

HANFORD MISSION SUPPORT CONTRACT

Confined Space Entry

MSC-PRAC-30512

Revision 0

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Topic: Safety and Health

Confined Space Entry

PURPOSE

This practice identifies a key aspect of the Mission Support Alliance (MSA) Safety & Health (S&H) industrial hygiene (IH) program, and establishes the requirements for protecting the health and safety of workers performing confined space entry.

SCOPE

This practice includes the following major topics:

- General Requirements
- Initial Evaluation and Identification of Confined Spaces
- Multi-Employer Entries
- Construction Activity Interface
- Annual Review of Cancelled Permits
- Applying Hazard Controls
- Nonpermit Confined Spaces
- Permit-Required Confined Space Entry
 - Preparation
 - Permit System
 - Alternative Procedures
 - Unusual Conditions
 - Atmospheric Testing
 - Emergency Response and Rescue
- Training/Qualifications

The requirements of this practice are consistent with the requirements published in the Mission Support Contract (MSC) Safety and Health virtual manual.

APPLICATION

This practice applies to MSA construction personnel.

GENERAL REQUIREMENTS

Records generated during the performance of this activity are to be included in the Construction Work Package and will be managed in accordance with [MSC-PRAC-30374](#), *Construction Work Package* and [MSC-PRAC-30376](#), *Construction Document Control*.

Projects use the *Confined Space Entry Form* [A-6004-319](#) to meet the documentation requirements in this practice.

Entries into permit-required confined spaces are administratively controlled by the “Permit” section of form [A-6004-319](#) .

Employees and their representatives are given the opportunity to review/comment on proposed changes to this practice.

Confined Space Entry

INITIAL EVALUATION AND IDENTIFICATION OF CONFINED SPACES

Managers/supervisors ensure the following activities are performed:

- Each facility and work area is surveyed to identify confined spaces.
- Deny entry into any confined space until a hazard evaluation is performed and documented.
- An initial hazard evaluation is performed by Safety & Health to assess potential and existing hazards inherent in each confined space, as follows:
 - Documents the evaluation in the “Evaluation” section of form [A-6004-319](#).
 - Obtains available information on the specific confined space from the space owner.
 - Classifies each space as a permit-required confined space or nonpermit confined space on form [A-6004-319](#).

NOTE: *An existing hazard evaluation may be used for classification of confined spaces if reviewed and approved by Safety & Health.*

- Permit-required confined spaces are labeled or posted with a danger sign at potential entry points, stating “DANGER–PERMIT-REQUIRED CONFINED SPACE, ENTRY BY AUTHORIZED PERSONNEL ONLY,” or similar language.
 - If the space dimensions or configuration do not permit the conventional attachment of signs, other effective means may be used to inform employees of the space location and hazards.
 - A permit-required confined space with more than 1 point of entry may be labeled with a single sign provided the sign is visible from all access points. If the sign is not visible from all entry points, use additional signs.
- Nonpermit-required confined spaces are labeled or posted with a sign stating “NONPERMIT-REQUIRED CONFINED SPACE; WRITTEN HAZARD EVALUATION AND APPROVAL PRIOR TO ENTRY IS REQUIRED,” or similar language.

NOTE: *The owner’s posting may be used, if adequate.*

Confined Space Entry

Based on the results of the hazard evaluation, a permit-required confined space may be temporarily reclassified as a nonpermit confined space if it meets the following conditions:

- The space and planned work pose no actual or potential atmospheric hazard. As needed, perform and document atmospheric testing to verify that the space poses no actual or potential atmospheric hazards.

NOTE: *Control of atmospheric hazards through forced air ventilation does not constitute elimination of the hazard.*

- Other hazards in the space that originally caused it to be classified as a permit-required confined space are eliminated without entry into the space and remain eliminated during entry operations.

NOTE: *If entry is necessary to eliminate the hazards, enter in accordance with requirements for a permit-required confined space until testing and inspection demonstrate that the hazards have been eliminated.*

- The planned work introduces no other serious hazards into the space.
- The basis for space reclassification is documented on form [A-6004-319](#) and communicated to affected employees.

