH	Beside Jackson Library	Pull Box		No	No	Yes	No	No	No	Yes	Some Water
7	EMH	Southwest of Library in Forest St	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
8	EMH	Corner of Forest St. and Walker Ave.	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
9	EMH	Main Switch Station behind Library	Switch Gear		No	No	Yes	No	No	No	Yes	Some Water
10	EMH	Northwest of Dining Hall (Spencer Café)	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
11	EMH	Behind Mendenhall	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
12	EMH	Beside Infirmary	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
13	EMH	North of Grogan	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
14	EMH	Northeast of Grogan	RAM Switch Sump Pump		No	No	Yes	No	No	No	Yes	Some Water
15	EMH	Beside Guilford	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
16	EMH	Beside North Spencer	Pull Box		No	No	Yes	No	No	No	Yes	Some Water
17	EMH	Southeast of Spencer	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water

**Permit- Required
Confined Spaces Inventory**

Date:

Man hole No.	Type	Work Area	Process of Equipment	Specific Permit-Required Space	Existing Or Potential Hazards						Electrical	Other Comments
					Asbestos	Heat Stress	Oxygen Content	Toxic	IDLH	Live Stream		
18	EMH	East of Library	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
19	EMH	East of Petty Science	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
20	EMH	McIver street by Nursing	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
21	EMh	McIver St. by Stone Bldg.	RAM Switch		No	No	Yes	No	No	No	Yes	Some Water
22	EMH	Corner of McIver St. and Walker Ave.	RAM Switch		No	No	Yes	No	No	No	Yes	May not be there anymore
23	EMH	North of Art Gallery			No	No	Yes	No	No	No	Yes	Water Present
24	EMH	Southeast of Shaw Dorm	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
25	EMH	Corner of Walker Ave. & West Dr.	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
26	EMH	Beside Hinshaw	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
27	EMH	West Dr. by Bailey & Jamison	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
28	EMH	Between Jamison & Winfield	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
29	EMH	At Moore/Strong	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
30	EMH	Front of Student Health Center	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
31E	EMH	South of PAC/HHP Bldg.	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
33	EMH	Forest St. by EUC	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
34	EMH	Corner of Spring Garden & Forest	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
35	EMH	Behind Reynolds	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
36	EMH	Northeast of McIver	RAM Switch Sump Pump		No	No	Yes	No	No	No	Yes	Water Present
37	EMH	Beside Phillips	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
38	EMH	In Front of McNutt at Forest St.	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
39	EMH	TV tower on Forest St.	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present

**Permit- Required
Confined Spaces Inventory**

Date:

No.	Type	Work Area	Process of Equipment	Specific Permit-Required Space	Existing Or Potential Hazards						Electrical	Other Comments
					Asbestos	Heat Stress	Oxygen Content	Toxic	IDLH	Live Stream		
40	EMH	Front of Cone Hall	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
41	EMH	Back driveway to Cone	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
42	EMH	Market St. and McIver parking lot	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
43	EMH	Market St. and McIver parking lot	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
44	EMH	Corner of West Market St. and McIver St.	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
45	EMH	1209 W. Market St.	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
46	EMH	Facing 1218 W. Market St. in sidewalk	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
47	EMH	Facing 1300 W. Market St.	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
48	EMH	Driveway behind Phillips	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
49	EMH	Between Steam Plant and Campus Supply Bldg.	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
50	EMH	Behind Curry Bldg.	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
50E	EMH	Between HHP and Campus Rec. Bldg.	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
51	EMH	Behind Garage	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
51E	EMH	Between HHP and Campus Rec. Bldg.	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
52	EMH	Behind Ferguson Bldg.	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
52E	EMH	Northwest of HHP Bldg.	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
53	EMH	By the Round point behind Ferguson Bldg.	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
53E	EMH	Golf Course	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
54	EMH	East of Ferguson on Highland Ave.	RAM Switch		No	No	Yes	No	No	No	Yes	Water Present
54E	EMH	North of HHP Bldg.	Pull Box		No	No	Yes	No	No	No	Yes	Water Present
55	EMH	Parking lot behind Graham Bldg.	Pull Box		No	No	Yes	No	No	No	Yes	Water Present

**Permit- Required
Confined Spaces Inventory**

Date:

