



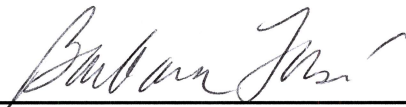
Lawrence Berkeley National Laboratory

Confined Space Program

Version 10.0

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CONFINED SPACE PROGRAM

Lawrence Berkeley National Laboratory

I. POLICY

Permit-Required Confined Spaces (PRCS) at Berkeley Laboratory may be entered only after a written and authorized Confined Space Entry Work Permit (Permit) has authorized that entry, and all requirements of this program for safe entry are accomplished. This requirement extends to LBNL employees and subcontractors operating in LBNL PRCS (see Section V below).

Italicized text indicates elements of this program that are not required by regulation, but are included to enhance LBNL's program effectiveness.

II. SCOPE

This program applies to all LBNL employees, any persons working under the technical supervision of an LBNL employee, and all sub-contractors who enter or participate in the entry of a permit-required confined space. Permit-required confined spaces are defined in OSHA regulation 29CFR 1910.146.

Confined spaces exist at LBNL that do not meet the definition of Permit-Required Confined Space. There may be local Safe Work Procedures required for entry into these spaces, but they are not managed under this Confined Space Program unless the information is made available to the Confined Spaces Program Manager that conditions have changed.

III. INVENTORY

The Confined Space Inventory identifies and classifies all spaces evaluated at LBNL for confined space hazards. A discussion of the classification rationale is provided in the Inventory. Contact the Confined Space Program Manager at x2603 for Inventory information.

The Inventory outlines the specific requirements for entry into each space. The Inventory defines Permit requirements, signature authority for the Permit, and requirements for entry.

The Inventory is maintained by the Confined Space Program Manager. Physical labeling of PRCS alerts persons at the point of entry for PRCS, except that the heavy covers found on telecommunications and utility vaults, storm drains and sanitary sewers are not labeled. Managers of persons who would need access to these spaces are informed via ongoing training that these spaces are PRCS and are responsible for assuring all entries proceed with Permit.

IV. CONFINED-SPACE ENTRY WORK PERMIT

The Confined Space Entry Permit (Appendix A) must be completed by an authorized Entry Supervisor for all PRCS before entry. The Permit provides a method of certifying that all hazards have been evaluated and that all necessary protective measures have been implemented.

PERMIT EXPIRATION

Permits expire when the entrance is closed or at the end of the 8-hour work shift, whichever is sooner. If the confined space will remain isolated and the type of work will not change, the permit may be extended by an EH&S Entry Supervisor.

TASK

Fill out all the information required on the permit.

ACCEPTABLE ENTRY PLANNING

The permit contains a space for hazard identification and design of controls. Specific details must be written.

EMERGENCY PROCEDURES OR RESCUE PLAN

Define what to do in an emergency. If the entry is hazardous, then a rescue plan and rescue equipment must be specified.

MONITORING RESULTS

Atmospheric monitoring is required for all entries into PRCS. The initial monitoring prior to the authorizing of the Permit must be performed by the Entry Supervisor. The Permit form provides space to record the instrument bump test, the initial monitoring results for all gases read by the meter, other air toxics, and calibration information for the meter.

If the Permit requires continuous monitoring, then the readings must be documented at least every half hour. This documentation of readings may be conducted by Entrants or Attendants, whoever takes the reading.

CONFINED-SPACE TEAM

List all the Entrants and Attendants. If Attendants rotate jobs with Entrants, then specify this on the Permit.

SIGNATURES

The Entry Supervisor signature asserts that all conditions for acceptable entry conditions are met, including assuring the competent reading of the meter.

Entrants and Attendants signatures assert that they have observed any air monitoring, have been part of the process of issuing the Permit, and that their training is up to date.

PERMIT DOCUMENTATION

After the Permit expires, comments must be written on the Permit and then sent to the Confined Space Program Manager.

V. SUB-CONTRACTORS

When a job will require that a sub-contractor enter a PRCS, the LBNL individual responsible for specifying that job (generally the Division sponsor) must assure that complete Inventory information and other helpful information about safe entry into the PRCS has been provided before Bid. This information must include any previous experience LBNL has had with this PRCS, and precautions and procedures to protect LBNL personnel in the PRCS or the area.

Sub-contractors may use their own confined space written program if it is approved by LBNL. The Sub-contractor's plan must contain procedures which meet Federal OSHA requirements for entering PRCS and include a permit form, an acceptable hazard evaluation process, and documented training from a qualified safety trainer. The Confined Spaces Program Manager reviews and approves Sub-contractor confined spaces programs.

The individual responsible for the Sub-contractor's field work must coordinate LBNL and the Sub-contractors to assure that the work of one does not create a hazard for the other.

If a LBNL employee enters a confined space on the Permit of the Sub-contractor, the entrant must have completed the required LBNL training.

After the entry is completed, the Sub-contractor must debrief LBNL about the entry to provide information about any concerns or changes that should be made to the Inventory or Program

VI. PROGRAM MANAGEMENT

The Confined Space Program Manager performs a semi-annual review of the program and makes whatever revisions are necessary as part of the Technical Assurance Program.

