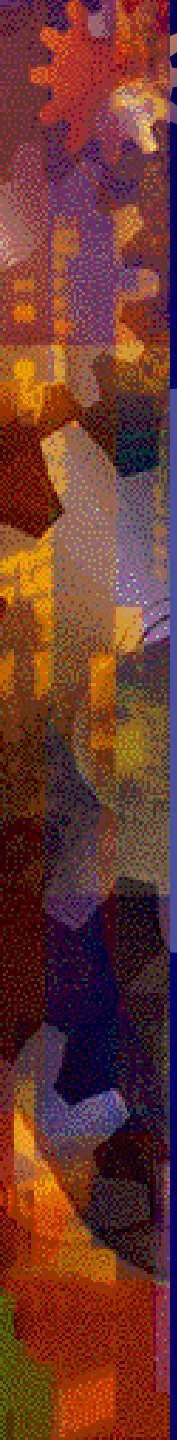
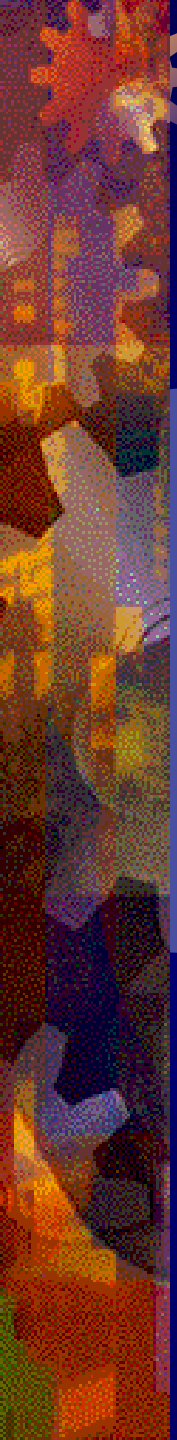


CONFINED SPACE ENTRY TRAINING



SELF-TEST

ASK YOURSELF…

- What is a confined space?
- What is difference between permitted and non-permitted confined spaces?
- List 3 examples of permitted confined spaces.
- When do I need PPE?
- When should I test the atmosphere?
- What is the safe oxygen level?

COURSE OBJECTIVES

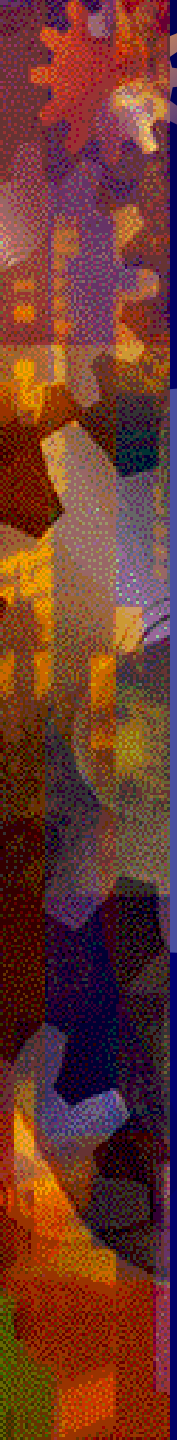
- Help you understand the criteria of a confined space
- Motivate you to evaluate your workplace and written programs
- Implement changes where necessary

COURSE GOAL

- Prevent personal injuries/fatalities relating to a confined space entry

COURSE WILL ADDRESS…

- Definitions of terms, with examples
- The basic entry procedure
- The components of a written program



TERMS AND DEFINITIONS

1. CONFINED SPACE:

- Is large enough to enter into and work
- Has a limited means of entry/exit
- Is NOT designed for continuous periods of occupancy

CLASSES OF CONFINED SPACE

- **Class A** – ***IDLH*** atmosphere. May contain oxygen deficiency, explosive or flammable atmospheres, and /or concentrations of toxic substances.

