

Gettysburg College



Confined Space Program

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I. PURPOSE, SCOPE, AND APPLICATION

The purpose of this program is to provide safety requirements to enter and occupy confined spaces for Gettysburg College in compliance with the Occupational Safety and Health Administration (OSHA) confined space standard (29CFR1910.146).

This Confined Space Entry Program applies to all confined spaces at Gettysburg College identified in Appendix C and all college employees entering those spaces.

OSHA requires employers to develop a confined space entry program to protect workers who enter confined spaces. The general requirements for confined space entry are contained in the main body of this program. The program also contains specific instructions for each type of confined space as well as a listing of all confined spaces on campus. The Entry Permit for confined spaces and its step-by-step instructions are located in Appendix A.

II. DEFINITIONS

Acceptable entry conditions - the conditions 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 - an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendants' duties assigned in the Gettysburg College Confined Space Program.

Authorized entrant - an employee who is authorized by Gettysburg College to enter a permit space.

Blanking or Blinding -- 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 - a space that is:

- Large enough for the whole body to enter and work in; and
- Has a limited or restricted means of entry or exit; and
- Is not designed for continuous occupancy

Department - Any college department, which oversees entry into a confined space.

Departmental Confined Space Administrator - A person designated in a Department who is responsible for all aspects of the confined space program.

Double block and bleed -- 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 – 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 - 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 - 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) - the written or printed document that is provided by Gettysburg College to allow and control entry into a permit.

Entry supervisor - the person 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.

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

- Flammable gas, vapor or mist in excess of 10% of its lower flammable limit (LFL);
- Airborne combustible dust at a concentration that meets or exceeds its LFL, which can be approximated as a condition at which the dust obscures the vision at a distance of 5 feet or less;
- Atmospheric oxygen concentration below 19.5% or above 23.5 %;

- Atmospheric concentration of any substance for which a dose or permissible exposure limit (PEL) is published by OSHA and which could result in employee exposure in excess of its dose or PEL;
- Any other atmospheric condition that is immediately dangerous to life or health.

Hot work permit -- Gettysburg College'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) -- 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.

Inerting -- 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.

Isolation - 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, pipe, or ducts; a double block and bleed system; lockout or tag out of all sources of energy; or blocking or disconnecting all mechanical linkages.

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

Non-permit confined space - a 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 – an atmosphere containing less than 19.5 percent oxygen by volume.

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

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

- Contains, or has a 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 which slopes downward and tapers to smaller cross-section; or
- Contains any other recognized serious safety or health hazard

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

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

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

III. RESPONSIBILITIES

The Office of Environmental Health & Safety of Gettysburg College is responsible for:

- Reviewing and recommending changes and updates to the program.
- Ensuring compliance by all departments of the college.
- Communicating the program to the campus community and all other involved parties.
- Maintaining program documentation and training records.
- Providing information on the hazards of confined spaces and the requirements of all applicable OSHA regulations
- Identifying confined spaces, determining hazard potential, establishing safe entry procedures, and selecting personal protective equipment and rescue equipment
- Providing assistance to college departments in defining training requirements.
- Maintaining air monitoring equipment and coordinating any use of that equipment for any department.

The Department of *Safety and Security* is responsible for:

- Providing assistance and guidance for program development and compliance
- Maintaining canceled permits.
- Assigning classifications to confined spaces.
- Maintaining air monitoring equipment and coordinating any use of that equipment for any department.

College departments are responsible for:

- Knowing the potential hazards of confined spaces within their areas of responsibility.
- Ensuring that staff receives appropriate training in accordance with this program.
- Posting appropriate warning signs in accordance with this program.
- Maintaining canceled permits.
- Alerting the Department of Safety and Security whenever conditions arise which may affect the classification of a confined space.
- Alerting the Office of Environmental Health & Safety whenever a new confined space is identified for inclusion in the program.
- Providing appropriate PPE and rescue equipment for confined space entry operations (see specific entry procedure)
- Ensuring medical evaluations and fit testing are completed for personnel who will be wearing respirators in accordance with OSHA requirements.
- Actively seeking suggestions for improvement from workers.
- Providing annual feedback to the Office of Environmental Health & Safety regarding program improvement.
- Maintaining all entry and retrieval equipment and coordinating any use of that equipment.
- Enforcement of this program.

IV. TRAINING

A. GENERAL REQUIREMENTS

Each college department is responsible for assuring required training is completed for individuals who perform work under this program. All training must be documented with the title of the class, location, date, time and the names of the instructors and students; and provided to the Office of Environmental Health & Safety. Training documentation must be kept for each employee until their termination plus 1 year. Training requirements are summarized below.

All persons subject to this policy - anyone who acts as an entrant, attendant, or entry supervisor during a permitted entry must be trained in the following areas:

- The application of this program and all requirements therein to include the use of the confined space entry permit.
- The identification of confined spaces to include recognition of permit-required confined space signs and what constitutes a permit-required or non-permit confined space.
- Potential confined space hazards and how to recognize the behavioral effects of hazard exposure in authorized entrants.

- The use of all personal protective equipment required for entry into a particular space, including but not limited to:
 - air monitoring equipment
 - ventilation equipment
 - communication equipment
 - rescue equipment
- The duties of an entrant, attendant, and entry supervisor.
- How to respond to emergencies during confined space entry (including self-rescue and non-entry rescue)

B. DUTIES OF AUTHORIZED ENTRANTS

Entrants into permit-required confined spaces must:

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure
- Know the proper use of all equipment required for the entry to include rescue equipment and PPE.
- Ensure that they have signed in and out of the space on Section 5 of the entry permit.
- Communicate with the attendant at least every two minutes.
- Alert the attendant whenever:
 - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation;
 - The entrant detects a prohibited condition.
- Exit from the space as quickly as possible whenever:
 - An order to evacuate is given by the attendant or the entry supervisor;
 - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation;
 - The entrant detects a prohibited condition;
 - Any evacuation alarm is activated on the continuous monitoring device.

C. DUTIES OF AUTHORIZED ATTENDANTS

Attendants for permit-required confined spaces must:

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure;
- Be aware of possible behavioral effects of hazard exposure in entrants;
- Continuously maintain an accurate account by name of authorized entrants in Section 5 of the entry permit;

- Remain outside of the space during entry operations until relieved by another authorized attendant;
- Sign in and out of the attendant log. (Section 4)
- Communicate with authorized entrants at least every two minutes to monitor entrant status.
- Monitor the space and alert entrants of the need to evacuate the space if:
 - The attendant detects a prohibited condition;
 - The attendant detects a situation outside the space that could endanger the authorized entrants;
 - The attendant detects the behavioral effects of hazard exposure in an authorized entrant;
 - The attendant cannot effectively and safely perform all the duties required by authorized attendants;
- Summon the rescue team and Adams County Emergency Services as soon as the attendant determines that entrants may need assistance to escape from the space.
- Take the following actions when unauthorized persons approach or enter a permit-required space while entry is underway:
 - Warn the unauthorized persons that they must stay away from the space;
 - Advise the unauthorized persons that they must exit immediately if they have entered the space;
 - Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the space.
- Perform only non-entry rescues.
- Perform no other duty that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

D. DUTIES OF ENTRY SUPERVISORS

Entry supervisors for permit-required confined spaces must:

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure.
- Verify that all controls specified on the permit are in place before endorsing the permit.
- Terminate or cancel the permit if a prohibited condition arises and note the time and reason for terminating the permit in Section 6.
- Ensure that Material Safety Data Sheets are on hand for any substance for which one is required.
- Remove unauthorized individuals who enter or who attempt to enter the space during entry.

Determine that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained. Entry supervisors must visually check the operations prior to entry and once every four hour period thereafter for the duration the space is occupied

V. IDENTIFICATION OF CONFINED SPACES

All college grounds and facilities shall be evaluated for the presence of confined spaces. Each space shall be classified as permit-required or nonpermit-required corresponding to one of the different types of confined space as defined in the OSHA standard.

Permit-required confined spaces may be downgraded to nonpermit-required confined spaces as appropriate according to the guidelines established in the Reclassifying a Confined Space section of this document.

Introducing hazards in a confined space may also change its classification. If hazards are to be introduced into a confined space, which would change its classification, then the Department with the assistance of the Department of Safety and Security shall conduct a formal review of the procedure and reclassify the space and/or implement additional controls as necessary. The new procedure shall be in writing and have the program administrator's or their designee's signature and date.

Appendix B contains a flow chart to assist in the identification and classification of confined spaces.

VI. RECLASSIFYING A CONFINED SPACE

Note: Storm drains will normally be reclassified from permit-required spaces to nonpermit-required spaces prior to entry if conditions permit (see specific instructions).