Man hole No.	Type	Work Area	Process of Equipment	Specific Permit-Required Space	Existing Or Potential Hazards						Electrical	Other Comments
					Asbestos	Heat Stress	Oxygen Content	Toxic	IDLH	Live Stream		
1	*TMH	Between Taylor and McIver Bldg.	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
2	TMH	Between Taylor and McIver Bldg.	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
3	TMH	North of Foust Bldg.	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
4	TMH	North of Faculty Center	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
5	TMH	East of EUC	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
6	TMH	Northeast of EUC	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
7	TMH	Forest St. between EUC and Library	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
8	TMH	North of Library	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
9	TMH	West of Spencer Dining Hall	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
10	TMH	Northeast of Fountain	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
11	TMH	In woods behind Ragsdale	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
12	TMH	Southeast of Student Health Center	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
13	TMH	Behind Grogan	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
14	TMH	North of Grogan beside Cone	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
15	TMH	North of Guilford	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
16	TMH	East of North Spencer			No	No	Yes	No	No	No	No	H2O, insects, spiders
17	TMH	Between N. Spencer and S. Spencer			No	No	Yes	No	No	No	No	H2O, insects, spiders
18	TMH	East of Library			No	No	Yes	No	No	No	No	H2O, insects, spiders
19	TMH	Northeast of Petty			No	No	Yes	No	No	No	No	H2O, insects, spiders
20	TMH	Northeast of Nursing			No	No	Yes	No	No	No	No	H2O, insects, spiders
21	TMH	Northeast corner of Stone			No	No	Yes	No	No	No	No	H2O, insects, spiders
22	TMH	North of McIver-near Kiln			No	No	Yes	No	No	No	No	H2O, insects, spiders

**Permit- Required
Confined Spaces Inventory**

Date:

Man hole No.	Type	Work Area	Process of Equipment	Specific Permit-Required Space	Existing Or Potential Hazards						Electrical	Other Comments
					Asbestos	Heat Stress	Oxygen Content	Toxic	IDLH	Live Stream		
23	TMH	West of Carmichael Auditorium	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
24	TMH	Corner of Grey and Walker Ave.	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
25	TMH	Corner of West Dr. and Walker Ave.	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
26	TMH	Southwest of Hinshaw	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
27	TMH	Southwest of Jamison	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
28	TMH	Southwest of Winfield			No	No	Yes	No	No	No	No	H2O, insects, spiders
29	TMH	Between Winfield and Moore			No	No	Yes	No	No	No	No	H2O, insects, spiders
30	TMH	Between Ragsdale & Health Center	Cross Box		No	No	Yes	No	No	No	No	H2O, insects, spiders
31	TMH	South of HHP Bldg.			No	No	Yes	No	No	No	No	H2O, insects, spiders
32	TMH	Lost Abandoned			No	No	Yes	No	No	No	No	H2O, insects, spiders
33	TMH	Southwest of EUC			No	No	Yes	No	No	No	No	H2O, insects, spiders
33A	TMH	North of Mossman in Theta St.	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
33B	TMH	Corner of Theta and Stirling Sts.	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
33C	TMH	Northwest of Bryan (B & E)			No	No	Yes	No	No	No	No	H2O, insects, spiders
34	TMH	Northwest yard of Park Gym			No	No	Yes	No	No	No	No	H2O, insects, spiders
35	TMH	No Manhole										
36	TMH	Northwest of Carmichael			No	No	Yes	No	No	No	No	H2O, insects, spiders
37	TMH	West of Phillips	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
38	TMH	West of McNutt	Splice Case		No	No	Yes	No	No	No	No	H2O, insects, spiders
39	TMH	TV tower- Forest & Oakland	Cross Box		No	No	Yes	No	No	No	No	H2O, insects, spiders

Appendix B, Section 0040



THE UNIVERSITY of NORTH CAROLINA
GREENSBORO

CONFINED SPACE ENTRY PERMIT

Date and time issued: _____ Date and time expired: _____

Location/space I.D.: _____

Work to be performed: _____

Entry personnel: _____

Standby personnel: _____

Job supervisor: _____

Permit Space Hazards: _____

1. Initial Atmospheric Checks: _____ Time: _____
 Oxygen (19.5 – 23.0%) _____ %
 Explosives (< 10%) _____ % LFL/LEL
 Toxic (CO < 17ppm) _____ PPM
 Toxic (H₂S < 10ppm) _____ PPM

Periodic Atmospheric Checks

Time:	Time:	Time:
Oxygen:	Oxygen:	Oxygen:
Explosive:	Explosive:	Explosive:
Toxic (CO):	Toxic (CO):	Toxic (CO):
Toxic (H ₂ S):	Toxic (H ₂ S):	Toxic (H ₂ S):

2. Tester's signature: _____

3. Source isolation: _____ N/A Yes No
 Pumps or lines blinded, disconnected, or blocked:

4. Equipment required for every entry:

Direct reading gas monitor (pre -calibrated):	N/A <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Safety harnesses and lifelines for entry worker:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hoisting equipment:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Means of communication(Sight/Voice/Radio):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Barricades for protection of opening:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protective clothing (gloves, safety glasses, etc):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All electric equipment listed: Class 1, Division 1, Group D and non-sparking tools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Ventilation modification:	N/A	Yes	No
Mechanical:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Natural Ventilation only:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	N/A	Yes	No
6. Hot work permits required:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Rescue procedures:

If emergency rescue from the space is needed, call 911 or 334-4444 (UNCG Police) and then begin **non-entry** rescue efforts.

We have reviewed the work authorized by this permit and the information contained here. Written instruction and safety procedures have been received and are understood. Entry will not be approved if any squares are marked in the "No" column. Entry will not occur if atmospheric readings are not in the acceptable ranges. This permit not valid unless all appropriate items are completed.

Permit prepared by: _____
Entry Supervisor

This permit shall be kept at the job site. Return this job site copy to the unit supervisor following job completion.