CLASSES OF CONFINED SPACES cont'd

- **Class B** – space has potential for causing injury if proper safety steps are not followed

CLASSES OF CONFINED SPACES cont'd

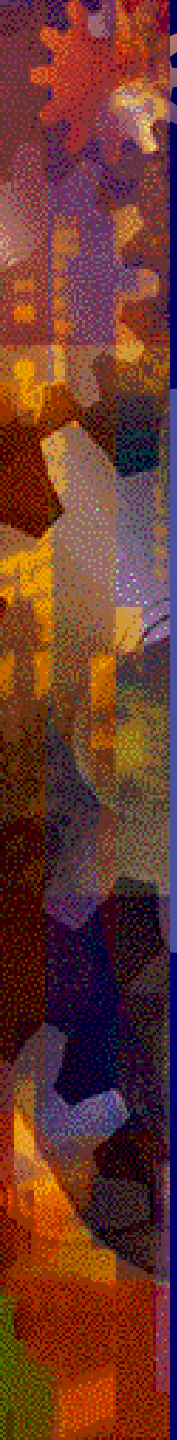
- **Class C** – space has potential hazards, but would not require any special modification of the work procedures.

TYPES OF CONFINED SPACE…

- Non-Permitted
  - … does NOT contain physical, chemical or atmospheric hazards capable of causing death or serious physical harm
- Permitted
  - … DOES contain physical, chemical or atmospheric hazards capable of causing death or serious physical harm

NOTE:

- The classification of ANY confined space SHALL be determined ONLY BY Trained AND Authorized persons



EXAMPLES

EXAMPLES OF CONFINED SPACES:

- Tanks, vessels, silos, storage bins, hoppers, vaults, pump stations, scale pits, crawl spaces, tunnels…

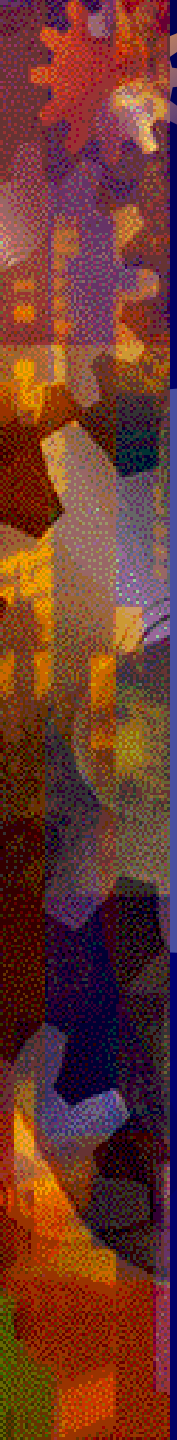
BOILER TANKS...

PIPE CHASES...

CRAWL SPACES...

MANHOLES…

PITS...



TERMS AND DEFINITIONS, CONT'D

2. ENGULFMENT

- A liquid or a "*flowable*" solid like sand or grain that can surround and bury, smother, strangle, or crush a person.

EGULFMENT cont'd

- Trenches deeper than 4ft
  - Engulfment hazard: cave-in
  - Preventive measure: shoring & evacuation route

3. IDLH

- ***Immediately Dangerous to Life and Health***
  - Poses an immediate or delayed threat to life, OR…
  - Causes irreversible adverse health effects, OR…
  - Interferes with ability to escape unaided from a permit space

3. IDLH, cont'd

- May be used to determine need for PPE
  - MSDS's
  - **List of IDLH values**
- If conditions meet or exceed ***IDLH*** values, implement PPE

4. QUALIFIED PERSON

- Designated by the employer in writing, as ***CAPABLE*** (by education, training, or both) of:

  Anticipating, recognizing, and evaluating employee exposure to hazardous substances or other unsafe conditions in a confined space; AND of

  Specifying necessary control and/or protective action to ensure employee safety

5. ATTENDANT

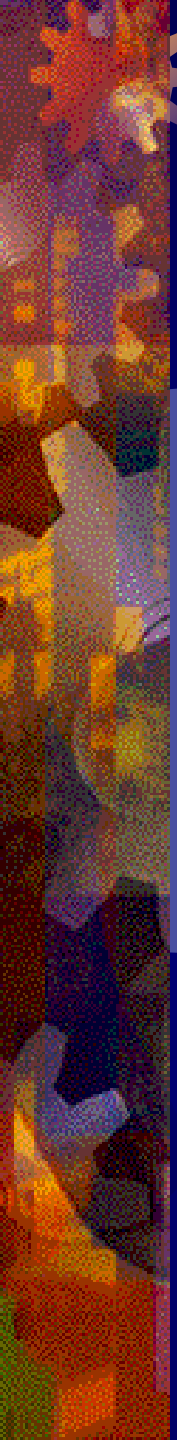
An observant, competent/experienced person stationed **outside** of a confined space to assist the entrant