Program administrators or their designee, with the Department of Safety and Security concurrence, may reclassify a permit-required space to a nonpermit-required space as long as the following conditions are met:

- The permit-required space has no actual or potential atmospheric hazards OR all hazards have been eliminated in the confined space without actually entering the confined space OR all hazards with the exception of those atmospheric hazards that can be controlled by forced ventilation alone have been eliminated without actually entering the confined space
- If entry is required to eliminate the hazard, it will be done in accordance with a normal permit-required entry

- Program administrators or their designee must certify in Section 6 of the entry permit that all hazards have been eliminated.

Note: Elimination of a hazard means that the hazard no longer exists whereas controlling a hazard means that although the hazard may still exist, steps have been taken to ensure acceptable entry conditions.

VII. PREVENTION OF UNAUTHORIZED ENTRY

Permit-required confined spaces - All permit-required confined spaces shall be posted with danger signs to prevent unauthorized entry. The signs shall be posted at the entrance and read, "DANGER. Confined Space #____. Entry Permit Required. Call 337-6911." If a permit-required space has been downgraded to nonpermit-required space, then the danger sign may be removed only for the time the space is downgraded.

If a Department decides that employees will not enter a particular permit-required confined space, they shall take effective measures to prevent employees from entering it. This may include the use of locks, barriers and/or signs.

VIII. STORAGE IN CONFINED SPACES

Confined spaces shall not be used as storage areas for equipment, chemicals, refuse, or anything else that can produce a tripping, atmospheric, or fire hazard.

IX. PERMIT-REQUIRED CONFINED SPACE ENTRY

A. General Procedures

These spaces require an entrant(s), attendant and entry supervisor. The entry supervisor, who may also act as an attendant or authorized entrant, authorizes the entry and ensures all necessary requirements are met prior to and during the entry. The attendant is stationed outside of one or more adjacent permit-required spaces and monitors the entrants and performs all duties described below.

The hazards in a permit-required space must be identified, evaluated, and controlled prior to entry. Appropriate PPE must be worn during entry to protect the worker from any potential hazard. The hazards, controls and required PPE must be written on the entry permit. The Permit contains blocks for this purpose. Controlling the hazards means that the procedures and/or practices that permit safe entry are in place. These include, but are not limited to the following:

- Specifying acceptable entry
- Posting the entry permit at the entrance to the confined space which identifies the hazards and controls so that each entrant is aware of them

- Allowing the entrants to observe any monitoring or testing of the spaces
- Isolating the space
- Purging, inerting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards
- Providing pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards
- Verifying that conditions in the space are acceptable for entry throughout the duration of an authorized entry

A pre-job briefing given by the entry supervisor is required prior to entering any permit-required space. All persons involved are required to attend including all authorized entrants, attendants and the entry supervisor.

General requirements prior to entry into a permit-required space are:

- The entry supervisor shall ensure that all hazards are controlled as specified above.
- The entry supervisor shall fill out sections 1 and 4 of the Entry Permit to the extent possible. This includes identifying all authorized attendants and entrants.
- The entry supervisor shall give a pre-job briefing as required above.
- Any condition making it unsafe to remove an entrance cover shall be eliminated before the cover is removed.
- When entrance covers are removed, a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee in the space from foreign objects entering the space shall promptly guard the opening.
- Retrieval equipment shall be in place. If the space has a greater than five-foot vertical drop then a tripod type retrieval system must be used.
- The space must be ventilated for least as long as the specific instructions require prior to entry in accordance with Ventilation section of this document.
- The attendant shall be stationed.
- Before an authorized entrant enters the space, the internal atmosphere shall be tested, with a quad gas meter, for oxygen content, for flammable gases or vapors, and for potential toxic air contaminants, in that order. Various levels and areas must be tested.
- The space should contain acceptable entry conditions prior to entry. Specific values for atmospheric hazards are printed on the Entry Permit. If these values cannot be met then ventilation shall continue until acceptable entry conditions are met if possible. If acceptable conditions cannot be met, appropriate PPE shall be worn.
- The person making the initial survey shall sign the Entry Permit.
- Immediately provide the initial test result to the entrant(s).
- The entry supervisor shall authorize entry by signing and dating the Entry Permit.

General requirements during entry into a permit-required space:

- The maximum time an entry permit can be used is eight hours. If work is not completed when the current entry permit has expired, a new entry permit must be issued.
- Continuous forced ventilation must be used as long as the space is occupied in accordance with the ventilation section.
- The atmosphere within the space shall be monitored continuously using a quad gas detector to ensure that the continuous forced ventilation is preventing the accumulation of a hazardous atmosphere. Results of monitoring shall be recorded hourly. Spaces are provided on the entry permit to accommodate this data.
- If a hazardous atmosphere is detected during entry each worker shall leave the space immediately. Safety and Security and the Department shall be contacted and an investigation as to how the hazardous atmosphere developed begun. Workers shall not be allowed to reenter the space until the hazard can be controlled.
- The attendant shall be stationed the entire time of entry. Another authorized attendant with the permission of the entry supervisor shall only relieve the attendant.
- Upon completion of work, the space shall be cleared, the entrance placed in its original condition and the entry permit(s) filed with the Department and Safety and Security.

B. Specific Entry Procedures for Individual Spaces

Steam Manholes

Potential hazards: Oxygen deficiency, heat injuries, steams burns

Description: The College has a dedicated steam system supplying many of the buildings on campus. Many components of the system are accessed via manholes.

Personnel Required:

1. Authorized entrant(s)
2. Attendant
3. Entry supervisor (the entry supervisor may also act as the attendant or the authorized entrant)

Equipment Required:

1. Suitable lighting
2. Ventilation blower

3. Radio or cellular phone to communicate with emergency services and radio dispatch
4. Gas monitor
5. PPE (harness, lifeline, respirators) (gloves and long sleeves if piping is hot)
6. Rescue device (tripod)
7. Heat stress monitor (if required)
8. A means to communicate between attendant and entrant(s)

Entry Procedures:

1. Obtain a valid entry permit.
2. Assemble entry team and hold pre-job briefing.
3. Isolate the manhole (double block and bleed the steam line to be breeched or repaired if applicable).
4. Obtain and verify working condition of necessary equipment. Also, verify the yearly calibration of the gas monitor.
5. Setup rescue/lowering equipment (tripod) at the entrance.
6. Post permit at the entrance.
7. Remove manhole cover.
8. Set up manhole opening barrier.
9. Set up blower and ventilate the space for the time specified in the ventilation section based upon the size of the manhole. Keep the ventilation on during the entire entry directed near the area of work.
10. Test atmosphere with the gas monitor for Oxygen content, flammability, and Carbon Monoxide, and Hydrogen Sulfide. Test at various levels and locations. Record results on entry permit. Entry without respiratory protection is allowed if Oxygen content is more than 19.5% and less than 23.5%, flammability is less than 10%, Carbon Monoxide is less than 25 ppm and Hydrogen Sulfide is less than 10 ppm.
11. Don appropriate PPE.
12. Obtain signature(s) of person conducting initial atmospheric testing and entry supervisor.
13. Attendant shall monitor the manhole continuously during entry and record results hourly.
14. The attendant shall communicate verbally with the entrant at least every two minutes.
15. Finish work, cancel permit, close and secure the space.

Emergency Exits: Exit the space immediately if:

1. The flammability sensor alarms on the gas monitor
2. The oxygen, carbon monoxide, or hydrogen sulfide sensor alarms on the gas monitor when entrants are not wearing air supplying respirators
3. The gas monitor fails
4. Ventilation or air supply fails
5. Entrants show any signs or symptoms of exposure

6. Any violation of the permit conditions occurs
7. A hazardous condition arises outside the space
8. If the air supply to the respirators fails

Rescue Procedures: Self Rescue: The best rescue is a self-rescue. The authorized entrant must exit from the permit space as quickly as possible whenever:

1. An order to evacuate is given by the attendant or entry supervisor
2. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation
3. The entrant detects a prohibited condition

Attendant Non-entry Rescue: The attendant must order the entrant to evacuate immediately under any of the following conditions:

1. If the attendant detects a prohibited condition
2. If the attendant detects the behavioral effects of hazard exposure in an authorized entrant
3. If the attendant detects a situation outside the space that could endanger the authorized entrants
4. If the attendant cannot effectively and safely perform all the duties required

In the event that an entrant cannot self-rescue, the attendant is to immediately call for emergency assistance. Call Safety and Security dispatch on the radio and ask them to call Adams County emergency services. If you have a cell phone, call dispatch at 337-6911, and call 911 for emergency services.

The attendant will attempt to remove the entrant by use of the lifeline and lifting device. The attendant must not enter the space unless he/she has been properly trained and is relieved by another qualified attendant.