MULTI-EMPLOYER ENTRIES

Confined space entry involving employees of more than 1 contractor or subcontractor working in a space simultaneously is coordinated by the work-authorizing organization (such as the facility/project owner, the “prime” subcontractor, or other entity with responsibility for the confined space) to ensure that all work is conducted safely.

The work-authorizing organization ensures that the following activities take place:

- Personnel involved in the confined space entry have been informed of hazards that may be introduced by other workforces.
- Entry is authorized by issuance of a single permit signed by a representative from each organization.
- Workers participating in a multi-employer entry attend a single pre-job briefing coordinated by the designated entry supervisor.

Confined Space Entry

CONSTRUCTION ACTIVITY INTERFACE

NOTE: *When working in an existing facility, confined spaces are typically assigned to a facility point-of-contact with the responsibilities for space classification, labeling, inventory, and related recordkeeping requirements. MSA, subcontractors, and/or sub-tier contractors may use facility-generated information to complete the hazard identification and permits*

During construction activities, control and classification of temporary or newly constructed confined spaces are the responsibility of the Construction Manager. These confined spaces are classified prior to entry as part of the hazard evaluation and work planning process.

When the construction phase ends, the completed confined space is turned over to the facility/project point-of-contact, who is provided with space configuration and details of hazard characteristics.

APPLYING HAZARD CONTROLS

Assign controls based on the risk, depending on the hazard(s) and whether the hazard is eliminated before entry or controlled before and during entry. Implement hazard control/reduction, whenever feasible, by the following:

- Redesigning tasks to make personnel entry into confined spaces unnecessary
- Using accepted engineering control measures
- Applying administrative controls and work practices
- Prescribing personal protective equipment

Based on the pre-entry hazard evaluation, hazard controls and work practices are applied as described in [Appendix A](#), as applicable, in consultation with Safety and Health.

Recommendations for controls or work practices are prescribed with consideration of additional hazards that the control itself may introduce.

Prescribed protective measures do not interfere with the ventilation requirements for the space, means of entrance or egress for the occupants, or rescue methods.

As appropriate, hazard controls and/or work practices to be used are documented on form [A-6004-319](#) .

Confined Space Entry

NONPERMIT CONFINED SPACES

Managers and Construction Supervisors/Superintendents ensure that entry into nonpermit confined spaces is conducted as follows:

- Before entry, verify and document on form [A-6004-319](#) that the planned work or changes in the space configuration will not introduce hazards requiring reclassification as a permit-required confined space. Review the initial hazard evaluation and update as necessary.
- Ensure that hazards associated with work activities are managed appropriately.
- Reevaluate and, as necessary, reclassify nonpermit confined spaces to permit-required confined space when changes in the use or configuration of the nonpermit confined space increase the hazards to which employees may be exposed.

Use documented engineering controls, or posting/labeling to prevent inadvertent entry into nonpermit confined spaces.

PERMIT- REQUIRED CONFINED SPACE ENTRY

Managers/Construction Supervisors/Superintendents prepare for entry into a permit-required confined space as follows:

- Request that Safety & Health recommend controls, prescribe personal protective equipment, and determine atmospheric monitoring requirements for chemical and physical hazards.
- Designate qualified and trained entry team members to perform duties described in Attachment 02.
- Designate an entry supervisor to authorize, oversee, and terminate entry operations.
- Before entry, complete the “Permit” section of form [A-6004-319](#) .
- Provide rescue equipment, harnesses, lifelines, lifting devices, supplemental lighting, communication devices, personal protective equipment, ladders, ventilation equipment, or other special equipment as specified on form [A-6004-319](#) .
- Provide for entrant rescue and retrieval, considering both the size and configuration of the space, and the size of entrants and rescue personnel.
- Notify employees of required site-specific arrangements for a confined space entry, and provide additional information as follows:

Confined Space Entry

- Identify hazards and conditions that form the basis for classifying the particular confined space as a permit-required confined space.
- Notify employees of required precautions and procedures required by the space owner when employees are working in, or near, a permit-required confined space.
- Identify the means to coordinate entry operations when multi-contractor employees are working in, or near, a permit-required confined space.