6. AUTHORIZED ENTRANT

- A worker authorized to **enter** a confined space

7. ENTRY SUPERVISOR

- The employee responsible for **overseeing** the Confined Space entry operations; permit signing; and safety compliance



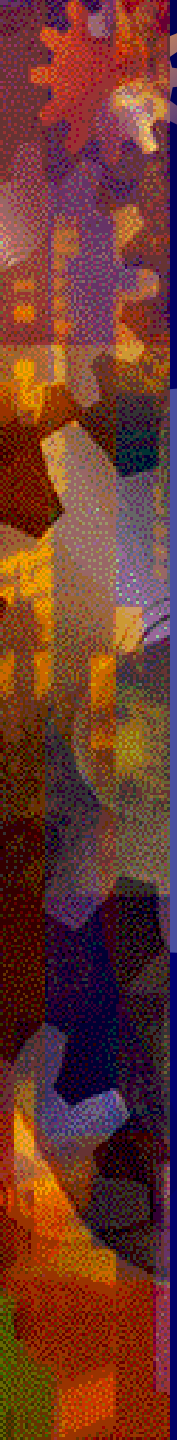
PERMITTED CONFINED SPACE ENTRY PROCEDURE

GENERAL CS ENTRY PROCEDURE

1. Conduct an assessment
2. Post signage; Barricade
3. Write the ***Permit***
4. Perform pre-entry tests
5. Follow all other safety procedures
   - PPE
   - LO/TO
   - Ventilation

GENERAL CS ENTRY PROCEDURE, cont'd

- 6. Pre-entry briefing
- 7. Perform entry & work
- 8. Perform continuous atmospheric tests
- 9. Exit the confined space
- 10. Debrief employees/contractors
- 11. Verify completion



1. CONFINED SPACE ASSESSMENT

ASSESSMENTS MUST INCLUDE:

1. Pre-entry testing and monitoring of/for:
   - Atmospheric conditions
   - Potential hazards in and around the area

POTENTIAL HAZARDS

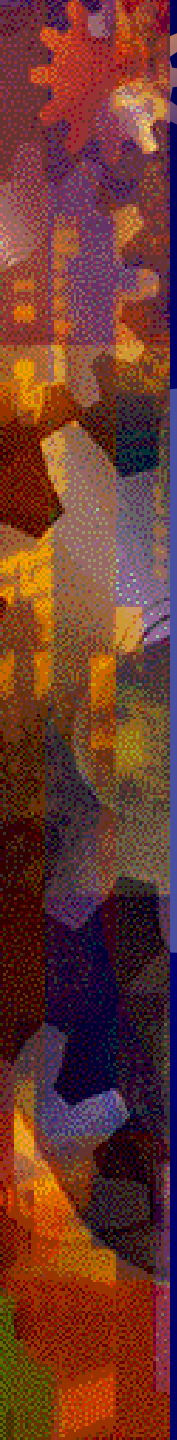
- Deficient or enriched oxygen
  - Safe level: 19.5% - 23.5%
- Combustible, flammable, and explosive atmospheres
- Toxic gases and vapors
- Corrosive chemicals or biological agents

POTENTIAL HAZARDS cont'd

- Physical hazards–
  - Falling,tripping,moving parts,engulfment,heat extremes,etc…
- Electrical hazards—
  - Shock hazard, static electricity, sparks, etc…
- Rodents,snakes, and insects

ASSESSMENTS MUST ALSO INCLUDE:

2. Written procedures to remove or control hazards including ventilation, LOTO, PPE and communication
3. Written emergency response