Storm Drain Manholes

Potential hazards: Oxygen deficiency, Water engulfment

Description: The college storm drain system is accessed via several manholes located throughout campus

Personnel Required:

1. Authorized entrant(s)
2. Attendant
3. Entry supervisor (the entry supervisor may also act as the attendant or the authorized entrant)

Equipment Required:

1. Suitable lighting
2. Ventilation blower
3. Radio or cellular phone to communicate with emergency services
4. Gas monitor
5. PPE (harness, lifeline, respirators)
6. Rescue device (tripod)
7. A means to communicate between attendant and entrant(s)

Entry Procedures:

1. Obtain a valid entry permit.
2. Assemble entry team and hold pre-job briefing.
3. Obtain and verify working condition of necessary equipment. Also, verify the yearly calibration of the gas monitor.
4. Setup rescue equipment (tripod)
5. Isolate the space to the extent possible and post permit at the entrance.
NOTE: Storm drains cannot normally be fully isolated.
6. Remove manhole cover.
7. Set up manhole opening barrier
8. Set up blower and ventilate the space for the time specified in the ventilation section based upon the size of the manhole. Keep the ventilation on during the entire entry directed near the area of work.
9. Test atmosphere with the gas monitor for Oxygen content, flammability, Carbon Monoxide and Hydrogen Sulfide. Test at various levels and locations. Record results on the permit. Entry without respiratory protection is allowed if Oxygen content is more than 19.5% and less than 23.5%, flammability is less than 10%, Carbon Monoxide is less than 25 ppm and Hydrogen Sulfide is less than 10 ppm.
10. If ventilation does not eliminate the atmospheric hazards, entrants wearing air-supplying respirators with emergency air bottles must make entry.
11. Don appropriate PPE.
12. Obtain signature(s) of person conducting initial atmospheric testing and entry supervisor.
13. Attendant shall monitor continuously during entry and record results.
14. The attendant shall communicate verbally with the entrant at least every two minutes.
15. Finish work, cancel permit, close and secure the space.

Emergency Exits: Exit the space immediately if:

1. The flammability sensor alarms on the gas monitor
2. The oxygen, carbon monoxide, or hydrogen sulfide sensor alarms on the gas monitor when entrants are not wearing air supplying respirators
3. The gas monitor fails
4. Ventilation or air supply fails
5. Entrants show any signs or symptoms of exposure
6. Any violation of the permit conditions occurs

7. A hazardous condition arises outside the space
8. There is any sign of inclement weather

Rescue Procedures: Self Rescue: The best rescue is a self-rescue. The authorized entrant must exit from the permit space as quickly as possible whenever:

1. An order to evacuate is given by the attendant or entry supervisor
2. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation
3. The entrant detects a prohibited condition

Attendant Non-entry Rescue: The attendant must order the entrant to evacuate immediately under any of the following conditions:

1. If the attendant detects a prohibited condition
2. If the attendant detects the behavioral effects of hazard exposure in an authorized entrant
3. If the attendant detects a situation outside the space that could endanger the authorized entrants
4. If the attendant cannot effectively and safely perform all the duties required

In the event that an entrant cannot self-rescue, the attendant is to immediately call for emergency assistance. Call Safety and Security dispatch on the radio and ask them to call Adams County emergency services. If you have a cell phone, call dispatch at 337-6911, and call 911 for emergency services.

The attendant will attempt to remove the entrant by use of the lifeline and lifting device. The attendant must not enter the space unless he/she has been properly trained and is relieved by another qualified attendant.

Sewer Manholes

Potential hazards: Oxygen deficiency, Hydrogen Sulfide (If sewer is leaking)

Description: The college sewer system is accessed via several manholes located throughout campus. The sewer is a piped system.

Personnel Required:

1. Authorized entrant(s)
2. Attendant
3. Entry supervisor (the entry supervisor may also act as the attendant or the authorized entrant)

Equipment Required:

1. Suitable lighting
2. Ventilation blower
3. Radio or cellular phone to communicate with emergency services
4. Gas monitor
5. PPE (harness, lifeline, respirators)
6. Rescue device (tripod)
7. A means to communicate between attendant and entrant(s)
8. PPE if required

Entry Procedures:

1. Obtain a valid entry permit.
2. Assemble entry team and hold pre-job briefing.
3. Obtain and verify working condition of necessary equipment. Also, verify the yearly calibration of the gas monitor.
4. Setup rescue equipment (tripod)
5. Isolate the space to the extent possible and post permit at the entrance.
6. Remove manhole cover.
7. Set up manhole opening barrier
8. Set up blower and ventilate the space for the time specified in the ventilation section based upon the size of the manhole. Keep the ventilation on during the entire entry directed near the area of work.
9. Test atmosphere with the gas monitor for Oxygen content, flammability, Carbon Monoxide and Hydrogen Sulfide. Test at various levels and locations. Record results on the permit. Entry without respiratory protection is allowed if Oxygen content is more than 19.5% and less than 23.5%, flammability is less than 10%, Carbon Monoxide is less than 25 ppm and Hydrogen Sulfide is less than 10 ppm.
10. If ventilation does not eliminate the atmospheric hazards, entrants wearing air-supplying respirators with emergency air bottles must make entry.
11. Don necessary PPE.
12. Obtain signature(s) of person conducting initial atmospheric testing and entry supervisor.
13. Attendant shall monitor continuously during entry and record results.
14. The attendant shall communicate verbally with the entrant at least every two minutes.
15. Finish work, cancel permit, close and secure the space.

Emergency Exits: Exit the space immediately if:

1. The flammability sensor alarms on the gas monitor
2. The oxygen, carbon monoxide, or hydrogen sulfide sensor alarms on the gas monitor when entrants are not wearing air supplying respirators
3. The gas monitor fails
4. Ventilation or air supply fails
5. Entrants show any signs or symptoms of exposure
6. Any violation of the permit conditions occurs

7. A hazardous condition arises outside the space

Rescue Procedures: Self Rescue: The best rescue is a self-rescue. The authorized entrant must exit from the permit space as quickly as possible whenever:

1. An order to evacuate is given by the attendant or entry supervisor
2. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation
3. The entrant detects a prohibited condition

Attendant Non-entry Rescue: The attendant must order the entrant to evacuate immediately under any of the following conditions:

1. If the attendant detects a prohibited condition
2. If the attendant detects the behavioral effects of hazard exposure in an authorized entrant
3. If the attendant detects a situation outside the space that could endanger the authorized entrants
4. If the attendant cannot effectively and safely perform all the duties required

In the event that an entrant cannot self-rescue, the attendant is to immediately call for emergency assistance. Call Safety and Security dispatch on the radio and ask them to call Adams County emergency services. If you have a cell phone, call dispatch at 337-6911, and call 911 for emergency services.

The attendant will attempt to remove the entrant by use of the lifeline and lifting device. The attendant must not enter the space unless he/she has been properly trained and is relieved by another qualified attendant.

Electrical Vaults and Electrical Manholes

Potential hazards: Oxygen deficiency, electrical shock

Description: The College has several vaults and manholes for the electrical distribution system.

NOTE: Electrical vaults and manholes that contain exposed energized parts are required to be locked. In order to work on or near the exposed energized parts, the worker must have a journeyman level accreditation as an electrician.

NOTE: Workers must be protected against accidental contact with exposed energized parts (not associated with the maintenance) in confined spaces by using protective shields, protective barriers, or insulating materials as necessary.

Personnel Required:

1. Authorized entrant(s)

2. Attendant
3. Entry supervisor (the entry supervisor may also act as the attendant or the authorized entrant)

Equipment Required:

1. Suitable lighting
2. Ventilation blower
3. Radio or cellular phone to communicate with emergency services
4. Gas monitor
5. PPE (harness, lifeline, respirators)
6. Rescue device (tripod)
7. A means to communicate between attendant and entrant(s) PPE if required Gas monitor

Entry Procedures:

1. Obtain a valid entry permit.
2. Assemble entry team and hold pre-job briefing.
3. Obtain and verify working condition of necessary equipment. Also, verify the yearly calibration of the gas monitor.
4. Setup rescue equipment (tripod)
5. Isolate the space to the extent possible and post permit at the entrance.
6. Remove manhole cover.
7. Set up manhole opening barrier
8. Set up blower and ventilate the space for the time specified in the ventilation section based upon the size of the manhole. Keep the ventilation on during the entire entry directed near the area of work.
9. Test atmosphere with the gas monitor for Oxygen content, flammability, Carbon Monoxide and Hydrogen Sulfide. Test at various levels and locations. Record results on the permit. Entry without respiratory protection is allowed if Oxygen content is more than 19.5% and less than 23.5%, flammability is less than 10%, Carbon Monoxide is less than 25 ppm and Hydrogen Sulfide is less than 10 ppm.
10. If ventilation does not eliminate the atmospheric hazards, entrants wearing air-supplying respirators with emergency air bottles must make entry.
11. Don necessary PPE.
12. Obtain signature(s) of person conducting initial atmospheric testing and entry supervisor.
13. Attendant shall monitor continuously during entry and record results.
14. The attendant shall communicate verbally with the entrant at least every two minutes.
15. Finish work, cancel permit, close and secure the space.

