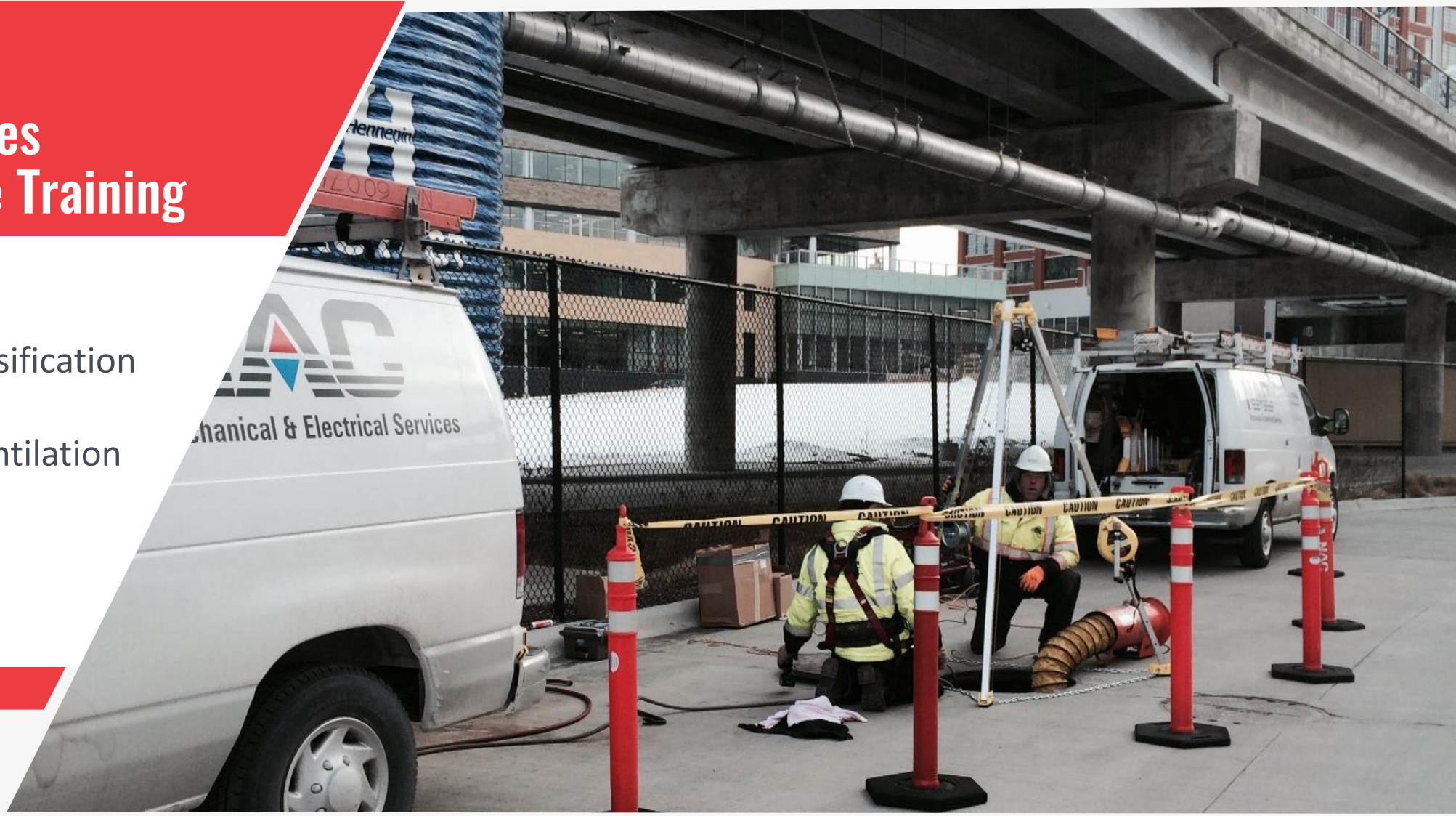
Confined Spaces
Entry + Rescue Training

- Definitions
- Roles
- Evaluation + Classification
- Using the Permit
- Air Monitor + Ventilation
- Tripod Setup
- Rescue Planning
- Review
- Quiz



What is a Confined Space?

"Any space that…

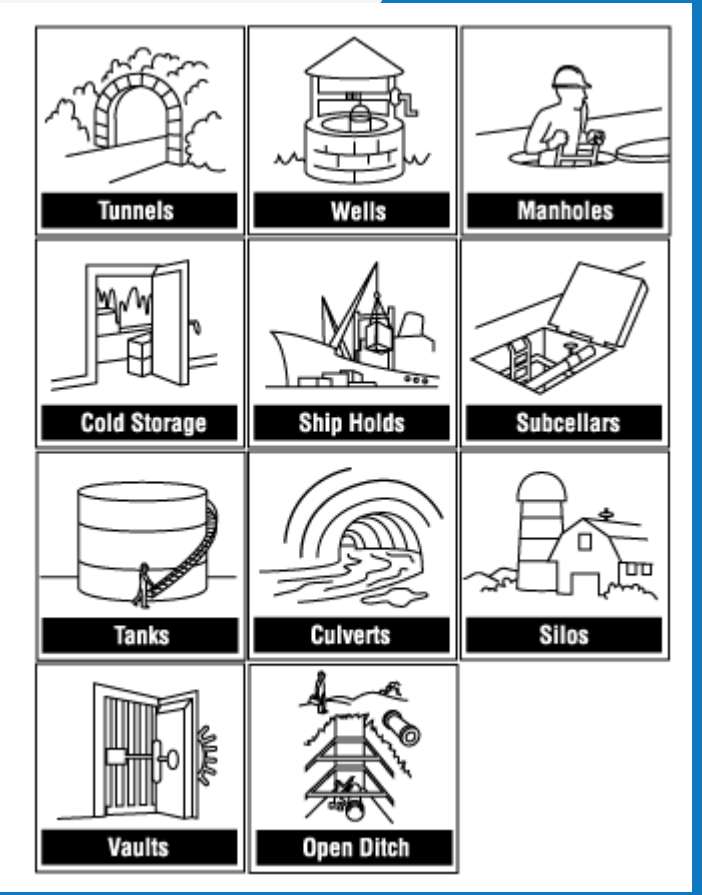
1. Is big enough to enter your body
2. Is not meant for continuous occupancy, and …
3. Has Limited means of entry or exit"

Examples:

- Manhole
- Attic
- Tunnel
- Shaft
- Plenum
- Crawl Space

Its not just a small space.

It can be any size, but isn't a space you will be setting up a desk to work an 8 hour shift.



Are there potential hazards in or around the space that could be life threatening if not controlled properly?