Entrants Name (print)	Sign In	Sign Out	Sign In	Sign Out

Additional Information

Appendix C, Section 0040



THE UNIVERSITY of NORTH CAROLINA
GREENSBORO

**CERTIFICATION FOR
RECLASSIFYING CONFINED
SPACES**

This Certification for Reclassifying Confined Spaces checksheet is provided to assist in complying with the OSHA Standard 29 CFR 1910.146, Permit-Required Confined Spaces, Section (c)(5)(i) and (ii). This form is used to down grade a permit required confined space to non-permit space. All standard details are not covered by this checksheet. Refer to the complete standard for detailed compliance information.

RECLASSIFICATION FROM PERMIT-REQUIRED TO NON-PERMIT CONFINED SPACE

To reclassify a space the space must meet the following criteria:

- ___ The space poses no actual or potential atmospheric hazards.
- ___ The hazards are eliminated without entry.
- ___ All non-atmospheric hazards are eliminated
- ___ Entry into the space to eliminate the hazards is per an authorized permit.
- ___ Testing eliminated without requiring forced air ventilation.
and inspections during the permit entry demonstrate that the hazards were
- ___ Other pertinent comments:

Organization:		Facility:		Location:		
Confined Space Description:		Dept.:		Work Area:		
HAZARDS ELIMINATED	CHECK YES	CHECK NO	FINDINGS	DATE	TIME	SIGNATURE
Oxygen content						
Flammable gases/vapor						
Toxic-air contaminants						
Non-atmospheric hazards						

* Reclassification is not possible if there are checks in the NO column above.

COMMENTS

Prepared By: _____ Title: _____ Date: _____

Appendix D, Section 0040



Definitions

Acceptable entry conditions means the condition that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.

Attendant means an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program. **Authorized entrant** means an employee who is authorized by the employer to enter a permit space.

Blanking or blinding means the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line or duct with no leakage beyond the plate.

Confined space means a space that:

- 1 Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- 2 Has limited or restricted means for entry or exit (for example, tanks, vessels, soils, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
- 3 Is not designed for continuous employee occupancy.

Double block and bleed means the closure of a line, duct or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

Emergency means any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.

Engulfment means the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction or crushing.

Entry means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Entry permit (permit) means the written or printed document that is provided by the employer to allow and control entry into a permit space and that contains the information specified in paragraph (f) of this section.

Entry supervisor means the person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section.

Note: An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this section for each role he or she fills. Also the duties of entry supervisor may be passed from one individual to another during the course of an entry operation.

Hazardous atmosphere means an atmosphere that may expose employees to the risk of death, incapacitation, impairment or ability to self-rescue (that is, escape unaided from a permit space) injury, or acute illness from one or more of the following causes:

- 1 Flammable gas, vapor, or mist in excess of 10% of its lower flammable limit (LFL);
- 2 Airborne combustible dust at a concentration that meets or exceeds its LFL; *Note:* This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.
- 3 Atmospheric oxygen concentration below 19.5% or above 23.5%;
- 4 Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, *Occupational Health and Environmental Control*, or in Subpart Z, *Toxic and Hazardous Substances*, of this part and which could result in employees exposure in excess of its dose or permissible exposure limit; *Note:* An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment or ability to self-rescue, injury or acute illness due to its health effects is not covered by this provision.
- 5 Any other atmospheric condition that is immediately dangerous to life or health; *Note:* For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets that comply with the Hazard Communications Standard, 1910.1200 of this part, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

Hot work permit means the employer's written authorization to perform operations (for example, riveting, welding, cutting, burning and heating) capable of providing a source of ignition.

Immediately dangerous to life or health (IDLH) means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

Note: Some materials - hydrogen fluoride gas and cadmium vapor, for example - may produce immediate transient effects that, even if severe, may pass without

medical attention, but are followed by sudden, possibly fatal collapse 12-72 hours after exposure. The victim "feels normal" from recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.

Inerting means the displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

Note: This procedure produces an IDLH oxygen-deficient atmosphere.

Isolation means the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

Line breaking means the intentional opening of a pipe, line or duct that is or has been carrying flammable, corrosive, or toxic, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

Non-permit confined space means a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

Oxygen-deficient atmosphere and atmosphere containing less than 19.5 percent oxygen by volume.

Oxygen enriched atmosphere means an atmosphere containing more than 23.5 percent oxygen by volume.

Permit-required confined space (permit space) means a confined space that has one or more of the following characteristics:

- 1 Contains or has a potential to contain a hazardous atmosphere;
- 2 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 which slopes downward and tapers to a smaller cross-section; or
- 3 Contains any other recognized serious safety or health hazard.

Permit-required confined space program (permit space program) means the employer's overall program for controlling, and where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.

Permit system means the employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

Prohibited condition means any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

Rescue service means the personnel designated to rescue employees from permit spaces.

Retrieval system means the equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

Testing means the process by which the hazards that may confront entrants or a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

Note: Testing enables employers both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to and during entry.

Appendix E, Section 0040