Emergency Exits: Exit the space immediately if:

1. The flammability sensor alarms on the gas monitor

2. The oxygen, carbon monoxide, or hydrogen sulfide sensor alarms on the gas monitor when entrants are not wearing air supplying respirators
3. The gas monitor fails
4. Ventilation or air supply fails
5. Entrants show any signs or symptoms of exposure
6. Any violation of the permit conditions occurs
7. A hazardous condition arises outside the space

Rescue Procedures: Self Rescue: The best rescue is a self-rescue. The authorized entrant must exit from the permit space as quickly as possible whenever:

1. An order to evacuate is given by the attendant or entry supervisor
2. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation
3. The entrant detects a prohibited condition

Attendant Non-entry Rescue: The attendant must order the entrant to evacuate immediately under any of the following conditions:

1. If the attendant detects a prohibited condition
2. If the attendant detects the behavioral effects of hazard exposure in an authorized entrant
3. If the attendant detects a situation outside the space that could endanger the authorized entrants
4. If the attendant cannot effectively and safely perform all the duties required

In the event that an entrant cannot self-rescue, the attendant is to immediately call for emergency assistance. Call Safety and Security dispatch on the radio and ask them to call Adams County emergency services. If you have a cell phone, call dispatch at 337-6911, and call 911 for emergency services.

The attendant will attempt to remove the entrant by use of the lifeline and lifting device. The attendant must not enter the space unless he/she has been properly trained and is relieved by another qualified attendant.

Telecommunications Manholes

Potential hazards: Oxygen deficiency, electrical shock

Description: The College has several manholes for the distribution of telecommunications systems.

NOTE: Workers must be protected against accidental contact with exposed energized

parts (not associated with the maintenance) in confined spaces by using protective shields, protective barriers, or insulating materials as necessary.

Personnel Required:

1. Authorized entrant(s)
2. Attendant
3. Entry supervisor (the entry supervisor may also act as the attendant or the authorized entrant)

Equipment Required:

1. Suitable lighting
2. Ventilation blower
3. Radio or cellular phone to communicate with emergency services
4. Gas monitor
5. PPE (harness, lifeline, respirators)
6. Rescue device (tripod)
7. A means to communicate between attendant and entrant(s) PPE if required Gas monitor

Entry Procedures:

1. Obtain a valid entry permit.
2. Assemble entry team and hold pre-job briefing.
3. Obtain and verify working condition of necessary equipment. Also, verify the yearly calibration of the gas monitor.
4. Setup rescue equipment (tripod)
5. Isolate the space to the extent possible and post permit at the entrance.
6. Remove manhole cover.
7. Set up manhole opening barrier
8. Set up blower and ventilate the space for the time specified in the ventilation section based upon the size of the manhole. Keep the ventilation on during the entire entry directed near the area of work.
9. Test atmosphere with the gas monitor for Oxygen content, flammability, Carbon Monoxide and Hydrogen Sulfide. Test at various levels and locations. Record results on the permit. Entry without respiratory protection is allowed if Oxygen content is more than 19.5% and less than 23.5%, flammability is less than 10%, Carbon Monoxide is less than 25 ppm and Hydrogen Sulfide is less than 10 ppm.
10. If ventilation does not eliminate the atmospheric hazards, entrants wearing air-supplying respirators with emergency air bottles must make entry.
11. Don necessary PPE, harnesses and lifelines.
12. Obtain signature(s) of person conducting initial atmospheric testing and entry supervisor.
13. Attendant shall monitor continuously during entry and record results.

14. The attendant shall communicate verbally with the entrant at least every two minutes.
15. Finish work, cancel permit, close and secure the space.

Emergency Exits: Exit the space immediately if:

1. The flammability sensor alarms on the gas monitor
2. The oxygen, carbon monoxide, or hydrogen sulfide sensor alarms on the gas monitor when entrants are not wearing air supplying respirators
3. The gas monitor fails
4. Ventilation or air supply fails
5. Entrants show any signs or symptoms of exposure
6. Any violation of the permit conditions occurs
7. A hazardous condition arises outside the space

Rescue Procedures: Self Rescue: The best rescue is a self-rescue. The authorized entrant must exit from the permit space as quickly as possible whenever:

1. An order to evacuate is given by the attendant or entry supervisor
2. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation
3. The entrant detects a prohibited condition

Attendant Non-entry Rescue: The attendant must order the entrant to evacuate immediately under any of the following conditions:

1. If the attendant detects a prohibited condition
2. If the attendant detects the behavioral effects of hazard exposure in an authorized entrant
3. If the attendant detects a situation outside the space that could endanger the authorized entrants
4. If the attendant cannot effectively and safely perform all the duties required

In the event that an entrant cannot self-rescue, the attendant is to immediately call for emergency assistance. Call Safety and Security dispatch on the radio and ask them to call Adams County emergency services. If you have a cell phone, call dispatch at 337-6911, and call 911 for emergency services.

The attendant will attempt to remove the entrant by use of the lifeline and lifting device. The attendant must not enter the space unless he/she has been properly trained and is relieved by another qualified attendant.

A qualified person may, for brief periods of time, enter a manhole alone where energized cables or equipment are in service for the purpose of inspection, housekeeping, taking readings, or similar work if such work can be performed safely. For these purposes, a

qualified person means someone who is trained in basic electrical safety and is recognized by the telecommunications department as being trained in its operating procedures. If exposed wires greater than fifty volts are in the space, then a qualified person is someone who has achieved journeyman level status as an electrician.

C. Abnormal Conditions

If conditions in a confined space are abnormal or are not accounted for in the specific entry procedure then the space must be reevaluated by the Department with the assistance of the Department of Safety and Security prior to entry. For example, a flooded confined space would probably require pumping prior to entry.

D. Contractors

The following requirements apply to entry into permit-required confined spaces by contractors to the college:

- All permit required confined space work must be done under a contractual agreement with Gettysburg College.
- The contractor must use a confined space program that meets the requirements of OSHA standard 1910.126.
- The host Department shall apprise the contractor of all hazards of the space and the controls required for entry into it as specified in this program.
- The host Department shall coordinate with the contractor when they both will be working in or near the same permit-required confined space.
- The contractor shall debrief the Department at the conclusion of entry operations regarding any hazards confronted or created during entry operations.
- The contractor must specify who will provide rescue services for permit-required confined space entry
- The contractor will provide to the Department of Safety and Security a copy of the entry permit prior to any work being performed.
- The contractor will provide to the Department of Safety and Security a completed entry permit after the work is completed.
- The Department of Safety and Security can stop any work being performed by a contractor to ensure that all requirements are being met.

X. VENTILATION OF CONFINED SPACES

Ventilation is one of the most effective means of controlling hazardous atmospheres in confined spaces. In this procedure, clean air replaces contaminated air by natural or forced (mechanical) ventilation.

When ventilating a confined space, the following factors must be taken into consideration:

Volume of air: This determines the capacity of the blower or ejector.

Type of atmosphere: This will determine the type of blower or ejector used and the length of time needed to ventilate until it is safe for people to enter the space.

Access to space: This determines how to get the ventilating air into and out of the space.

Power requirements and availability: This will influence the power source and fan motor size. A portable generator may be required as a source of power.

Cost, efficiency and maintenance: This may have an effect on the type of device that is selected and what is necessary to keep it working properly.

Shape of space: This will affect the type of directional device needed and the amount of air pressure required to provide sufficient ventilation.

Source of clean air: This is necessary to ensure adequate ventilation.

Length of time ventilation is needed: determined by the type of contaminant and the work that is to be done in the space

Type of work to be done: This determines whether local exhaust ventilation or general ventilation is required.

A. VENTILATION GUIDE

1. Select fan with a capacity to quickly replace the air in the space.
Limitations are pasted on the fan housing
2. Use reliable, grounded electrical power.
3. Eliminate any hazardous atmosphere. Exhaust toxic and flammable air; supply fresh air when oxygen-deficient.
4. Provide constant circulation of fresh air while space is occupied.
 - Natural ventilation is allowable only on "non-permit" entry.
 - Direct high-velocity supply ventilation to mix the air throughout the space.
 - Capture contaminants during hot work or cleaning with solvents by using additional local (or point) exhaust.
 - Pure oxygen is not "fresh air". Never use bottled oxygen for ventilation.
5. Arrange ductwork to ensure safety:
 - Locate supply fan intake away from flammable or toxic air.