Entry supervisors prepare for entry into permit-required confined spaces as follows:

- Assign at least 1 attendant to remain outside the permit space for the duration of the entry.

NOTE: *If a single attendant is assigned to monitor multiple spaces, determine the means or procedure to ensure that the attendant can respond to an emergency affecting 1 or more of the spaces without compromising other assigned duties, and document on the permit. The coverage by the attendant is reviewed and approved by Safety & Health prior to making multiple-space entries.*

- Ensure that the initial testing and evaluation of atmospheric hazards occurs before entry.
- Ensure that appropriate controls, work practices, and equipment are in place to eliminate or control identified hazards.
- Coordinate entry operations with the space owner and other affected workforces.
- Provide a pre-entry briefing to the entry team and support personnel to review requirements of the permit.
- Authorize entry only after permit-required signatures have been obtained and that pre-entry activities and requirements are complete and verified.

Preparation

Managers/Construction Supervisors/Superintendents prepare for entry into a permit-required confined space as follows:

Confined Space Entry

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Permit System

The permit system includes the hazard evaluation, entry permit, and supporting documentation.

The permit designates a specific operation, location, work package, and time period. Entrants comply with the requirements of the “Permit” section of form [A-6004-319](#) and other applicable permits.

Confined Space Entry

The duration of the permit does not exceed the time required to complete the operation as identified on the permit. If the operation continues for more than 1 work shift, the permit may be approved for subsequent reentries, provided that the following conditions are met:

- No new hazards are identified or introduced into the space.
- There are no changes in work scope or permit-prescribed work controls.
- Pre-entry testing is performed, and acceptable entry conditions exist.
- Reentries are authorized and documented on the permit.
- Original permit is not more than 6 months old.

NOTE: *Some operations include a series of tasks/activities that may be performed with a permit-required confined space re-designated as a “nonpermit-required space” or vice-versa. This action may be taken under a single permit if:*

- *Approved by the construction manager and the S&H group lead.*
- *The process is documented on form [A-6004-319](#).*
- *A pre-entry meeting is held at least daily to communicate the designation of the confined space for that day (or other period of time if less than a day).*
- *A sign(s) is used to visibly communicate the current designation of the confined space.*

All confined space entries/egresses are documented on the Confined Space Entry Log [last page of form [A-6004-319](#)] by the attendant.

Confined Space Entry

Entries are terminated and the permit cancelled when operations covered by the permit are:

- Complete.
- Conditions occur in or near the space that are not allowed by the permit.
- A permit-required space is reclassified a nonpermit-required confined space (however, refer to NOTE above regarding a series of tasks/activities under a single permit).

When entry operations are complete, the entry supervisor performs the following:

- Verifies that all entrants have exited the space, removes any temporary barricades, and returns the space to service as applicable.
- Ensures that any unusual conditions encountered during the entry operation are noted on the permit.
- Conduct and document a debriefing with employees at the conclusion of entry operations to determine whether unanticipated hazards were encountered or created during the work.
- Inform the space owner of unanticipated hazards and work conditions. Provide the space owner/work-authorizing organization with the canceled permit and other records associated with the entry.

Managers/supervisors perform the following:

- Cancel the permit by completing and signing the “Permit Cancellation” section on form [A-6004-319](#) .
- Submit canceled permits with the work package records.

Provide a copy of the permit and associated records to Safety & Health for inclusion in the annual review.

Alternative Procedures

“Alternative procedures” approved by the MSA S&H group lead may be used in compliance with current Occupational Safety and Health Administration (OSHA), MSA, and U.S. Department of Energy (DOE) standards.