"A Permit-Required Confined Space

Is a Confined Space that has *any* of these hazards:

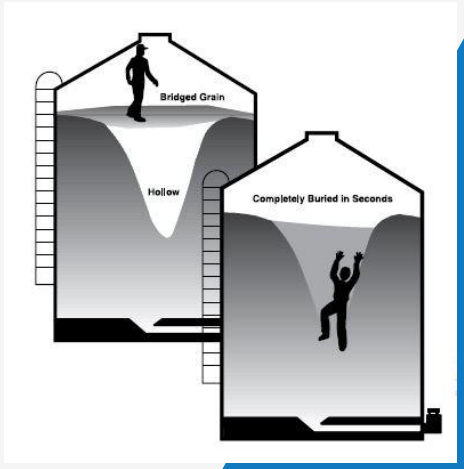
- Potential or existing atmospheric hazards
- Engulfment, suffocation or entrapment hazards like converging walls
- …Or, any other IDLH* hazards that could seriously injure or kill an entrant"

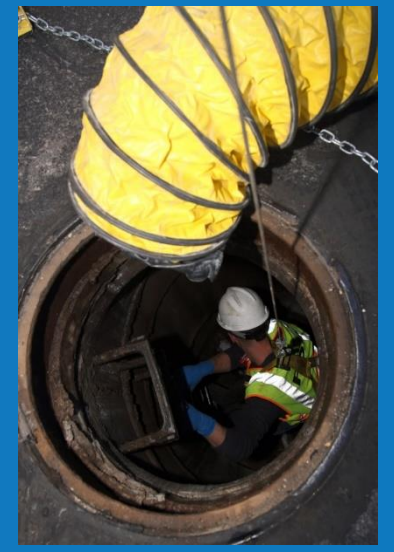
*IDLH = Immediately Dangerous to Life or Health

Permit-Required Confined Space

Hazard Examples:

- **Atmospheric hazards:** Sewers, manholes, boilers, Attics, tunnels, and any work that creates atmospheric hazards. Can cause asphyxiation, death, or injury from overexposure of fumes/vapors/gases, oxygen displacement.
- **Engulfment/entrapment hazards:** trapped by liquid or finely divided solid or configuration. Grain silos, sewers, manholes, drainage tunnels, pits.
- **Temperature, Mechanical/moving, and Physical hazards:** Attics, boilers, tunnels, vaults, tanks, hoppers that require LOTO, blocking, dissipation.
- **Access Hazards:** deep vertical entries, long tunnels, difficult access/configuration, drainage tunnels.
- Or any other CS that requires you to eliminate, isolate, or control hazards before you can safely enter.





Permit-Required Confined Space Roles: Who's doing what?

The Competent Person

- Is capable of identifying existing and predictable hazards…
- …And has the authority to take prompt action to correct and eliminate hazards.
- Evaluates the hazards inside and around the space.
- Determines if space is a permit required confined space based

Attendant

- Stays at entrance, only monitors CS, prevents unauthorized access
- Knows + monitors hazards, health effects, conditions, entrants
- Orders evacuation, performs non-entry rescue, calls rescue team

Entrant

- Authorized to enter and perform work
- Knows + communicates hazards + health effects
- Wears continuous 4-gas monitor, use PPE
- Exits space when hazards arise, or when ordered

Entry Supervisor

- Coordinates entry, fills out + signs permit
- Knows health effects signs + risks, verify hazards eliminated, controlled and safe to enter, plan is followed
- Ensure all are trained, wearing PPE, remove unauthorized entrants
- Terminates and cancels entry
- Verifies rescue service available, and are notified when not.

Evaluate the space

The Competent Person

1. Evaluates the space for
   - Posted Signs/Warnings
   - Atmospheric Hazards
   - Hazards that exist or may arise
   - Hazards resulting from work methods
2. Determines methods to safely enter and work
   - Engineering controls needed
   - Lockout / Tagout? Review and follow site LOTO procedures
   - Ventilation needs
   - Continuous Air Monitoring
   - Rescue Plan: Is self-rescue valid? Is Non-entry Rescue needed (yes, if 5ft+ deep). Can 911 respond in time?
3. Classifies the confined space based on evaluation of hazards

The competent person can be a safety representative, an employee with significant CS experience, a supervisor, or anyone else who can evaluate the work and space to identify and anticipate hazards, and has the authority to take prompt corrective action.

COMMUNICATION

Always coordinate CS entries with:

- Host employer
- Controlling contractor
- Entry contractor

Historical data may be available, like previous permit entries, air monitoring data, LOTO or control methods.

The clients may require specific control measures.