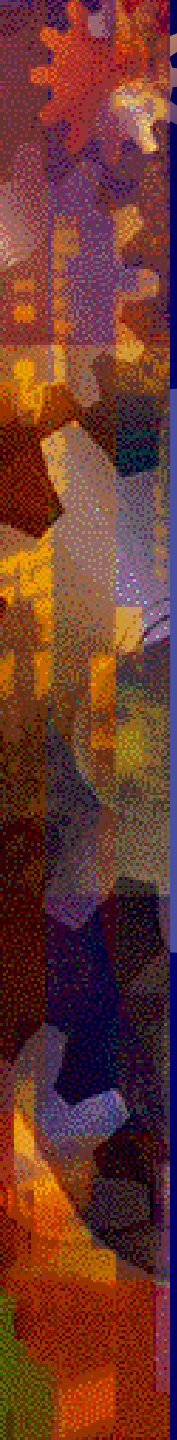
2. POST SIGNAGE AND BARRICADE

POSTED SIGNAGE

- MUST be in the immediate area
- MUST identify the Confined Space
- Restricts **unauthorized** personnel
  - E.G.: ***"DANGER—PERMIT REQUIRED CONFINED SPACE, DO NOT ENTER"***

BARRICADES

- MUST prevent unwanted access to the work area
- MUST ensure clear workspace for attendant and emergency rescue (if needed)