Confined Space Entry

Unusual Conditions Any of the following are unusual conditions and, as such, require a review of the entry procedures if observed:

- An unauthorized entry into a permit space
- Detection of a permit space hazard not covered by a permit
- Occurrence of an injury or near miss during entry
- Change in the use or configuration of a permit space
- Detection of a condition prohibited by the permit
- When the employer or employee has reason to believe entry procedures do not protect entrants

NOTE: *Obtain assistance from Safety & Health for conducting a review of permits that report unusual conditions, or when entry operations have been canceled because of conditions not allowed by the permit.*

Atmospheric Testing For permit spaces with potential atmospheric hazards, perform atmospheric testing before employee entry and throughout the duration of the entry to ensure that acceptable entry conditions are maintained.

NOTE: *Atmospheric testing is performed by a person trained in the operation of the equipment being used. Safety and Health specifies atmospheric testing requirements and determines the conditions under which persons other than Safety & Health can monitor the atmospheric testing.*

Atmospheric testing equipment is provided that is calibrated, maintained, and operated in accordance with the manufacturer's operating manual.

Instrument calibration data and initial and subsequent atmospheric test results are documented on the permit.

Confined Space Entry

Atmospheric monitoring is performed as prescribed by the permit to determine whether acceptable entry conditions are being maintained during entry operations. The following conditions are tested in this sequence:

- Oxygen content between 19.5 percent and 23.5 percent
- Flammable gases and vapors (not to exceed 10 percent of the lower flammable limit)
- Toxic air contaminants, as specified on the permit

NOTE: *When a nonpermit confined space is made as a result of excavation or trenching, atmospheric testing is conducted as specified on the applicable job safety analysis (JSA)/automated job hazard analysis (AJHA). Results are documented on page 6 of form [A-6004-319](#), or equal. Safety and Health determines the type(s), extent, and frequency of such atmospheric testing.*

Multiple levels of the space are tested to ensure that sampling is representative of any stratified layers that may be present. If there are areas that cannot be tested from outside the space, tests are conducted as the entry progresses. Extension apparatus or other means are used to test the atmosphere at least 1.2 meters (4 feet) to the front and sides of the entrant.

If the space configuration limits effective atmospheric testing (as may occur with large spaces or spaces that cannot be isolated, such as sewer system entries), entrants are provided with personal monitoring devices that they have been trained to use. Pre-entry testing is conducted to the extent possible before authorizing entry, and conditions are continuously monitored in areas where employees are working.

When portable mechanical ventilation is used, atmospheric testing is conducted first with the ventilation off, then with the ventilation on.

If testing indicates the presence of a hazardous atmosphere in the confined space, entry is prohibited until appropriate controls have been implemented, and implement monitoring strategies.

Atmospheric testing data is reviewed by Safety & Health.

Emergency Response and Rescue

Plan for effective retrieval/rescue of entrants. Ensure that emergency and rescue planning, procedures, and escape routes are designed for the characteristics of the space. Consider effective response times in determining rescue measures.

Confined Space Entry

Ensure that attendants have at least 1 of the following at the work location: telephone, two-way radio, cellular phone, or other suitable means of summoning the emergency rescue team.

- Maintain communication between the emergency rescue and the entry team in the event the emergency rescue team becomes unavailable because of other emergency response obligations.
- Ensure that the attendant maintains constant communication with confined space occupants by voice, signal, or other means as specified on the permit.

Before entry, notify the emergency rescue team of the entry schedule, potential hazards within the space, and any special provisions of the emergency plan.

- The emergency rescue team may inspect the confined space before the entry to determine whether a successful rescue is feasible and whether special equipment is needed.
- If the emergency rescue team is unavailable or becomes unavailable for response, reschedule or suspend the entry.

Give at least 24 hours notice to the emergency rescue team if standby services at the worksite are required.