Classify the Space

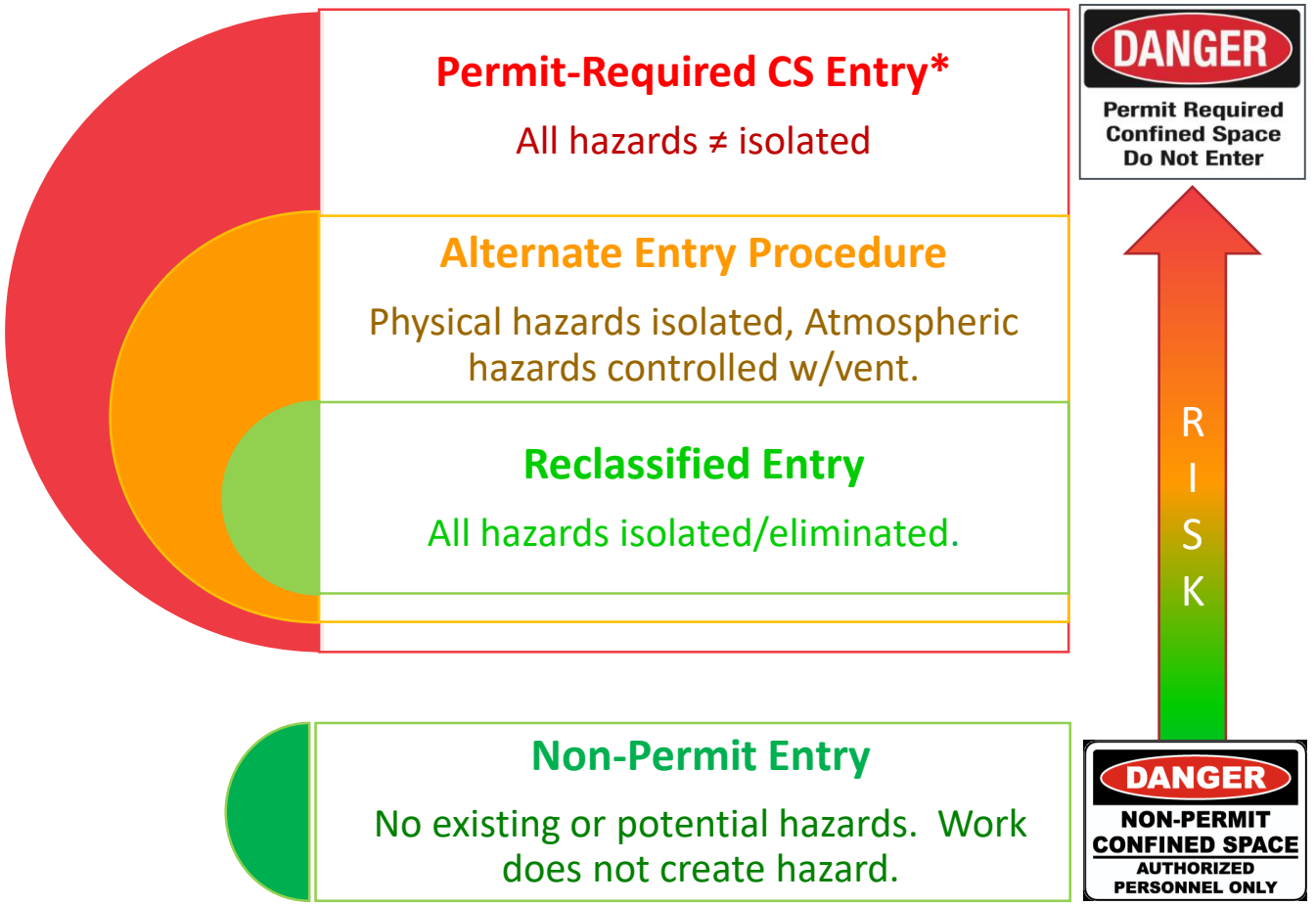
The Competent Person

Classifies the space entry type based on hazards.

Initial Confined Space Classification*:

	Permit-Required Entry *(Attendant + Rescue plan)*
	Alternate Entry *(Continuous Mech. Ventilation)*
	Non-Permit CS *(Evaluate and Verify Safe)*

The Supervisor will check the appropriate classification on the permit. Reclassified entries start as a PRCS. Choosing Non-Permit CS means you are documenting the initial entry for record-keeping purposes.



Classification

A) Non-Permit Required

No existing or potential hazards. Work does not create hazard.

- Assess the space to verify no potential or existing hazards
- Ensure no hazards will be created by work
- Use caution upon initial entry, and maintain communication.
- Treat as PRCS if hazards arise

B) Permit- Required Space

Physical and Atmospheric hazard potential requires competent person evaluation for safe entry

Permit–Required CS Entry

All hazards NOT Isolated or Eliminated

- Permit Each Day
- Attendant
- Continuous Mechanical vent.
- Test Air, Wear 4-gas
- **Non-Entry Rescue (tripod, etc.)**

Alternate Entry

Physical hazards isolated, Atmospheric hazards **controlled w/ventilation**

- Permit Each Day
- Attendant
- Continuous Mechanical Vent.
- Test Air, Wear 4-gas

Reclassified Entry

All hazards isolated or eliminated.

- Permit for Initial entry verify document
- Reclassify on permit. Keep at entrance. Approved by all.
- Treat as non-permit unless hazards arise

Using the Confined Space Permit

Why use a permit?

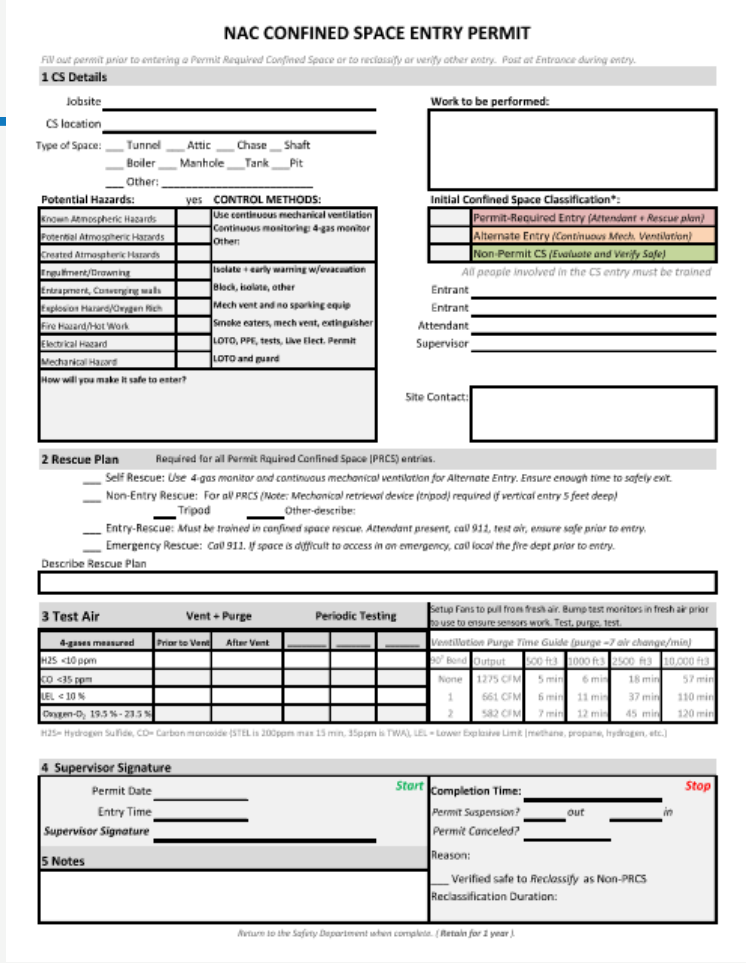
- Helps to plan for a safe entry.
- Documents the process to show you did your due diligence.
- It is required by law.

When to use a permit

- Use when you are going to enter a Permit Required Confined Space, an Alternate Entry, or to document that you verified it is safe to enter a Non-Permit space.

When do you not need to use a permit?

- When you are entering a Non-Permit Required Space, and you verified no existing or potential hazard exists and it is safe to enter.
- After you have used a permit on initial entry, and "Reclassified" the space to a Non-Permit Required space. Keep the original permit posted at entrance or available for review.



NAC CONFINED SPACE ENTRY PERMIT

Fill out permit prior to entering a Permit Required Confined Space or to reclassify or verify other entry. Post at Entrance during entry.

1 CS Details

Jobsite _____
CS location _____
Type of Space: ___ Tunnel ___ Attic ___ Chase ___ Shaft ___ Boiler ___ Manhole ___ Tank ___ Pit ___ Other: _____

Work to be performed:

Potential Hazards:	yes	CONTROL METHODS:
Known Atmospheric Hazards		Use continuous mechanical ventilation
Potential Atmospheric Hazards		Continuous monitoring: 4-gas monitor
Created Atmospheric Hazards		Other:
Engulfment/Drowning		Isolate + early warning w/evacuation
Entrapment, Converging walls		Block, isolate, other
Explosion Hazard/Oxygen Rich		Mech vent and no sparking equip
Fire Hazard/Hot Work		Smoke eaters, mech vent, extinguisher
Electrical Hazard		LOTO, PPE, tests, Live Elect. Permit
Mechanical Hazard		LOTO and guard

How will you make it safe to enter?