In addition to the annual review, the Program Manager shall evaluate other changes that may impact program effectiveness at the time they arise.

VII. TRAINING

Entry Supervisors who authorize entry into confined spaces and Entrants or Attendants must complete initial training, Confined Space Training class, EHS 275. The Refresher class, EHS 274 must be taken every three years.

Entry Supervisors must successfully complete the Entry Supervisor training class, EHS 277 and have the on-going approval of the Program Manager (Note: prior to this revision of the Confined Spaces program, the class had a different name “Confined Space Permit Writer). The class must be repeated every three years, or as often as the Program Manager may schedule training updates due to program changes or identified Program inadequacies or performance deficiencies.

Additional training may be required due to the presence of additional hazards identified in the Inventory or by the Entry Supervisor.

An EHS Industrial Hygienist Entry Supervisor may provide entry-specific training with approval from the Confined Space Program Manager.

Permits may ONLY be written by individuals specifically authorized by the Confined Spaces Program Manager, and ONLY after successfully completing the Confined Spaces Entry Supervisor training class, EHS0277. Completion of this class alone does not qualify an individual to act as an Entry Supervisor; the individual must also be authorized by the Confined Spaces Program Manager.

VIII. RESPONSIBILITIES

ENTRY SUPERVISORS

- Assume responsibility for assuring that all entry conditions from the Inventory and the Permit have been evaluated and all conditions made safe.
- Reclassify a space at the time of entry if allowed by the Inventory or Program Manager.
- If there are Material Safety Data Sheets required for the job, then they must be kept with the Permit and provided to the medical facility if there is an injury.
- Perform the initial monitoring. Assure that all possible contaminants have been identified and exposure levels evaluated. Air quality monitoring must proceed in the following order: first for oxygen content, then combustible gases or vapors, then for toxic gases and vapors.
- Test that the Entrants and Attendants know how to use the meter properly if continuous monitoring is required. Do not allow anyone to assume this task if they are not capable.
- Develop an emergency rescue plan if needed to protect Entrants. Prescribe the use of rescue and emergency equipment, and assure that employees have drilled on the equipment prior to the entry.
- Define all safety needs of the entry, including ladders, communications, ventilation equipment, PPE, pedestrian and vehicle barriers and shields, testing and monitoring equipment, and anything else that may affect the safety of an entry.
- Assure that all Entrants and Attendants know how to properly use all equipment that is required for the entry and the job.
- Assure that all Entrants and Attendants and their authorized employee representative have observed monitoring, evaluation and permitting process and that they have been provided the results, and have had an opportunity to ask questions.
- If there is any question that the entry may not be safe, do not sign the Permit or allow the entry. Remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
- Maintain a count of all entrants into the PRCS, and document that on the Entry Permit as required.
- Terminate the entry by collecting the Permit and forwarding it to the CS Program Manager.
- Entry Supervisors within the EH&S Division may authorize the extension of a Confined Spaces Entry Permit beyond one shift.

ENTRANTS

- Read the Confined Space Entry Work Permit before starting work, and abide by its conditions.
- Stop work and exit the confined space if conditions under which the permit was written change or if any danger is perceived. Report this to the attendant and supervisor.
- Ensure that the Confined Space Entry Work Permit is posted at the worksite, and that other safety precautions, such as isolation of the space, lockout/tagout, barricades, etc., are performed, if required.
- Consult with the space/equipment owners and the person completing the permit to ensure that all hazards have been considered.
- Be knowledgeable of the hazards that may be encountered during the entry, including the signs, symptoms, and consequences of exposure to these hazards.
- Remove permits/barriers after the work has been completed.
- Maintain contact with the attendant. Follow instructions from the Attendant.
- Provide post-entry feedback to the Attendant, Entry Supervisor, or Confined Space Program Manager.
- Know how to properly use the necessary equipment, have all training as required, and have a chance to familiarize themselves with any rescue equipment.

ATTENDANTS

- Read the Confined Space Entry Work Permit before starting work, and abide by its conditions.
- Know how to properly use the necessary equipment, have all training as required, and have a chance to familiarize themselves with rescue equipment.
- Stop work and request that workers exit the confined space if conditions under which the permit was written change, if any danger is perceived, if an Entrant reports a problem, or if any Entrant appears to be suffering a toxic effect
- Remain outside the confined space until relieved by another attendant.
- Summon the Fire Department if it is determined that employees in the confined space may need assistance in escaping.
- Be knowledgeable of the hazards that may be encountered during the entry, including the signs, symptoms, and consequences of exposure to these hazards.
- Perform non-entry rescues if necessary.
- Maintain contact with the workers in the confined space.
- Attendants must be dedicated to one PRCS. Approval for monitoring two entry jobs must come from the CS Program Manager who will only allow this practice if

the safety of all Entrants can be assured.