Confined Space Entry

The Hanford Fire Department is the designated emergency rescue team. For non-entry rescue from a permit space, determine appropriate retrieval systems or methods to summon the emergency rescue team. If the use of retrieval equipment increases the overall risk of entry or would not contribute to the rescue of the entrants, define alternate rescue methods, document these methods on the permit, and communicate to employees.

- When required by the permit, each authorized entrant uses a full-body harness with retrieval line attached at the center of the entrant's back near shoulder level or above the entrant's head. Wristlets may be used in lieu of the full-body harness if it can be demonstrated that the use of the full-body harness is not feasible or creates a greater hazard, and that the use of wristlets is the most effective and safe alternative.
- Attach the other end of the retrieval line to a mechanical device or fixed point outside the permit space such that the rescue can begin as soon as the rescuer becomes aware that rescue is necessary. Dedicate a mechanical device to retrieve personnel from vertical confined spaces more than 1.5 meters (5 feet) deep.
- Ensure that the entry attendant and authorized entrants are trained in the proper use of the retrieval equipment.
- Ensure that required harnesses, retrieval lines, and mechanical lifting devices have been inspected and are immediately available at the work location during permit space entries. Tag out-of-service equipment that is damaged and return it to the supervisor to prevent inadvertent use.

NOTE: *Attendants must not enter a space to attempt a rescue.*

When a non-entry rescue begins, summon the emergency rescue team. Inform the rescue team of all hazards associated with the confined space.

In the event of a chemical exposure, communicate hazard information from the material safety data sheet (MSDS) or other sources to medical providers.

For planning and training purposes, provide emergency rescue team access to representative confined spaces.

Annual Review of Cancelled Permits

Safety and Health performs an annual review of cancelled permits and associated documents, and identifies/communicates to construction employees and managers common issues/problems and/or lessons learned.

Confined Space Entry

TRAINING/ QUALIFICATION

Managers/Construction Supervisors/Superintendents ensure that the following conditions are met:

- Attendants, entrants, entry supervisors, atmospheric testing personnel, and other entry team members are provided initial formal confined space training (such as course # 020130) before performing their assigned duties for confined space entries.
- Formal retraining (such as course # 020130) is provided when inadequacies in the employee's knowledge or use of this program or entry procedures have been identified.
- Employees are aware of the safety requirements and availability of this program.
- Entry team members receive a refresher briefing (using [Appendix C](#) or equal) in the following circumstances:
 - There is a change in assigned duties.
 - There is a change in the designation of the confined space (either from a nonpermit to a permit-required space or vice-versa).
 - A change in permit space operations introduces a new hazard for which the employee has not been trained.
 - More than 12 months have passed since the team member's last training/retraining or refresher briefing.
- Changes in program requirements are communicated to entry team members.
- Employees have completed any additional training requirements specified by the permit.

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- In addition to the initial confined space training course required for all entry team members as required, the designated atmospheric testing person receives training on the proper use, application, and limitations of the instrumentation to be used, including the following:
 - Field calibration and performance checks of the instruments
 - Anticipated hazardous contaminants
 - Instrument operation
 - Knowledge of alarm set points and actions required when an alarm occurs
 - Related documentation requirements

FORMS

Form [A-6004-281](#) , *Hot Work Permit*

Form [A-6004-313](#) , *Industrial Hygiene Direct Reading Instrument Survey*

Form [A-6004-319](#) , *Confined Space Entry Form*

RECORDS IDENTIFICATION

Records Capture Table

Name of Document	Submittal Responsibility	Retention Responsibility
Construction Work Package	Construction Supervisor/Superintendent	Project Document Control