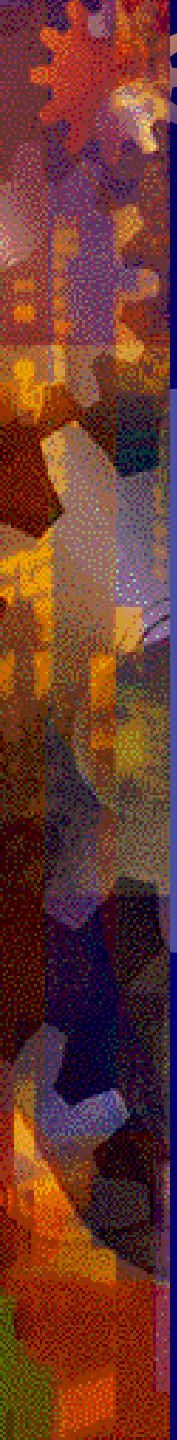


3. WRITE THE PERMIT

PERMITS

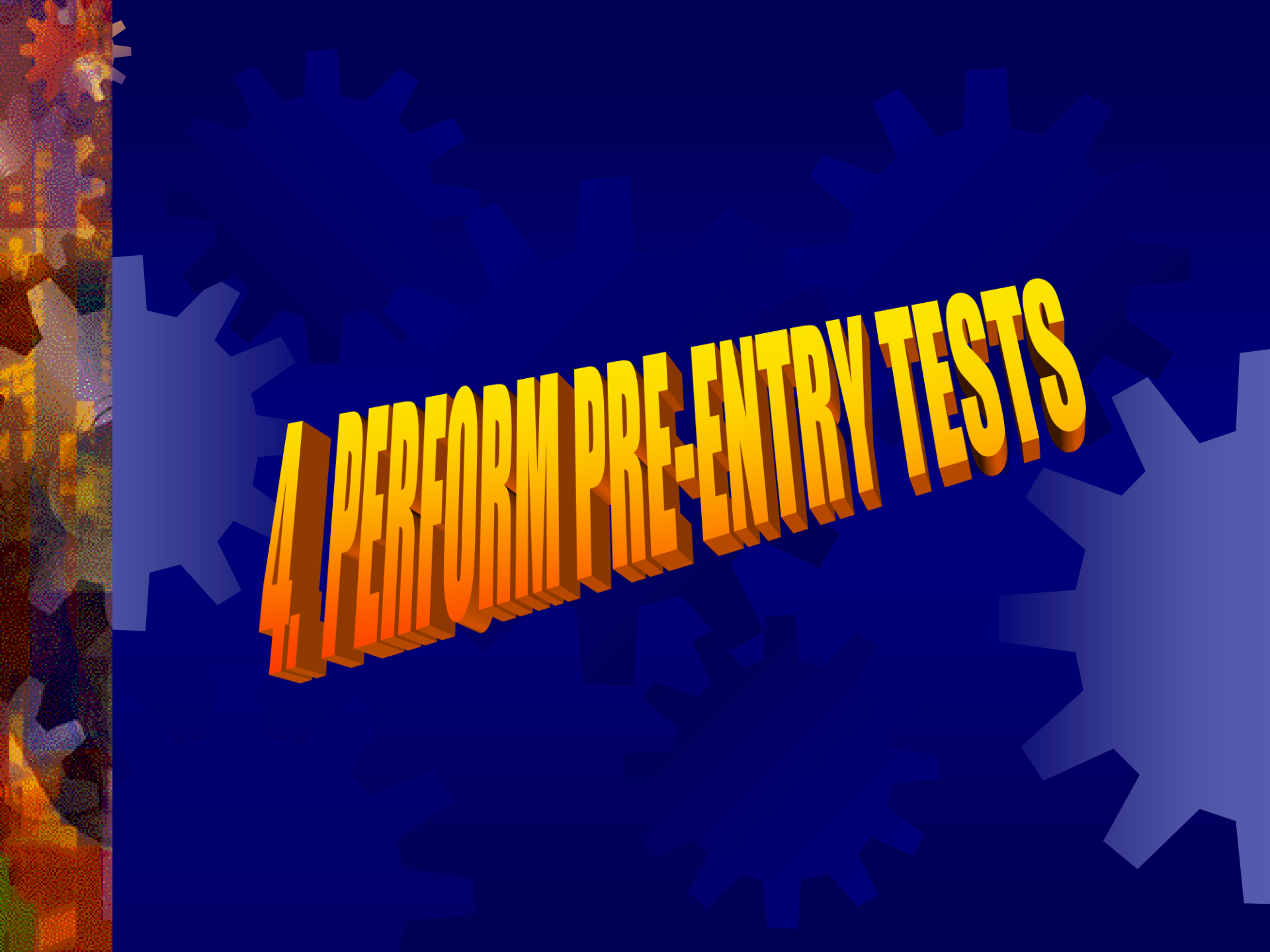
- Are written authorization and approval specifying the location and type of work
- Certify that all existing hazards have been assessed
- Ensure the safety of each worker
- Specify the date & length of time it applies

Confined Space Permit



NOTE:

PERMITS ARE ALWAYS POSTED IN THE WORKPLACE DURING ENTRY


4. PERFORM PRE-ENTRY TESTS

TESTING STANDARDS

- Duration—Recommend continuous
- Sample priority—Oxygen; Flammable/combustible chemicals; Toxic chemicals