Initial Confined Space Classification*:

- ___ Permit-Required Entry *(Attendant + Rescue plan)*
- ___ Alternate Entry *(Continuous Mech. Ventilation)*
- ___ Non-Permit CS *(Evaluate and Verify Safe)*

All people involved in the CS entry must be trained

Entrant _____
Entrant _____
Attendant _____
Supervisor _____

Site Contact: _____

2 Rescue Plan Required for all Permit Required Confined Space (PRCS) entries.

___ Self Rescue: *Use 4-gas monitor and continuous mechanical ventilation for Alternate Entry. Ensure enough time to safely exit.*
___ Non-Entry Rescue: *For all PRCS (Note: Mechanical retrieval device (tripod) required if vertical entry 5 feet deep)*
___ Tripod ___ Other-describe:
___ Entry-Rescue: *Must be trained in confined space rescue. Attendant present, call 911, test air, ensure safe prior to entry.*
___ Emergency Rescue: *Call 911. If space is difficult to access in an emergency, call local fire dept prior to entry.*

Describe Rescue Plan

3 Test Air Vent + Purge Periodic Testing

Setup Fans to pull from fresh air. Bump-test monitors in fresh air prior to use to ensure sensors work. Test, purge, test.

4-gases measured	Prior to Vent	After Vent			
H2S <10 ppm					
CO <35 ppm					
LEL < 10 %					
Oxygen-O2 19.5 % - 23.5 %					

Ventilation Purge Time Guide (purge ~7 air change/min)

90° Bend	Output	500 ft3	1000 ft3	2500 ft3	10,000 ft3
None	1275 CFM	5 min	6 min	18 min	57 min
1	661 CFM	6 min	11 min	37 min	110 min
2	582 CFM	7 min	12 min	45 min	120 min

H2S= Hydrogen Sulfide, CO= Carbon monoxide (STEL is 200ppm max 15 min, 35ppm is TWA), LEL = Lower Explosive Limit (methane, propane, hydrogen, etc.)

4 Supervisor Signature

Start
Permit Date _____
Entry Time _____
Supervisor Signature _____

Stop
Completion Time: _____
Permit Suspension? ___ out ___ in
Permit Canceled? _____
Reason:
___ Verified safe to *Reclassify* as Non-PRCS
Reclassification Duration:

5 Notes

Return to the Safety Department when complete. (Retain for 1 year).

Fill Out The Permit

1 CS Details

1 CS Details

- Jobsite info
- Type of Space
- Work to be Performed
- Potential Hazards
- Classification
- Employee Roles

NAC CONFINED SPACE ENTRY PERMIT

Fill out permit prior to entering a Permit Required Confined Space or to reclassify or verify other entry. Post at Entrance during entry.

1 CS Details

Jobsite *ABC Company*

CS location *Tank in East Wing*

Type of Space: ___ Tunnel ___ Attic ___ Chase __ Shaft
___ Boiler ___ Manhole _X_ Tank ___Pit
___ Other: _____

Potential Hazards:	yes	CONTROL METHODS:
Known Atmospheric Hazards	X	Use continuous mechanical ventilation Continuous monitoring: 4-gas monitor Other:
Potential Atmospheric Hazards		
Created Atmospheric Hazards		
Engulfment/Drowning	X	Isolate + early warning w/evacuation
Entrapment, Converging walls		Block, isolate, other
Explosion Hazard/Oxygen Rich		Mech vent and no sparking equip
Fire Hazard/Hot Work		Smoke eaters, mech vent, extinguisher
Electrical Hazard	X	LOTO, PPE, tests, Live Elect. Permit
Mechanical Hazard		LOTO and guard

How will you make it safe to enter?

4-gas, Vent Space, LOTO Pump, Isolate, block upstream, run pumps upstream. Use Tripod. Monitor for storms upstream (flashflood risk)

Work to be performed:

Replace pump in tank.
Tank fed by stormwater and sewer.

Initial Confined Space Classification*:

X	Permit-Required Entry *(Attendant + Rescue plan)*
	Alternate Entry *(Continuous Mech. Ventilation)*
	Non-Permit CS *(Evaluate and Verify Safe)*

All people involved in the CS entry must be trained

Entrant *John Smith*

Entrant

Attendant *Jane Johnson*

Supervisor *Mike Owens*

Site Contact: *Joe S 651-555-5151*

Fill Out The Permit

2 Rescue Plan
3 Test Air

2 Rescue Plan

- Ladder will fit in, so self-rescue possible.
- Non-entry rescue required for vertical entries deeper than 5ft.

3 Test Air

- Bump test monitor, Test the air in space.
- Vent space and purge.
- Test air again.
- Wear Monitor and keep Ventilation running.

2 Rescue Plan Required for all Permit Rquired Confined Space (PRCS) entries.

- [X] Self Rescue: *Use 4-gas monitor and continuous mechanical ventilation for Alternate Entry. Ensure enough time to safely exit.*
- [X] Non-Entry Rescue: *For all PRCS (Note: Mechanical retrieval device (tripod) required if vertical entry 5 feet deep)*
  - [X] Tripod [ ] Other - Describe:
- [ ] Entry-Rescue: *Approval Required. Be trained in confined space rescue. Attendant present, call 911, test air, ensure safe prior to entry.*
- [X] Emergency Rescue: *Call 911. If space is difficult to access in an emergency, call local the fire dept prior to entry.*

Describe Rescue Plan

Ladder to enter/exit. Use Tripod for fall protection and Retrieval. Call 911 in emergency.

3 Test Air **Vent + Purge** **Periodic Testing** Setup Fans to pull from fresh air. Bump test monitors in fresh air prior to use to ensure sensors work. Test, purge, test.

4-Gas Monitor #: 761234 Bump Test Time: 6:45 Initials: M.O.

4-gases measured	Prior to Vent	After Vent			
H2S <10 ppm	0	0			
CO <35 ppm	0	0			
LEL < 10 %	0	0			
Oxygen-O_2 19.5 % - 23.5 %	21.09	21.09			

Ventillation Purge Time Guide (purge =7 air change/min)

90° Bend	Output	500 ft3	1000 ft3	2500 ft3	10,000 ft3
None	1275 CFM	5 min	6 min	18 min	57 min
1	661 CFM	6 min	11 min	37 min	110 min
2	582 CFM	7 min	12 min	45 min	120 min

H2S= Hydrogen Sulfide, CO= Carbon monoxide (STEL is 200ppm max 15 min, 35ppm is TWA), LEL = Lower Explosive Limit (methane, propane, hydrogen, etc.)