REFERENCES

[MSC-PRAC-30374](#), *Construction Work Package*

[MSC-PRAC-30376](#), *Construction Document Control*

[MSC-PRAC-30471](#), *Personal Protective Equipment*

[MSC-PRAC-30472](#), *Fall Protection*

[MSC-PRAC-30481](#), *Portable Ladders*

[MSC-PRAC-30482](#), *Scaffolds*

[MSC-PRAC-30486](#), *Hand and Portable Power Tools*

[MSC-PRAC-30487](#), *Controlling Hot Work*

[MSC-PRAC-30502](#), *Industrial Hygiene Program Requirements*

[MSC-PRAC-30510](#), *Respiratory Protection*

DOE-0336, *Hanford Site Lockout/Tagout*

[MSC-PRO-090](#), *Excavation, Trenching and Shoring*

APPENDICES

[Appendix A](#), *Hazard Controls/Work Practices*

[Appendix B](#), *Entry Team Duties*

[Appendix C](#), *Confined Space Refresher Briefing/Orientation Plan*

Confined Space Entry

APPENDIX A Hazard Controls/Work Practices

1. Isolation/Tagout Requirements

- a. Evaluate energy sources/materials, including equipment not connected to an energy source but having unguarded movable parts. Consider outside sources that could introduce a hazardous substance into the space. If determined to be potentially hazardous to the entrants, isolate in accordance with [DOE-0336](#), *Hanford Site Lockout/Tagout*. Examples of hazardous energy include electrical, mechanical, hydraulic, pneumatic, chemical, and thermal energies, in addition to potential energies such as compressed gases, springs, or suspended objects.
- b. Acceptable means of isolation include blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double-block-and-bleed system; lockout/tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.
- c. Electrical Vault Entry

Electrical current carrying conductors of greater than 300 volts in electrical vaults of the manhole type must be deenergized and locked and tagged out before entry. (This requirement does not apply to large spaces such as cable spreader rooms, which present no electrical hazards.)

Vaults smaller than 1.8 meters by 1.8 meters (6 × 6 feet) cannot be entered without deenergizing the conductors.

Vaults 1.8 meters by 1.8 meters (6 × 6 feet) or larger may be entered without deenergizing if the following conditions are fulfilled:

There is written justification of the reason the conductors cannot be deenergized. A task-specific work plan (a detailed JSA/AJHA or EWP may be used) has been prepared. Safety & Health and an electrically qualified employee have reviewed and approved the work plan and justification.

NOTE: *Confined spaces containing energized but adequately protected conductors do not necessarily constitute a permit-required confined space.*

2. Purging/Flushing/Ventilation Requirements

- a. Before entry, ensure that confined spaces are emptied or otherwise purged of flammable, injurious, or incapacitating substances, as feasible.

Confined Space Entry

- b. If safe levels cannot be achieved, implement additional ventilation or other engineering controls to reduce contaminants to the lowest level feasible, and provide adequate personal protective equipment.
- c. Do not introduce pure oxygen into the space for purposes of ventilation or to improve the breathing air quality.
- d. If flammable gases, vapors, or combustible dusts are present, ensure that ventilating equipment is approved for use in the specific hazardous location [see [MSC-PRAC-30502](#), *Industrial Hygiene Program Requirements*].
- e. Test the atmosphere before and during ventilation of the space to ensure that entry conditions are acceptable.
- f. If the ventilation system shuts down, ensure that entrants leave the space and do not reenter until approved by MSA.
- g. Provide and maintain continuous ventilation or local exhaust ventilation of the confined space during welding, painting, and other operations that generate air contaminants. If ventilation is not possible or feasible, develop alternate protective measures. (MSA approves subcontractor alternate measures.)
- h. Ensure that the ventilation arrangement for the space precludes the entry of atmospheric contaminants into the ventilation intake and the exhaust of contaminants into adjacent work areas.

3. Welding, Cutting, and Heating

Welding and cutting performed in a confined space requires a separate *Hot Work Permit*, (form [A-6004-281](#)). Ensure that fire hazards and flammable atmospheres have been controlled in accordance with [MSC-PRAC-30487](#), *Controlling Hot Work*.

4. Fall Protection and Retrieval

Provisions for fall protection and retrieval are based on the hazard analysis and requirements of [MSC-PRAC-30472](#), *Fall Protection*. Components making up both systems consist of personal protective gear (harness), connecting devices (retracting lifelines, retrieval devices), and approved anchorages (tripod).