- Position exhaust fan outlet to avoid recirculation of bad air or endangering others outside the space.
 - Position exhaust duct inlet next to the source of contaminants.
 - Keep ducts short and straight.
 - Make sure air circulates through the entire space and does not short-circuit.
6. Continuously monitor the air to ensure ventilation is keeping the air safe to breathe

B. VENTILATION REQUIREMENTS

As specified elsewhere in this program, confined spaces shall be required to be ventilated prior to entry and ventilated continuously while entry operations are taking place. The following requirements apply to ventilation:

- If ventilation is required prior to entry then the space shall be ventilated for least 15 minutes if it is less than 1500 ft³, 30 minutes if it is between 1500 ft³ and 3000 ft³, or 45 minutes if it is between 3000 ft³ and 4500 ft³. This assumes that the blower used has a capacity of at least 800 ft³/min. If a blower is used that has a capacity less than 800 ft³/min then ventilation times should be readjusted to provide at least 10 volume air changes per hour.
- If continuous ventilation is required then it shall be directed as to ventilate the immediate areas where a worker is or will be present.
- Continuous ventilation must be from a blower or fan that has a capacity to provide at least 10-volume air changes per hour. **IMPORTANT:** The above requirement assumes there are no atmospheric hazards being introduced in the space such as from welding, the use of solvents, glues, or painting. If hazards are to be introduced, Entry Supervisor must reevaluate ventilation needs.
- The air supply must be from a clean source and may not increase the hazards of the space. For example, a running vehicle, power generator, or portable pump must not be positioned near the blower intake.

XI. REQUIRED EQUIPMENT FOR CONFINED SPACE ENTRY

Departments must provide the following equipment as required to facilitate safe entry into permit-required confined spaces:

- Testing and monitoring equipment as specified by the Department of Safety and Security
- Ventilating equipment needed to obtain and maintain acceptable entry conditions

- Equipment necessary for communication between the attendant and plant operations dispatch and the attendant and the entrant
- All necessary PPE
- Lighting equipment needed to enable entrants to work safely
- Barriers and shields to prevent objects from entering occupied confined spaces or to prevent people from falling into open spaces
- Equipment, such as ladders, needed for safe entry and exit by authorized entrants
- All required rescue and emergency equipment
- Any other equipment necessary for safe entry into and rescue from permit-required confined spaces.

Equipment shall include, but not be limited to:

| | | |
|-------------------------|------------------------|--------------------------|
| Safety Cones | Vest | Flags |
| Rope | Ladder | Glasses |
| Shoes | Harness | Tripod |
| Retrieval System | Ventilation Fan | Barricades (as required) |
| Men Working Signs | Manhole Hook (or pick) | Air Monitor |
| Utility Ropes | Fire Extinguisher | First Aid Kit |
| Manhole Access Bracket | Hard Hats | |
| Rescue Telephone Number | | |

XII. ATMOSPHERIC TESTING AND MONITORING

A. General Procedures

Atmospheric testing is necessary for two purposes: evaluation of the hazards of the permit space and verification that acceptable entry conditions for entry into that space exist. A quad gas detector can be obtained by contacting the Office of Security Services at 337-6912 or the Office of Environmental Health & Safety at 337-6813.

Evaluation Testing

The atmosphere of a confined space should be analyzed using equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous atmospheres that may exist or arise, so that appropriate entry procedures can be developed and acceptable entry conditions stipulated for that space.

A minimum of four tests should be performed to identify atmospheric hazards in confined spaces. These tests must be performed in the following sequence:

- Oxygen Content
- Flammability
- Toxicity (for hydrogen sulfide and carbon monoxide)

Verification Testing

The atmosphere of a permit space which may contain a hazardous atmosphere should be tested for residues of all contaminants identified by evaluation testing using permit specified equipment to determine that residual concentrations at the time of testing and during entry are within the range of acceptable entry conditions.

Duration of Testing

Measurement of values for each atmospheric parameter should be made for at least the minimum response time of the test instrument as specified by the manufacturer.

Testing Stratified Atmospheres

When monitoring for entries involving a descent into atmospheres that may be stratified, the atmospheric envelope should be tested a distance of approximately 4 feet in the direction of travel and to each side. If a sampling probe is used, the entrant's rate of progress should be slowed to accommodate the sampling speed and detector response.

Equipment Calibration

To ensure that the atmospheric testing equipment is functioning properly, any direct reading test device should not be used without performing the following three operations:

- Inspection
- Calibration

- Function Test

All three operations should be performed according to specific manufacturer's instructions, and documented on the Confined Space Gas Monitor Calibration/Inspection Log (Appendix D).

B. Air Monitoring Guide

1. Inspect Instrument
 - Check physical condition of instrument (case, meter, attachments, hoses for cracks)
 - Review instructions to insure you know how to use the device and interpret results.
2. Calibrate Gas Sensors using a Span Gas
3. Perform Fresh Air Calibration (Note: Some monitors perform this function automatically when turned on; others must be manually calibrated)
4. Perform Function Test
 - Oxygen sensor: breathe into sampling device to reduce the oxygen level below 19.5%. The oxygen alarm should sound.
 - Combustible gas sensor: remove cap of solvent magic marker or open a cigarette lighter without a flame near the sampling device until it reaches a 10% reading. The combustible gas sensor should sound.
 - Always perform a function test in the field before use.
 - Never perform a function test in the suspected atmosphere.
5. Pre-Test Space
 - Test entire space, top to bottom, every four feet and in the direction of travel.
 - Order of tests:
 1. Oxygen
 2. Flammability
 3. Toxicity (for hydrogen sulfide and carbon monoxide)
6. Monitor the Space
 - Continuously monitor the atmosphere by positioning the instrument near the workers. Record readings at least hourly on the entry permit.

If any of the alarms sound, exit the space immediately.

Always record your readings.

XIII. ENTRY PERMIT (Appendix A)

The entry permit is used to document that all prerequisites are completed, verify the hazards have been controlled, periodically record the results of continuous monitoring for permit-required confined space entry, record entrants/attendants, and explain any special controls or methods used to isolate the space and/or the justification for changing the classification of a confined space.

The Entry Permit must be posted at the confined space entrance. Departments must develop a system for issuing and filing entry permits. A duplicate copy must be submitted to the Department of Safety and Security. Permits must be retained for a period of at least one year after the date that the entry permit has expired.

XIV. EMERGENCY PROCEDURES

A. SELF-RESCUE

The best rescue option is a self-rescue by which the entrant recognizes signs or symptoms of exposure or is injured and immediately exits the confined space if possible without the aid of either the attendant or any rescue device. The Adams County Emergency Services (911) shall be called if any type of rescue is required: self-rescue (if serious injury is involved), attendant non-entry rescue or rescue team rescue. Adams County emergency services shall take control of all rescues once they arrive on scene.

B. ATTENDANT NON-ENTRY RESCUE

If the entrant becomes unable to perform a self-rescue, the attendant shall attempt to rescue the entrant by use of a mechanical device from outside the space if such a rescue will not further injure the entrant or the attendant. If, for example, it is apparent that the entrant has become incapacitated due to presence of a hazardous atmosphere, the attendant may perform a non-entry rescue. If, on the other hand, there is no possible atmospheric hazard and if the entrant may have a potential back injury then the attendant shall wait for a rescue team to make the extraction.

Each authorized entrant shall use a chest or full body harness, with a retrieval line attached at the center of the entrants back near shoulder level, above the entrants head or at a place which presents a small enough profile for the successful removal of the entrant. A space that has at least a five-foot vertical entrance must have a tripod and winch retrieval setup. If it has a horizontal entrance then it should have, at a minimum, a rope attached to the harness so that the attendant can pull the entrant out.

XV. PLAN REVIEW

The Office of Environmental Health and Safety shall review this program annually, using the canceled permits retained as required by this document and 29 CFR 1910.146. Program administrators or their designee shall actively seek input from workers for suggestions and submit those suggestions to the Office of Environmental Health & Safety.

This program shall be reviewed whenever it is believed that the measures taken under the program may not protect employees and revised to correct deficiencies found to exist before subsequent entries are authorized.

NOTE: Examples of circumstances requiring the review of the confined space program are: any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near-miss during entry, a change in the use or configuration of a permit space, and employee complaints about the effectiveness of the program.