Fill Out The Permit

4 Supervisor Signature
5 Notes

4 Supervisor Signature

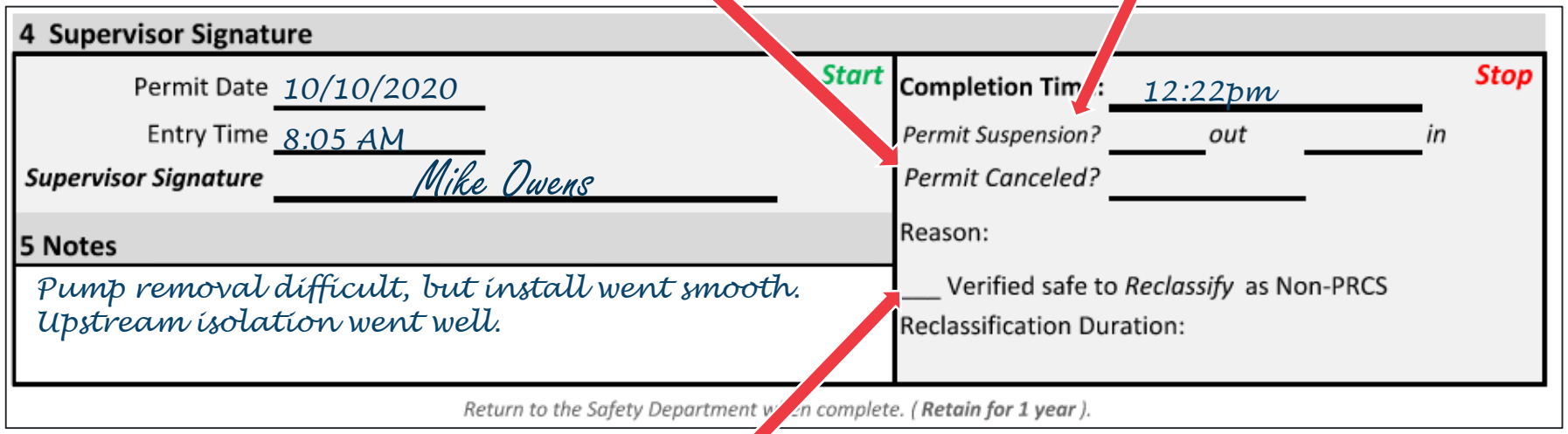
- Fill out Date and Entry Time.
- Once safe, supervisor signs.
- When the entry is completed, fill out the Completion Time.

5 Notes

- Add any notes on how the entry went.

If hazards arose, and you ***suspended*** the permit, note the time you left the space, and went back in.

If the permit was ***canceled*** because hazards arose that could not be resolved, note that here.



If you are going to ***reclassify*** a PRCS as a Non-Permit space, check here, and note how long it will be reclassified,. (ie. A tunnel in school, reclassified for the summer renovation project.

Control Hazards

Physical Hazards

Eliminate Hazards

- Remove engulfment hazard (water, grain)
- Choose less hazardous work methods

Isolate Hazards

- Use Fall Protection
- Plank over engulfment/ hazard

Use Engineering Controls

- Lockout Tagout- Review Procedure
  - Mechanical, hydraulic
  - Electrical
  - Chemical
  - Steam

- Ventilation

Use Administrative Controls

- Watch upstream
- Early Warning Alarm
- Adjust work methods

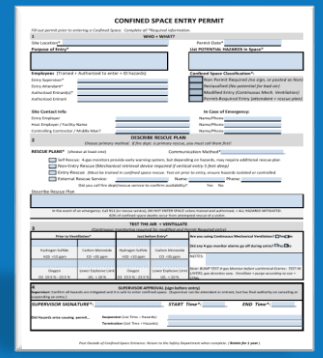
Atmospheric Hazards

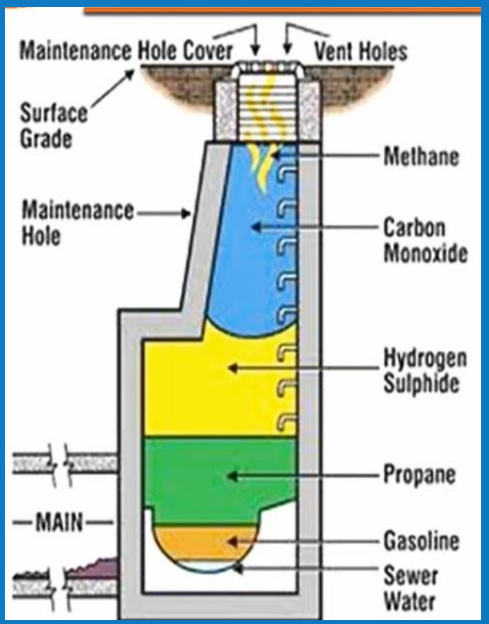
Purge + Ventilate

- Continuous Mechanical Ventilation
- Based on space size and CFM of fan
- 6-7 air changes per minute
- Ensure clean air source
- Hot work: stay upwind, and use smoke eaters

Test + Monitor Air

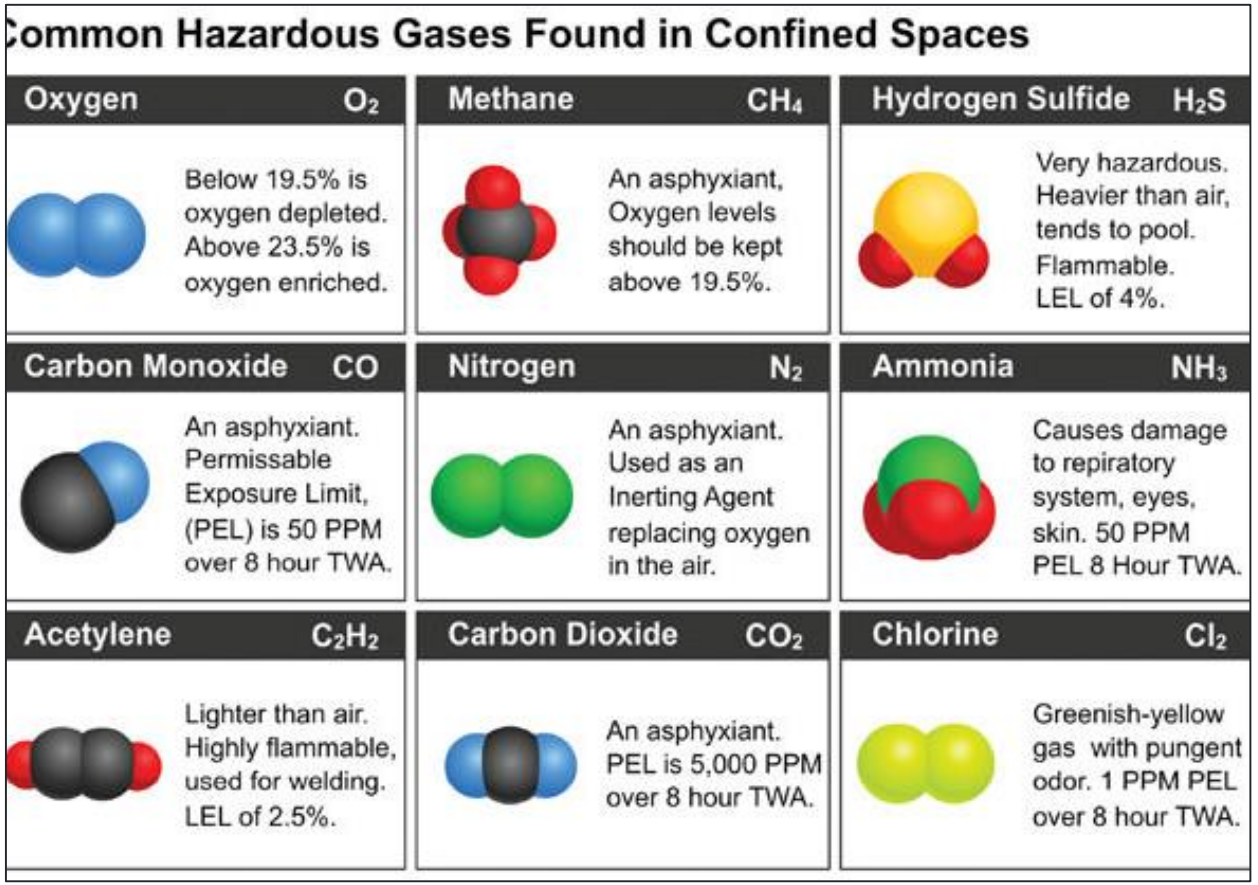
- Bump test monitor first
- Test air in CS before + after ventilation
- Wear 4-gas monitor while in CS (near breathing zone)