- a. Emergency retrieval equipment is specifically intended to lift injured personnel from a vertical confined space.
- b. Material hoists must be separate and approved for use as part of the anchorage system.

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- c. Fall protection (for falls 1.8 meters [6 feet] or more) complies with [MSC-PRAC-30472](#).
- d. Devices such as a combination retractable lifeline/retrieval device can meet both fall protection and emergency rescue functions.

5. Excavations and Trenches

- a. Confined space entry procedures may be applicable for certain excavations and trenches. Evaluate each situation separately to determine whether the requirements for confined space entry apply to the anticipated work. The supervisor makes this determination with assistance from Safety & Health.
- b. Conduct excavations and trenching in accordance with [MSC-PRO-090](#), *Excavating, Trenching, and Shoring*.

6. Personal Protective Equipment

- a. Personal protective equipment selection, as determined by Safety & Health, is appropriate for the conditions and configuration of the confined space, based on results of the hazard evaluation and in accordance with [MSC-PRAC-30471](#), *Personal Protective Equipment*.
- b. Confined space entrants, whose work requires respiratory protection, are fit tested, trained, and medically cleared in accordance with [MSC-PRAC-30510](#), *Respiratory Protection*.

7. Requirements for Equipment and Tools

- a. Requirements for hand and portable power-actuated tools or equipment are specified in [MSC-PRAC-30486](#) *Hand and Portable Power Tools*.
- b. In confined spaces, ground fault circuit interrupters are used with all power tools and electrical lighting.
- c. If flammable liquids, gases, or vapors are present, use only tools, lighting, communications equipment, and other electrical equipment that are approved for use in the specific hazardous location.
- d. Ladders, scaffolding, and staging are designed, placed, and used in accordance with [MSC-PRAC-30481](#), *Portable Ladders*, and [MSC-PRAC-30482](#), *Scaffolds*.

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8. Illumination Requirements

- a. All lighting used in spaces containing, or having the potential to contain, flammable vapors or explosive dusts are approved for use in hazardous atmospheres. This requirement also applies to low-voltage lighting such as droplights.
- b. Install temporary lighting in accordance with National Electric Code requirements.
- c. Ensure that lighting is sufficient for entrants to see clearly, avoid potential hazards, and exit the space quickly in an emergency.

9. External Hazards

When entrance barriers are removed from below-grade confined spaces, guard the opening with a railing, temporary cover, or barrier to prevent persons or objects from falling into the space.

Confined Space Entry

APPENDIX B Entry Team Duties

Entry Supervisor

1. Recognize the hazards that may be encountered during entry and the mode, signs, symptoms, and consequences of exposure.
2. Before signing the permit to authorize entry, verify completion of pre-entry activities, ensure that all sections of the permit have been completed, and obtain required signatures. Post completed permit at the entrance of the confined space so that authorized entrants may confirm completion of pre-entry preparations.
3. Before entry into a permit space, notify the designated rescue team of the planned entry, location of the space, anticipated hazards, and any special considerations for rescue from the space. **Verify availability of rescue service, and ensure that the means to summon them are operable.**
4. Perform a prejob briefing with all entry team members to review the work scope, hazards associated with the entry, control measures, and details of the permit requirements.
5. If the duties of entry supervisor are transferred from one individual to another during the course of entry, ensure that the name of the current entry supervisor is recorded on the permit.
6. Ensure that entry operations remain consistent with the terms of the entry permit and that acceptable entry conditions are maintained.
7. Take appropriate measures to remove unauthorized personnel who are in or near the space.
8. Cancel the entry authorization and terminate entry whenever entry conditions are not acceptable.
9. When entry/entries into the confined space is/are complete, close out entry operations and cancel the permit.
10. Ensure that problems encountered during an entry operation are documented on the permit.