CONFINED SPACES PROGRAM MANAGER AND EH&S SUPPORT

- Conduct the Confined Space Entry Hazards (EHS 275), Refresher (EHS274) and/or Entry Supervisor (EHS 277) training classes.
- Conduct retraining whenever there are deviations from the Permit procedures or inadequacies in Program performance on an individual or group basis.
- Administer the Confined Space Entry Program.
- Maintain copies of all Permits for at least a year.
- Consult with employees and their authorized representatives and make available all information required to be developed by the regulation.
- Review Confined Space Programs submitted by subcontractors.
- Assure that a list of trained personnel is maintained and updated on a monthly basis.
- Authorizes trained individuals to act as Entry Supervisors.
- Evaluate spaces to identify PRCS using the form in Appendix B.
- Maintain the Inventory of PRCS.
- Perform the initial and periodic evaluation of the hazards of each PRCS.
- Provide technical guidance including air monitoring and hazard evaluation.

EMERGENCY SERVICES

- Assist in rescue drills with non-entry equipment.

ALAMEDA COUNTY FIRE DEPARTMENT (LBNL STATION)

- Provide emergency rescue service as may be required.

FACILITIES

- Identify future confined space jobs so that bid information contains specific information about any confined spaces to be entered and sub-contractors get approved on schedule.

SUPERVISORS

- Ensure that employees who may work or authorize entry into confined spaces have completed all required training.
- Ensure equipment used for confined-space entries is kept in good operational condition and is calibrated according to manufacturers' recommendations by a qualified person.
- Assist the Confined Space Program Manager with writing entry conditions as necessary for research equipment.

- Ensure that operations comply with the terms and conditions on the permit.

IX. RESCUE AND EMERGENCY PLANNING

Only non-entry rescues are allowed by LBNL employees or subcontractors (exception: Fire Departments may conduct entry rescues). The importance of pre-planning for all conditions and possible emergencies is paramount.

The local fire department is to be notified of the PRCs entry location ahead of entry if required by the Inventory by calling x6370.

X. EMPLOYEES AND EMPLOYEE REPRESENTATIVES

Employees and authorized employee representatives are entitled to:

- Observe the pre-entry and any subsequent testing or monitoring of permit spaces;
- Request reevaluation of the space because the entrant or representative has reason to believe that the evaluation of that space may not have been adequate; and
- Immediately receive the results of any testing; and
- All information required to be developed by OSHA regulations on Permit Required Confined Spaces.

XI. INFORMATION, REFERENCES AND STANDARDS

Please contact the Confined Space Program Manager at x2603 if you have any questions about the Program or desire more information.

29 CFR 1910.146, Permit Required Confined Spaces



Confined Space Entry Permit

Location _____

Date _____

Start time _____ End time _____

Task:

Acceptable Entry Planning:

Task Hazards and Engineering Controls: (e.g. local exhaust ventilation, tools and equipment)

PPE Required: (e.g. respiratory, gloves, boots, eye protection, body protection)

Space Hazards and Control: (e.g. LOTO, breaking of lines, blowers, lights)

Area Hazards and Controls: (e.g. barriers, signs, traffic control, fresh air supply location)

Air Quality Assessment: (e.g. nearby hazards) Stable Not Stable

Reclassification No Yes (Attach evaluation form)

Emergency Procedures

Call: LBNL Phones: x7911 Cell Phone: 911

Rescue Plan – required for hazardous entries

Harness and Tripod required Yes No

Monitoring Results

Instrument	
Serial Number	
Calibration Date	

Pre-Entry Bump Test Passed: _____ (Initials)

Initial Monitoring Results *(perform tests in order shown)*

	1	Oxygen	%
	2	Combustible	%
	3	CO	ppm
	4	H ₂ S	ppm

Record results for other contaminants and the results of continuous monitoring on the next page.

Confined Space Team

List Entrants: _____

List Attendants: _____

Signatures (Entrants and Attendants understand the requirements for entry into and rescue from this confined space, have participated in preparing the Permit, have observed the air monitoring of the space and that training is current)

Entry Supervisor: _____ **Telephone:** _____

Confined Space Program approved Entry Supervisor signature for acceptable entry conditions.

Post original at confined space entrance until the work is completed. Send original to Barbara Tusé 26-115

APPENDIX B. CONFINED SPACE EVALUATION FORM

CONFINED SPACE EVALUATION FORM

Location:

Description of Space:

Defining Questions - Confined Space

- Is large enough and so configured that an employee can enter; and
- Has limited or restricted means for entry or exit; and
- Is not designed for continuous employee occupancy.

Defining Questions - Permit Required Confined Space

- Contains or has a potential to contain a hazardous atmosphere; or
- Contains a material that has the potential for engulfing an entrant; or
- Has an internal configuration that could trap or asphyxiate by converging walls or downward slope to a small cross-section; or
- Contains any other recognized serious safety and health hazard.

Analysis - Description of yes answers and discussion

Conclusion

- This space IS IS NOT a Permit-Required Confined Space.
- This space IS IS NOT a Non-Permit-Required Confined Space.
- This space IS IS NOT a Confined Space.
- This space DOES DOES NOT require a mandatory Safe Work Procedure.

Evaluated by: _____ **Date:** _____