Air Monitoring

- Before you enter a confined space that has known or potential atmospheric hazards, you must test the air with a 4-gas monitor.
- Many common hazardous gases found in confined spaces are not detectable without monitoring.
- 4 gas monitors require a bump test with a special gas combination (bump gas) before every use to make sure the sensors are working properly
- 4-gas monitors require calibration every 180 days (6 months).



Air Monitoring
Turn on/off

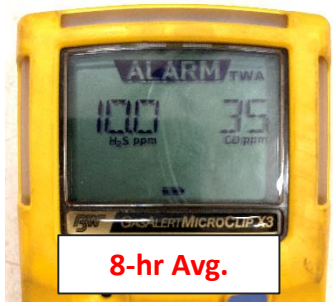
1. Turn on monitor in fresh air- Hold button
2. Factory Alarm setpoints will display
3. Auto-zero on startup
4. Calibration due date is displayed. If due, it will tell you.
5. Hold button down to turn off.

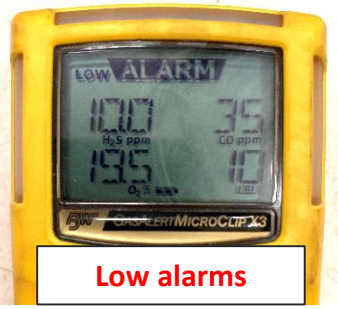
Notes:

- The monitor will alarm, vibrate and blink when gas levels hit the setpoints. Exit space if your alarm sounds.
- To turn the backlight on, press button once. Stays on for 5 seconds.

1.

2.





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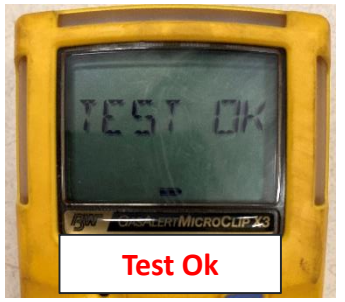


4.

Air Monitoring
Bump Test

Bump Test

1. Turn on monitor in fresh air, and let it cycle through and auto zero.
2. Place black cover over sensors
3. Attach other end of tube to the bump gas canister, ensure straw is in place to get proper velocity.
4. If using balloon method, Pinch tube to fill up balloon to a large orange size, then release tube, so gas hits sensors at proper velocity and content.
5. Sensors will all Alarm. Failed sensors will show “ERR”. If sensors do not adjust range when gas is applied, the gas may be expired or sensor may not work. Try other bump gas, or another monitor.

Notes:

- Ensure gas is not expired. H2S is the first gas to dissipate. CO is often the first sensor to fail.
- Do not blast sensors directly with gas without black cover or straw/balloon because over exposure can degrade sensors.
- The monitor will alarm, vibrate and blink when gas levels hit the setpoints. Exit space if your alarm sounds.
- To turn the backlight on, press button once. Stays on for 5 seconds.

3.

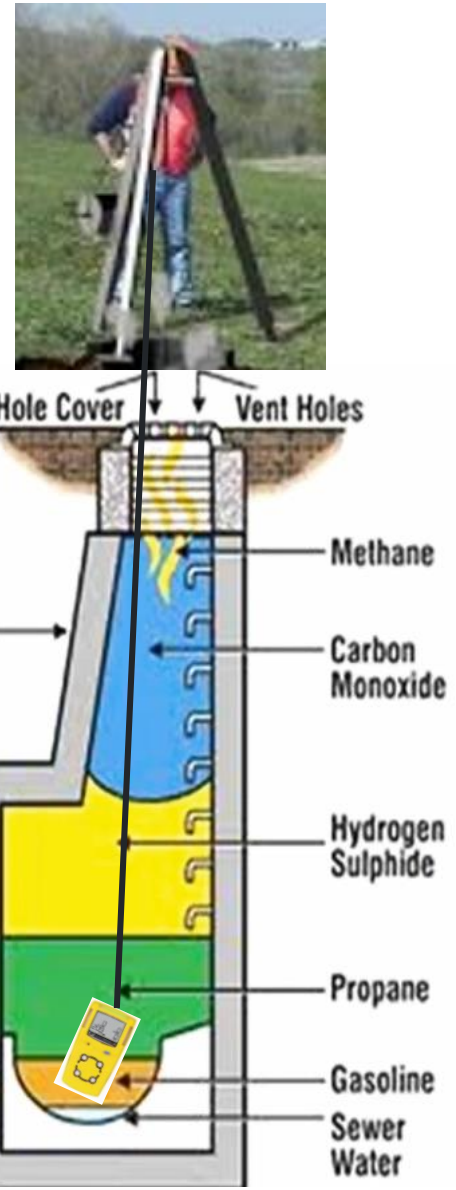
4.

5.

Air Monitoring
Test The Air

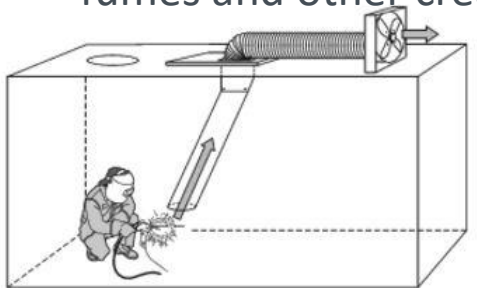
Test + Monitor Air

- After bump test, test the air in the space before ventilation.
  - Test at different levels for deep CS. Density of gases can create a layering effect, with harmful gas near the top, middle, or bottom.
  - Taking measurements may disturb the air pockets and release air out of the hole. Stay back from opening and use fall protection to prevent falling into the hole.
  - If multiple openings, like in tunnels, test at each opening.
- Ventilate and purge air (7 air changes)
  - Test the air again to ensure no changes occurred, or pockets of gases are left.
- Set up continuous mechanical ventilation to maintain fresh air in space. Setup any smoke eaters that may be needed if welding.
- Entrant wears 4-gas monitor while in CS (near breathing zone)