Confined Space Entry

11. Conduct and document post-entry debriefing.

NOTE: *An entry supervisor may also serve as standby attendant or entrant as long as he/she is trained and equipped to perform each role.*

Attendant

1. Recognize the hazards that may be encountered during entry and the mode, signs, symptoms, and consequences of exposure.
2. Do not perform other tasks that prevent, limit, or interfere with implementation of assigned duties as standby attendant.
3. Remain stationed at the entrance to the permit-required confined space during entry operations until relieved by another attendant; document any change of duty on the permit.
4. Monitor conditions as specified in the permit, and be alert for any other condition or change in/around the confined space that could adversely affect the entrants.
5. Order entrants to evacuate the space immediately when any of the following conditions are observed:
 - A condition that is not allowed on the permit (such as interruption of ventilation).
 - Activation of an alarm on the atmospheric testing equipment.
 - Effects of hazard exposure on behavior of entrants or an uncontrolled hazard in the space.
 - A situation outside the space that could adversely affect the safety of the entrants.
 - Inability of the attendant to safely and effectively perform all required duties, including the need of the attendant to leave the work station and another qualified attendant is not available as a replacement.
 - Unavailability of the emergency rescue team to perform a rescue.
6. Ensure availability of rescue equipment. Summon emergency/rescue services when required. Perform non-entry rescue as specified on the permit.
7. Maintain an entry log to identify and track the entry/egress of each authorized entrant.

Confined Space Entry

8. Restrict access during entry operations to authorized entrants only. If there is an attempted unauthorized entry, notify the entry supervisor.
9. When continuous atmospheric monitoring is specified on form [A-6004-319](#), the atmospheric testing person is not assigned duties other than those specified herein for the Attendant and/or Entry Supervisor while performing the continuous monitoring.

Authorized Entrants

1. Recognize the potential hazards that may be encountered during entry, including the mode, signs, and symptoms of exposure.
2. Review the requirements of the confined space entry permit and sign the entry log for each entry/egress.
3. Understand and implement required measures for work control as defined in the permit. Safely use all required equipment necessary for safe conduct of work in the space.
4. Communicate with the attendant to facilitate the monitoring of entrant status and conditions in the space.
5. Alert the attendant and exit the space when a warning sign, symptom of exposure, or prohibited condition is identified.
6. Exit the space when the order is given to evacuate, on recognition of warning signs/symptoms, when prohibited conditions are detected, or alarms activated.

Confined Space Entry

APPENDIX C Confined Space Refresher Briefing/Orientation Plan

PURPOSE Refresh employees' knowledge of confined space entry requirements; provide specific requirements for the space(s) anticipated for entry.

OBJECTIVES The following items are covered as applicable:

A. General Requirements

1. Identification of Confined Spaces
 - a. Discussion of Hazard Assessment Process
 - 1) Who Performs the Hazard Assessment?
 - 2) Documentation
 - 3) Multi-Employer Entries
 - 4) Identifiers and Signage
 - b. Permit/Nonpermit Confined Spaces
 - 1) Discussion of the Criteria/Thresholds for: Permit-Required
 - a) Designation as a Confined Space
 - b) Designation as a Permit-Required Confined Space
 - c) Changes in Designations
2. Atmospheric Testing (May Include Hands-On)
 - a. Minimum Requirements - Who May Perform
 - b. Additional Requirements - Examples of Who May Perform
3. Emergency Preparedness/Response
 - a. Planning for Failure
 - b. Designated Rescuers
 - c. Retrieval Devices
 - d. General Do's and Don'ts
4. Support Organizations
5. Entry Team Duties (Refer to [Appendix B](#))
6. MSA Practice [MSC-PRAC-30512](#), *Confined Space Entry*
7. Additional Training is Required When:
 - a. Changes in the Practice or Program
 - b. Changes in Assigned Duties
 - c. Changes in Employees Knowledge/Inadequacies

Confined Space Entry

- 8. Additional Briefing is Required:
 - a. Before Every Entry

- B. Space-Specific Entry Requirements (From the Confined Space Entry Permit[s])