Appendix A

GETTYSBURG COLLEGE CONFINED SPACE ENTRY PERMIT/LOG

SECTION 1: General Information Date of Entry: _____ Permit Lot # _____ Contractor Job: Yes or No

Space to be Entered: _____ Purpose of Entry: _____
 Department: _____ Authorized Duration of Permit/ Log: _____
 Location/Building: _____ Start Time: _____ End Time: _____

SECTION # 2 Atmospheric Survey

Person conducting initial atmospheric survey: Print _____ Sign: _____

| Non Respirator Conditions | Initial Survey | 1st hr | Initials | 2nd hr | Initials | 3rd hr | Initials | 4th hr | Initials | 5th hr | Initials | 6th hr | Initials |
|---------------------------|----------------|--------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|----------|
| Oxygen % 19.5 <23.5% | | | | | | | | | | | | | |
| Flammability <10% LEL | | | | | | | | | | | | | |
| CO <25ppm | | | | | | | | | | | | | |
| H2S <10ppm | | | | | | | | | | | | | |

Is the initial temperature in the space acceptable: Yes or No
 Authorized by Entry Supervisor- I certify that all required precautions have been taken and necessary equipment in provided for safe entry and work in this confined space.

Print: _____ Signature: _____ Date: _____ Time: _____

SECTION 3 ENTRY PERMIT DATA & AUTHORIZATION for Permitted

Potential Hazard Present (See specific entry requirements for individual spaces)

- | | |
|---|--|
| <input type="checkbox"/> Oxygen Deficiency < 19.5% | <input type="checkbox"/> Controls in place _____ |
| <input type="checkbox"/> Oxygen Enrichment > 23.5% | <input type="checkbox"/> _____ |
| <input type="checkbox"/> Flammable Gases or Vapors > 10% of LEL | <input type="checkbox"/> _____ |
| <input type="checkbox"/> Airborne Combustible Dust > LEL | <input type="checkbox"/> _____ |
| <input type="checkbox"/> Toxic Gases or Vapors > PEL | <input type="checkbox"/> _____ |
| <input type="checkbox"/> Mechanical Hazards | <input type="checkbox"/> _____ |
| <input type="checkbox"/> Electrical Shock | <input type="checkbox"/> _____ |
| <input type="checkbox"/> Materials Harmful to skin | <input type="checkbox"/> _____ |
| <input type="checkbox"/> Engulfment | <input type="checkbox"/> _____ |

Hazards Introduced by Nature of Work

- Hot Work
 Solvents
 Paints
 Toxic Chemicals
 Mechanical
 Hazards
 Other _____

Equipment:

- PPE: Airline-Respirator
 Air Purifying
 Respirator
 Hearing Protection
 Face Shield
 Safety Glasses
 Head Protection
 Gloves
 Other _____
 Safety Tripod and Wench
 Safety Harness
 Rope
 Flashlights
 Radios
 Barricades
 Signs
 Fire Extinguisher
 Other _____

SECTION 4 PERMITTED CONFINED SPACES ATTENDANT and ENTRANT LOG

| | NAME | SIGN | Time In | Time Out |
|----|------|------|---------|----------|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

SECTION 5 PERMITTED CONFINED SPACE ENTRY LOG

| | NAME | SIGN | Time In | Time Out |
|----|------|------|---------|----------|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

Pre-job Requirements:

- Pre- Job Briefing
 Opening Barricaded
 Ventilated for indicated time
 Communication between attendant and base
 Communication between attendant and entrant
 Lockout/tag-out to greatest extent possible
 Initial atmospheric test complete
 Tripod and wench setup (5 ft vertical)
 Other mechanical retrieval device in place
 Rescue Team available
 Required training up to date
 Respirator fit testing completed as appropriate
 Hot work permit obtained if applicable
 Other _____

Emergency Information: IN THE EVENT THAT AN ENTRANT CANNOT SELF-RESCUE, THE ATTENDANT IS TO IMMEDIATELY CALL FOR EMERGENCY ASSISTANCE. CALL SAFETY AND SECURITY at 337-6911 AND ADAMS COUNTY 911 CENTER.

THE ATTENDANT MUST NOT ENTER THE SPACE

RECORD KEEPING and EQUIPMENT STATUS

- White copy to Safety and Security
- Yellow copy to be filed with Confined Space Inventory File.
- Pink copy to be filed with Responsible Department.
- Equipment Returned to proper storage location.
- Equipment Returned in working order.
- Any broken or damage equipment that needs attention, report it immediately to a supervisor.

SECTION 6 REMARKS- explain any special controls, the methods use to isolate the space, and/or the justification for charging the classification of a confined space.

Reclassification of a Non Permitted space – I certify that all requirements for reclassification have been met.
 Print: _____ Sign: _____ Date: _____ Time: _____

Safety and Security Concurrence Given by:
 Print: _____ Sign: _____ Date: _____ Time: _____

SECTION 1 - GENERAL INFORMATION

| | |
|-------------------------------|---|
| Space to be Entered | Identify the space to be entered by looking in Appendix E e.g. Steam Manhole S MH-1 |
| Department | The Department which requires entry into the confined space |
| Location/Building | Where the confined space is located |
| Date of Entry | The actual date of entry |
| Log No. | The next permit number in the Department's sequence (Departments are responsible for developing their own filing system). |
| Purpose of Entry | Reason entry into the confined space is needed e.g. repack valve |
| Contractor Job | If a contractor to the college is using the college's confined space program to enter the space mark "Yes". |
| Authorized Duration of Permit | The time interval that the entry the Entry Permit is active for. The time interval cannot exceed 8 hours. If more time is required, a new Entry Permit must be initiated. |

SECTION 2 – ATMOSPHERIC SURVEY

Note: The program administrator or designee and/or entry supervisor complete this section

| | |
|--|--|
| Person making initial atmospheric survey | The person conducting the initial atmospheric survey must print and sign their name verifying acceptable entry conditions are present in the space prior to entry. |
| Survey data | Hourly atmospheric survey results. The entrant taking the measurement must initial each data point. |
| Temperature in the Space Acceptable? | The temperature in the space must be comfortable to work in. Heat stress monitoring may be necessary. Contact Department of Safety and Security for assistance. |
| Authorization by Entry Supervisor | The entry supervisor must verify that all entry prerequisites are completed, safety precautions are taken and acceptable entry conditions exist in the space prior to entry. |

SECTION 3 - ENTRY PERMIT DATA

| | |
|--------------------------------------|--|
| Potential Hazards Present | Check all potential hazards present. The normal hazards are listed in the specific entry procedures. If hazards other than those listed in the specific entry procedures are anticipated then the Department must reevaluate the space to ensure adequate controls are in place. |
| Controls in Place | Check if controls are in place to mitigate the potential hazards. Write a very brief description of the controls in the space provided e.g. lock out/tag out |
| Equipment | Check all equipment that is required for the entry. The specific entry procedure should also contain this information. |
| Hazards Introduced by Nature of Work | Check all hazards that will be introduced during the entry. Any introduced hazards require space reevaluation by the Department with the assistance of the Department of Safety and Security. |
| Pre-job Requirements | Check each pre-job requirement as it is completed. Line out and initial any non-applicable requirements. |

SECTION 4 – ATTENDANT and ENTRANT LOG

| | |
|---------------|--|
| Attendant log | Each attendant must print and sign their name and log the time of start and stop. This must be done for each period of duty. There can be no time gaps between attendant shifts. NOTE: a qualified and authorized attendant only can relieve an attendant. |
|---------------|--|