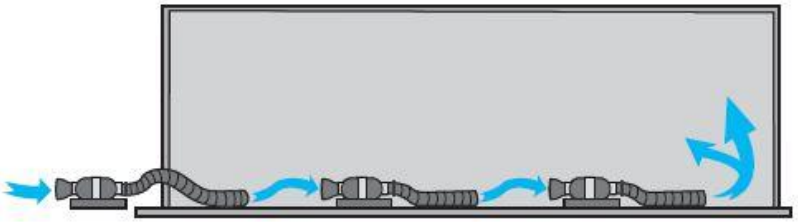


Ventilation

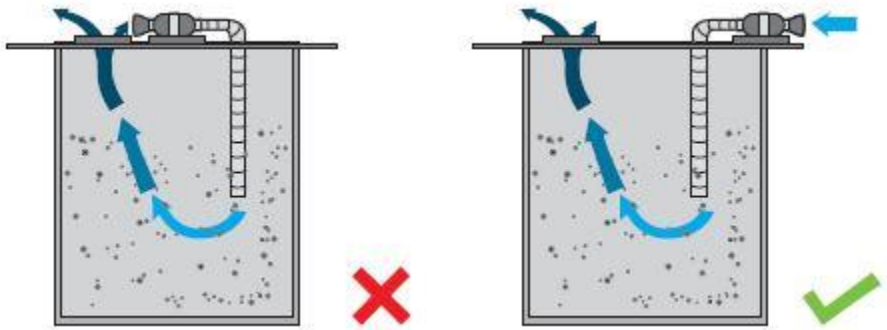
- Consider the hazardous atmosphere that may be present to determine how you need to vent.
- Ensure fan is pulling from fresh air.
- Ensure fans fully circulates air and any air with varying density is effectively removed.
- Purge for 7 air changes before entry. Use nomograph to determine purge time based on Fan CFMs and space size.
- Maintain CFM strength in long CS, like tunnels by putting them in a series.
- Stay upwind and use smoke eaters downwind to remove welding fumes and other created hazards.



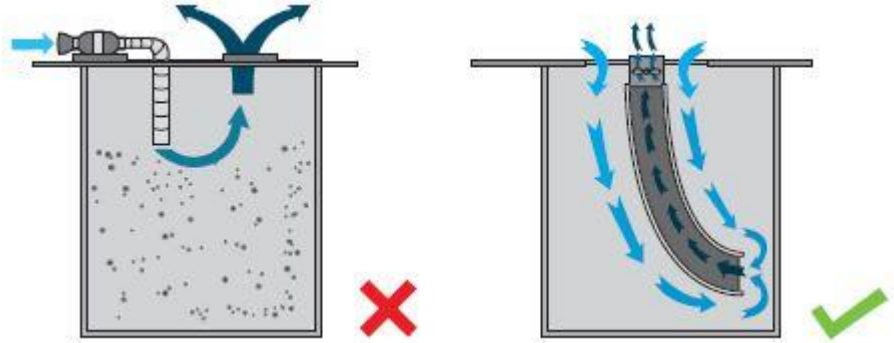
Use local exhaust to remove vapors/fumes



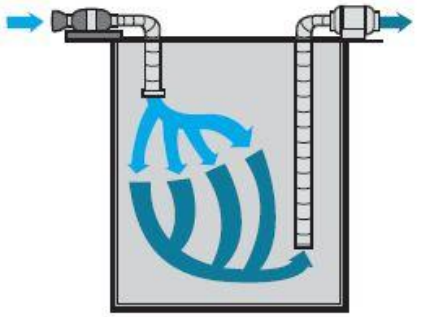
Use multiple fans in a series in long CS, like tunnels.



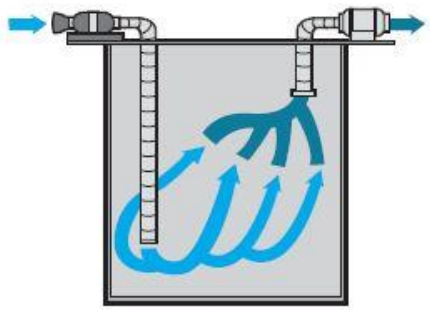
Prevent recirculation, pull from fresh air.



Prevent short circuit, point at wall.



Remove heavier air



Remove lighter air

Have a Rescue Plan

Entry plans prioritize eliminating and controlling hazards before entry to reduce the need for rescue, but you still need to have a rescue plan. Self-rescue is a first choice. Non-entry rescue is required for all Permit Required CS.

Rescue Hierarchy

1. **Self Rescue** -4-gas monitors can provide ample warning to exit safely.
2. **Non-Entry Rescue** – tripod, etc.
3. **Entry Rescue** – Confirm no IDLH conditions, must be trained.
4. **Emergency Rescue** – Call 911. If difficult to access, contact fire dept. first for approval and get notice if rescue is unavailable! (On-site rescue teams may need to be hired if IDLH conditions cannot be controlled.)

IDLH = Immediately Dangerous to Life or Health. Never enter a space with IDLH conditions.

Training

- Ensure all employees involved are trained on entry and rescue procedures.
- Know signs of hazards that require immediate exit/rescue.
- Review the rescue plan with all affected employees.
- What is emergency rescue response time?

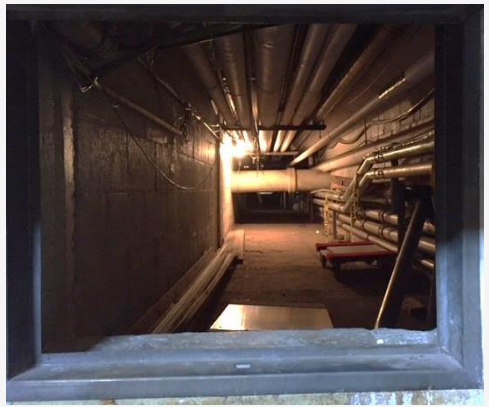
Rescue Plan

Your plan must be realistic and effective

Develop your plan based on:

- Risks: What could cause injuries or dangers that require rescue?
  - Atmospheric hazards- can you measure them? Can you effectively control them?
  - Engulfment hazards- are they isolated?
  - Created Hazards from task/materials or nearby hazards.
- Configuration of the space
  - Will you have enough time to escape? What are your warning systems? Do you have ample alert time?
  - Are there obstacles that prevent escape or non-entry rescue?
- What Equipment do you need?
  - Mechanical winch is required for vertical holes 5 feet or deeper, such as a tripod.
  - For horizontal entries with continuous mechanical ventilations, you may not need non-entry rescue if all other hazards are controlled prior to entry.

Water Tank, tunnels and crawl spaces

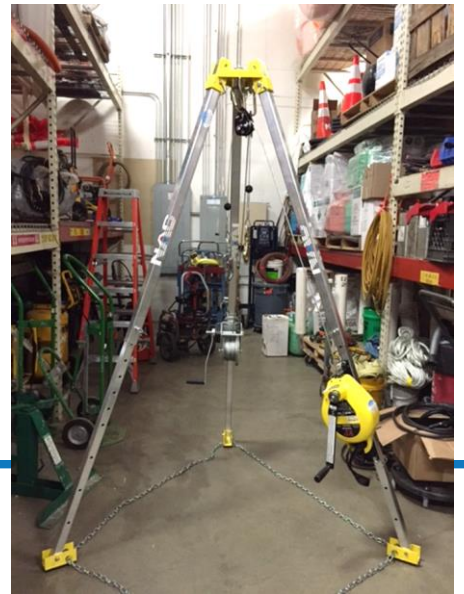


Non-Entry Rescue
Tripod

Use a confined space tripod for vertical non-entry rescues. They are rated for this purpose, and can withstand the force of a fall and can be used to lower entrants into the hole.

Tripod Setup

1. Lay tripod flat on ground. Remove all 6 pins: 3 pins on tripod head, one on each leg
2. Extend legs + secure with pins. Lift to upright position.
3. Secure each leg to tripod head with pins. Ensure chain is connected to feet.



Use a confined space tripod for vertical non-entry rescues. They are rated for this purpose, and can withstand the force of a fall and can be used to lower entrants into the hole.

- Non-Entry rescue is required for Permit Required Confined Spaces that:
  - Have physical hazards that cannot be eliminated or isolated completely, such as engulfment hazards.
  - Have atmospheric hazards that cannot be effectively controlled with mechanical ventilation.
  - Are 5 feet or deeper.
- If you can eliminate all physical hazards prior to entry, and can effectively control atmospheric hazards with mechanical ventilation, you may be able to use “alternate entry methods,” meaning you may not need non-entry rescue.

Non-Entry Rescue
Setup Tripod continued.

4. Attach yellow 3-way Fall Arrest/Rescue Unit to one of the tripod legs (cable opening facing up). Disengage crank to connect the pulley to tripod head with carabineer.
    - Disengage crank (for fall protection SRL) Pull out the pin (knurled plunger) at base of handle and lift handle base, then release pin to allow free movement of crank arm.
    - Engage crank (for rescue and lowering mode): Pull out pin “knurled plunger” and pop handle base back into place.
5. Attach silver Work Winch (suspension/lowering entrant or equipment) to the inside of one of the unused tripod legs, (cable opening facing up). Connect winch pulley to other attachment point on tripod head.

4. Attach 3-way

5. Attach Work Winch

Pulley attached to tripod head

Engage/disengage crank

Bosun Chair

If a ladder does not fit into the hole, the entrant may be lowered down with the tripod and a bosun chair.

- Using a bosun chair provides more comfort to the entrant during lowering.
- The bosun chair should always be used if an entrant must remain suspended for an extended period of time.

Bosun Chair

Using Bosun Chair to Lower Entrant:

1. Put on full body fall harness first.
2. Setup the bosun chair
   - Ensure belt is laced through chair loops and fits snug to prevent falling.
3. Attach chair d-ring to the silver Work Winch for lowering.
4. Then, attach the fall harness d-ring to the yellow 3-way SRL/Rescue Retractable in SRL mode to catch the entrant if they fall.
5. If rescue is needed, switch to rescue mode.

Summary

DEFINITION

- A Confined Space:
  1. Is big enough to enter your body
  2. Is not meant for continuous occupancy, and
  3. Has Limited means of entry or exit
- A Permit Required Space has hazards that could seriously injure or kill you, such as potential or known atmospheric hazards, engulfment hazards, mechanical hazards, etc.

TRAINING

- Ensure all employees are trained on confined space entry procedures, and trained on the site-specific and task specific procedures for a safe entry.

ASSESS HAZARDS

- Due to the risks of entering a confined space and performing work, precautions must be taken.
- Treat all CS as a permit required space until you can prove otherwise. Consider your work tasks, potential hazards, review LOTO procedures and any historic data, and discuss how you will eliminate or control hazards. Then discuss your rescue plan.

CS ENTRY CLASSIFICATIONS

- *Permit Required Confined Space:* Fill out a permit, have an entrant and attendant, have a 4-gas monitor, ventilation fans, and a tripod or other non-entry rescue.
- *Alternate Entry*: If all physical hazards are isolated prior to entry, and you can control atmospheric hazards with continuous mechanical ventilation (fans), you can enter as an *alternate entry.* You still need to fill out a permit, have an attendant, have fans, and wear 4-gas monitor, but you don't need non-entry rescue.
- A N*on-permit Required* space can be entered as long as you can confirm all hazards are eliminated. Because of the nature of our work, it is best to use caution and document that you verified it is safe to enter, fill out the permit.
- Note: A Permit Required Confined Space can be *Reclassified* as a non-permit required space for a duration of time as long as all parties agree and no hazards are anticipated to arise. You should also document that you proved it was safe with historic or collected data.

RESCUE PLAN

- Always have a rescue plan. Can workers get out if there is an incident?
- Use non-entry rescue (tripod) for any vertical entry 5 feet or deeper.
- If you use mechanical ventilation and air monitoring for an *Alternate Entry* you don't need non-entry rescue system, but you should ensure self-rescue will work.

Use the Tripod for vertical entries 5 ft or deeper.

Discuss your site plan:

What is your task? _____

What are the hazards and how will you eliminate or control them?_____

_____

_____

What else do you need to do to complete the job safely? _____

_____

Equipment Needed?	
	Non-entry rescue equip:
	-Tripod, SRL + Winch, Harness
	-Other/horizontal entry:
	Mechanical Ventillation
	-CS Fan + Duct
	-Local Exhaust /smoke eater
	Hot Work: fire extinguish + Permit
	Lockout/tagout devices
	Ladder - size: _____
	Tyvek Suit
	Rubber Suits
	Non-Sparking Tools
	Fall Protection/guardrails

IDENTIFY POTENTIAL HAZARDS (check all that apply)				
RISK of Atmospheric Hazards	**YES**	**Physical Hazards**	**YES**	**List Any Other Hazards - Describe Hazard Controls**
Lack of Oxygen		Engulfment / Drowning		
Inert Gases		Entrapment		
Combustible Gas/Vapor		**Electrical**		
Combustible Dust		**Mechanical Hazards (LOTO)**		
Toxic gas/vapor/ fumes		**Explosion/ Pressure/ Fire**		
Note: atmospheric hazards are invisible and IDLH (imminently dangerous to life or health). Control with mechanical ventilation before entry.		**Chemicals**		
		Noise/environmental		
		Heat/Cold extreme		

Congratulations!

You have completed NAC's training on Confined Space Entry + Rescue Training

Remember: Always review site-specific hazards and plan. Never enter a confined space without checking the air quality, and having a rescue plan.

Follow the guidelines and policies in this training. Failure to do so may result in severe injury and/or disciplinary actions.

Contact the Safety Coordinator with questions.

Stephanie Hagen
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651.280.8265

NAC

Confined Space Training

Sign below after completing your training. Return to NAC Safety when done.

	Name	Signature	Date
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			