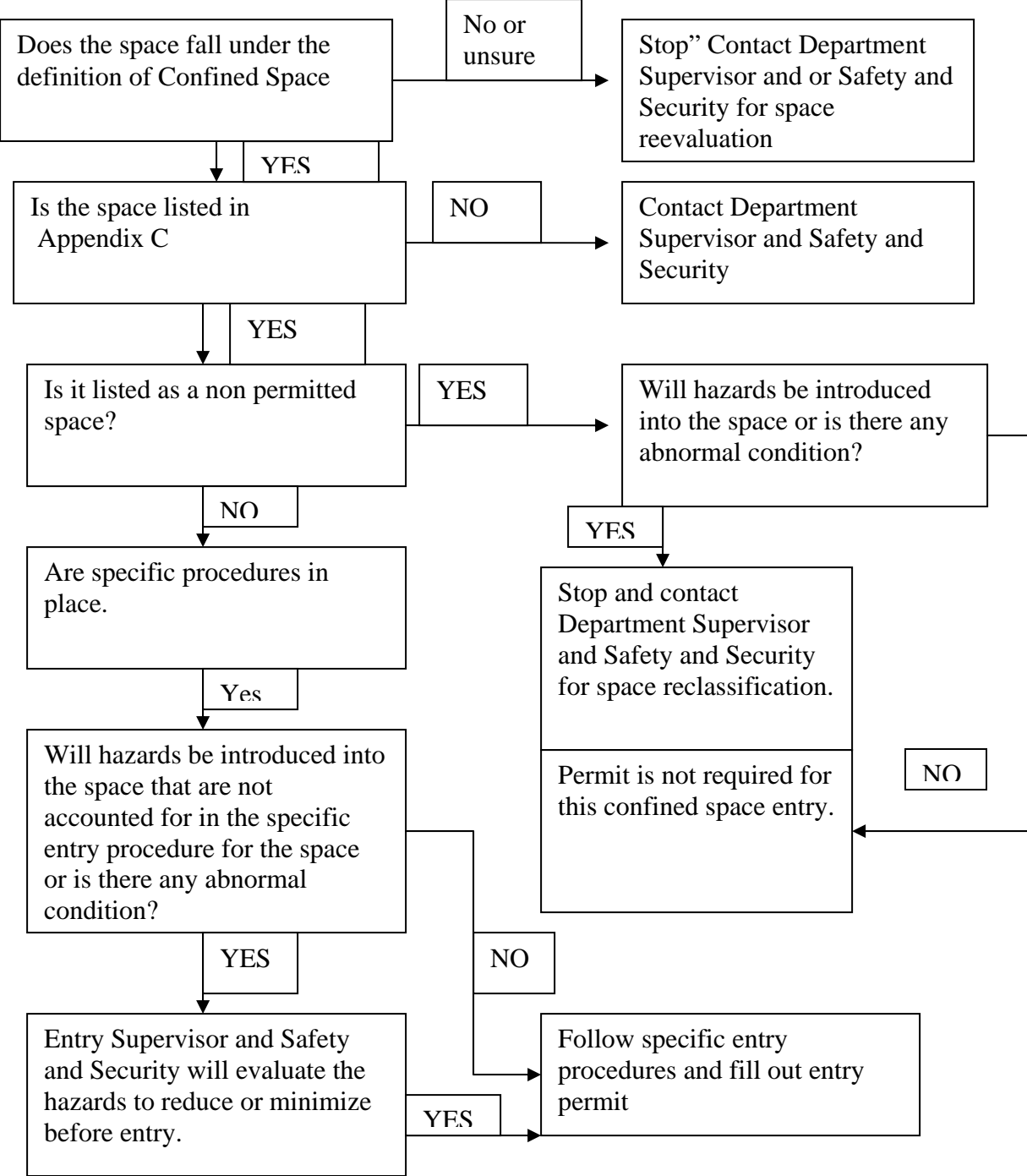
SECTION 5 - ENTRY LOG

| | |
|-----------|---|
| Entry log | Each entrant must print and sign their name and log the time of entry and exit. This must be done for each entry. |
|-----------|---|

SECTION 6 - REMARKS

| | |
|-----------------------|--|
| Remarks | Explain any special controls necessary for safe entry other than those specified in Section 3. If the space is being reclassified to a NON PERMITTED space then explain the justification. Note: If hazards are introduced into the spaces that are not accounted for in the specific entry procedures then the space requires reevaluation to institute special controls or may require reclassification. |
| Signature | The program administrator or their designee must authorize the space reclassification. |
| S&S concurrence given | Department of Safety and Security must concur with all reclassifications |

Appendix B
Confined Space Flowchart



Appendix C

GETTYSBURG COLLEGE LIST OF CONFINED SPACES

| <u>Confined Space #</u> | <u>Map Identification</u> | <u>Description of Location</u> | <u>Permitted or Non-permitted</u> |
|-------------------------|---------------------------|--|-----------------------------------|
| 1 | Aerator Tank1 | Central Energy Plant | Non-permitted |
| 2 | Boiler1 | Central Energy Plant | Non-permitted |
| 3 | Boiler2 | Central Energy Plant | Non-permitted |
| 4 | Communication MH1 | Northeast of main switch gear | Permitted |
| 5 | Communication MH2 | Constitution Avenue; Southwest of Apple Hall | Permitted |
| 6 | Communication MH3 | Southwest of Science Center | Permitted |
| 7 | Communication MH4 | Southwest of Glatfelter Lodge | Permitted |
| 8 | Communication MH4A | East of McCreary Hall by driveway | Permitted |
| 9 | Communication MH4B | South of McCreary Hall | Permitted |
| 10 | Communication MH5 | South of Masters Hall | Permitted |
| 11 | Communication MH6 | Southwest of Glatfelter; near parking lot | Permitted |
| 12 | Communication MH7 | South of Brua Hall | Permitted |
| 13 | Communication MH8 | South of Schmucker Hall | Permitted |
| 14 | Communication MH9 | West of Penn Hall | Permitted |
| 15 | Communication MH10 | North of McKnight Hall | Permitted |
| 16 | Communication MH11 | Driveway of Financial Services; corner of Stevens & Mummasburg Streets | Permitted |
| 17 | Communication MH12 | South of Chapel in sidewalk | Permitted |
| 18 | Communication MH13 | West Stevens Street; West of Admissions; between Admissions and Chapel | Permitted |
| 19 | Communication MH14 | West of Stevens Hall | Permitted |
| 20 | Communication MH15 | South of Breidenbaugh Hall | Permitted |
| 21 | Communication MH16 | South of Stine Hall in sidewalk | Permitted |
| 22 | Communication MH17 | Northeast of Plank Gym along driveway | Permitted |
| 23 | Communication MH18 | West Lincoln Avenue; by CUB ATM | Permitted |
| 24 | Communication MH19 | at entrance to Specialty Dining | Permitted |
| 25 | Communication MH20 | corner of West Lincoln Avenue & Constitution Avenue on BWH corner | Permitted |
| 26 | Communication MH21 | Stadium parking lot in grass at Northeast corner | Permitted |
| 27 | Communication MH22 | East of West Building near Attic Entrance | Permitted |
| 28 | Communication MH23 | | Permitted |
| 29 | Communication MH24 | Constitution Avenue across from Constitution Apartments | Permitted |
| 30 | Communication MH25 | corner of Constitution Avenue & North Washington Street | Permitted |
| 31 | Communication MH26 | in parking lot at rear of Intercultural Resource Center | Permitted |
| 32 | Communication MH27 | South of Masters Hall | Permitted |
| 33 | Communication MH28 | East of Lamp Post in parking lot | Permitted |
| 34 | Communication MH29 | Rear of 239 Carlisle Street | Permitted |
| 35 | Communication MH30 | Rear of 339 Carlisle Street | Permitted |
| 36 | Communication MH31 | North of Ice House Building A main entrance | Permitted |
| 37 | Communication MH32 | South of main switch gear | Permitted |
| 38 | Communication MH33 | Constitution Avenue; across from entrance to Masters Lot | Permitted |
| 39 | Communication MH34 | Yard next to Central Energy Plan driveway | Permitted |
| 40 | Communication MH35 | Ice House Building E; northwest corner | Permitted |
| 41 | Communication MH36 | Northwest of South Hall | Permitted |
| 42 | Communication MH37 | Northwest of Corkran Hall | Permitted |
| 43 | Communication MH38 | South side of Corner Cottage | Permitted |
| 44 | Communication MH39 | corner of West Stevens & North Washington Streets | Permitted |
| 45 | Electrical MH1 | Northeast of main switch gear | Permitted |
| 46 | Electrical MH2 | Southeast of main switch gear | Permitted |
| 47 | Electrical MH2S | Southwest of Brua Hall | Permitted |
| 48 | Electrical MH3 | Constitution Avenue; Southwest of Apple Hall | Permitted |
| 49 | Electrical MH3S | Southwest of Phi Gamma Delta (FIJ) | Permitted |

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| 50 | Electrical MH4 | Constitution Avenue at entrance to Masters Lot | Permitted |
| 51 | Electrical MH4S | South of Hansen Hall | Permitted |
| 52 | Electrical MH5 | Southwest of Science Center | Permitted |
| 53 | Electrical MH5S | Southeast corner of Breidenbaugh | Permitted |
| 54 | Electrical MH6 | Southwest of Brua Hall | Permitted |
| 55 | Electrical MH6S | North of Ice House Building A main entrance | Permitted |
| 56 | Electrical MH7 | South of Schmucker Hall | Permitted |
| 57 | Electrical MH8 | Northeast of McKnight Hall | Permitted |
| 58 | Electrical MH8S | Southwest of Schmucker Hall | Permitted |
| 59 | Electrical MH9 | South of Chapel in sidewalk | Permitted |
| 60 | Electrical MH9S | West of Schmucker Hall | Permitted |
| 61 | Electrical MH10 | West Stevens Street; West of Admissions; between Admissions and Chapel | Permitted |
| 62 | Electrical MH10S | Northwest of Schmucker Hall | Permitted |
| 63 | Electrical MH11 | West of Stevens Hall | Permitted |
| 64 | Electrical MH11S | Southeast corner of McKnight Hall | Permitted |
| 65 | Electrical MH12 | South of Breidenbaugh Hall | Permitted |
| 66 | Electrical MH12S | East of Bream Wright Hauser Field House in yard | Permitted |
| 67 | Electrical MH13 | South of Stine Hall in sidewalk | Permitted |
| 68 | Electrical MH13S | South of Health Center; east of Bream Wright Hauser | Permitted |
| 69 | Electrical MH14 | Northeast of Plank Gym along driveway | Permitted |
| 70 | Electrical MH14S | Constitution Avenue; across from Central Energy Plant | Permitted |
| 71 | Electrical MH15 | West Lincoln Avenue; Northeast corner of CUB on sidewalk | Permitted |
| 72 | Electrical MH16 | West Lincoln Avenue; by CUB ATM | Permitted |
| 73 | Electrical MH16A | North of CUB in sidewalk | Permitted |
| 74 | Electrical MH17 | middle of Bream Wright Hauser parking lot | Permitted |
| 75 | Electrical MH18 | at entrance to Specialty Dining | Permitted |
| 76 | Electrical MH19 | South of Masters Hall | Permitted |
| 77 | Electrical MH20 | East of Tudor House | Permitted |
| 78 | Electrical MH21 | East of Lamp Post in parking lot | Permitted |
| 79 | Electrical MH22 | Rear of 239 Carlisle Street | Permitted |
| 80 | Electrical MH23 | Constitution Avenue across from Constitution Apartments | Permitted |
| 81 | Electrical MH23S | sidewalk next to Tiber bridge along North Washington Street | Permitted |
| 82 | Electrical MH24 | Rear of 339 Carlisle Street | Permitted |
| 83 | Electrical MH25 | South of main switch gear | Permitted |
| 84 | Electrical MH26 | Constitution Avenue; across from entrance to Masters Lot | Permitted |
| 85 | Electrical MH27 | Yard next to Central Energy Plan driveway | Permitted |
| 86 | Electrical MH28 | North side of stadium bleachers | Permitted |
| 87 | Electrical MH29 | South of McCreary Hall | Permitted |
| 88 | Electrical MH30 | East of McCreary Hall by driveway | Permitted |
| 89 | Electrical MH31 | Southwest of Glatfelter Lodge | Permitted |
| 90 | Electrical MH32 | Northwest of South Hall | Permitted |
| 91 | Electrical MH33 | Northwest of Corkran Hall | Permitted |
| 92 | Electrical MH34 | Patio of Science Center | Permitted |
| 93 | Electrical MH35 | North of Dining Hall | Permitted |
| 94 | Sewer MH1 | North of West Hall | Permitted |
| 95 | Sewer MH2 | West of South Hall | Permitted |
| 96 | Sewer MH3 | West side of West Building beside carpenter shop door | Permitted |
| 97 | Sewer MH4 | Yard near entrance to Specialty Dining | Permitted |
| 98 | Sewer MH5 | East side Stine Hall in yard | Permitted |
| 99 | Sewer MH6 | West of Musselman Library by A.D.A. entrance | Permitted |
| 100 | Sewer MH7 | Middle of Stine Lake | Permitted |
| 101 | Sewer MH8 | Southwest corner of Plank Gym | Permitted |
| 102 | Sewer MH9 | South side of Plank Gym | Permitted |
| 103 | Sewer MH10 | East side of Masters Hall | Permitted |
| 104 | Sewer MH11 | Northwest of Glatfelter Hall | Permitted |
| 105 | Sewer MH12 | West of Glatfelter Hall | Permitted |

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| 106 | Sewer MH13 | Southeast of Hansen Hall; Southwest of Musselman Hall | Permitted |
| 107 | Sewer MH14 | East of Musselman Hall | Permitted |
| 108 | Sewer MH15 | Huber Parking Lot; Northwest Corner of Huber Hall | Permitted |
| 109 | Steam MH1 | East of South Hall along sidewalk | Permitted |
| 110 | Steam MH2 | East of North Hall | Permitted |
| 111 | Steam MH3 | West of Lincoln Avenue and West Building Parking Lot near Sidewalk to Attic | Permitted |
| 112 | Steam MH4 | West of Lincoln Avenue along SE corner of Bream Wright Hauser near fire hydrant | Permitted |
| 113 | Steam MH5 | East of Apple Hall | Permitted |
| 114 | Steam MH6 | East of Apple Annex near CUB driveway | Permitted |
| 115 | Steam MH7 | East of Apple Annex near building | Permitted |
| 116 | Steam MH8 | CUB driveway; South of CUB | Permitted |
| 117 | Steam MH9 | West of Science Center | Permitted |
| 118 | Steam MH10 | Southeast End of Masters Lot | Permitted |
| 119 | Steam MH11 (vault) | West of Science Center, East of Central Energy Plant along Constitution Avenue | Permitted |
| 120 | Steam MH12 | North side of CUB East Entrance | Permitted |
| 121 | Steam MH13 | East of CUB in yard | Permitted |
| 122 | Steam MH14 | Southeast of CUB in driveway between Plank and CUB | Permitted |
| 123 | Steam MH15 | East of Plank in yard | Permitted |
| 124 | Steam MH16 | Southwest of Stine Hall in Library Drive/Walkway | Permitted |
| 125 | Steam MH17 | Southwest corner of Stine Hall in grass | Permitted |
| 126 | Steam MH18 | North of Library in Grass | Permitted |
| 127 | Steam MH19 | Southeast of Paul Hall | Permitted |
| 128 | Steam MH20 | South end of Breidenbaugh Hall | Permitted |
| 129 | Steam MH21 | South of Breidenbaugh Hall; North of Weidensall Hall in yard | Permitted |
| 130 | Steam MH22 | South of Hansen Hall; Lincoln Avenue Sidewalk | Permitted |
| 131 | Steam MH23 | Driveway of CUB; Loading Dock | Permitted |
| 132 | Steam MH24 | West side; North end Plank Gym | Permitted |
| 133 | Steam MH25 | West side; South end Plank Gym | Permitted |
| 134 | Steam MH26 | Northwest of Masters Hall | Permitted |
| 135 | Steam MH27 | West of Masters Hall | Permitted |
| 136 | Steam MH28 | Science Center Patio | Permitted |
| 137 | Steam MH29 | North of McCreary Hall | Permitted |
| 138 | Steam MH30 | Northeast of McCreary Hall | Permitted |
| 139 | Steam MH31 | Southeast of Plank Gym | Permitted |
| 140 | Steam MH32 | Southwest of Glatfelter Lodge | Permitted |
| 141 | Steam MH33 | South side of Penn Hall | Permitted |
| 142 | Steam MH34 | South of Hansen Hall | Permitted |
| 143 | Steam MH35 | South of Musselman Library | Permitted |
| 144 | Steam MH36 | West of Stevens Hall | Permitted |
| 145 | Steam MH37 | Southeast of McCreary Hall | Permitted |
| 146 | Steam MH38 (pit) | South of McCreary Hall | Permitted |
| 147 | Steam MH39 | Southwest of Glatfelter Hall | Permitted |
| 148 | Steam MH40 | North of White House | Permitted |
| 149 | Steam MH41 | Middle of Old Quad | Permitted |
| 150 | Steam MH42 | Northwest of Brua Hall | Permitted |
| 151 | Steam MH43 | West of Schmucker Hall | Permitted |
| 152 | Utility MH1 | Stine Hall East side | Non-permitted |
| 153 | Utility MH2 | Rice Hall South side | Non-permitted |
| 154 | Utility MH3 | Paul Hall North side | Non-permitted |
| 155 | Utility MH4 | Northeast of Glatfelter in Penn Hall driveway | Non-permitted |
| 156 | Utility MH5 | West of Weidensall Hall | Non-permitted |
| 157 | Utility MH6 | Southwest of Breidenbaugh | Non-permitted |

Appendix D

Gas Monitor Calibration/Inspection Log

Calibration Date _____ Operator _____

Gas Monitor Inspected for Physical Defects? _____(check upon completion)

Span Gas Calibration

| Span Gas | Concentration | Monitor Reading |
|------------------|---------------|-----------------|
| Carbon Monoxide | 50 ppm | |
| Hydrogen Sulfide | 25 ppm | |
| Methane (LEL) | 2.5% (50%) | |
| Oxygen | 20.9% | |

Fresh Air Calibration Performed? _____(check upon completion)

Function Tests Performed? _____(check upon completion)

Calibration Date _____ Operator _____

Gas Monitor Inspected for Physical Defects? _____(check upon completion)

Span Gas Calibration

| Span Gas | Concentration | Monitor Reading |
|------------------|---------------|-----------------|
| Carbon Monoxide | 50 ppm | |
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| Oxygen | 20.9% | |

Fresh Air Calibration Performed? _____(check upon completion)

Function Tests Performed? _____(check upon completion)