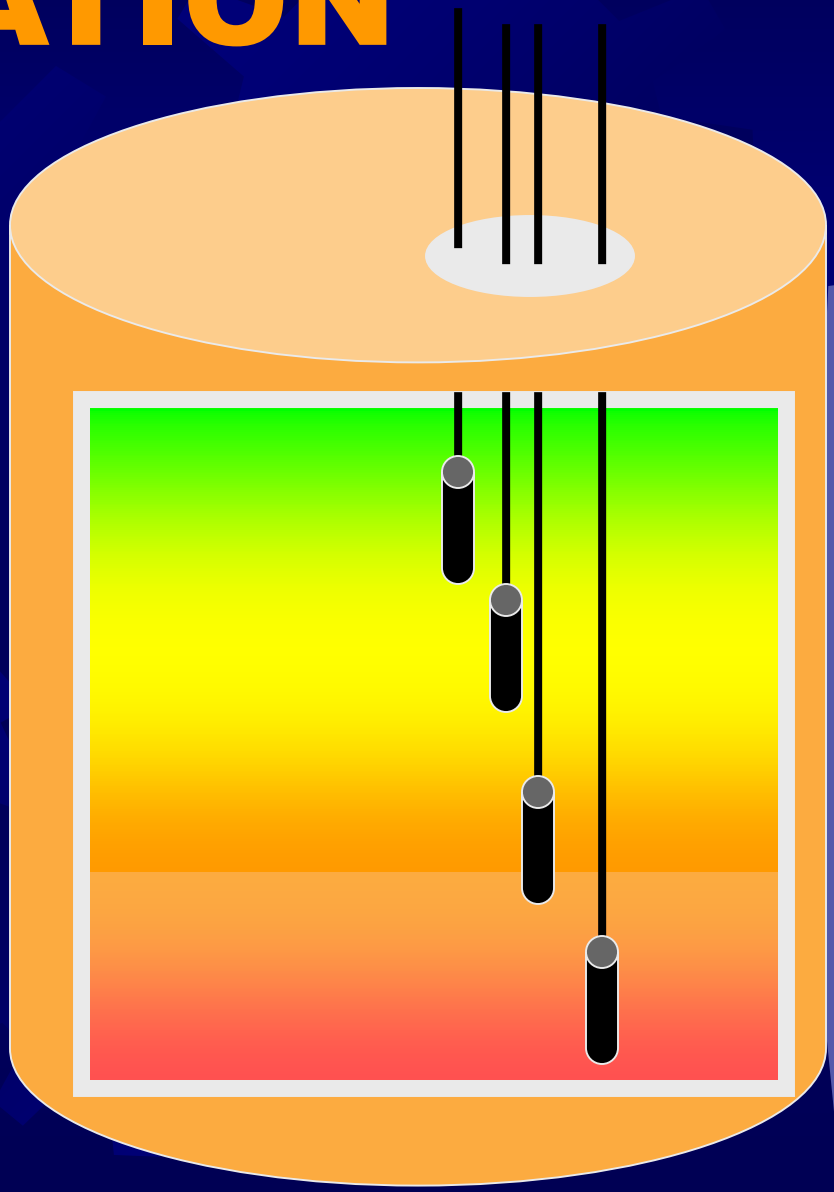
TESTING METHODS

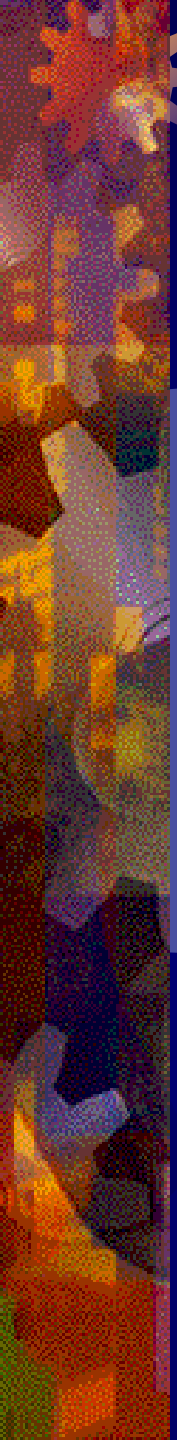
- Sample in layers
  - Every four feet in direction of travel
  - Different chemicals stratify
  - Do not get equipment wet!!

CHEMICAL STRATIFICATION

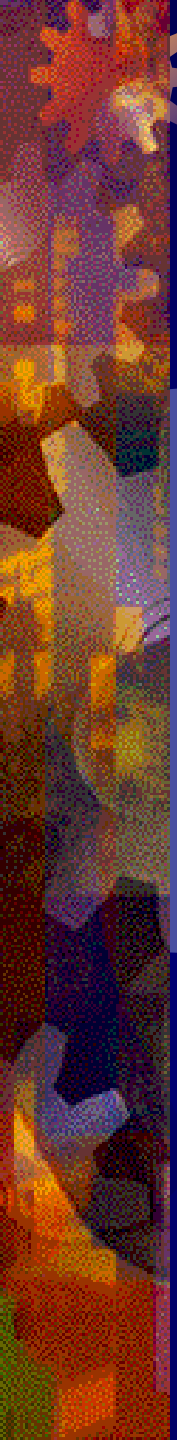
*Chemicals will stratify according to their vapor density

*Strata changes with environmental conditions (ex. Temperature and pressure)





REMEMBER TO DOCUMENT ALL ATMOSPHERIC TESTING RESULTS!!



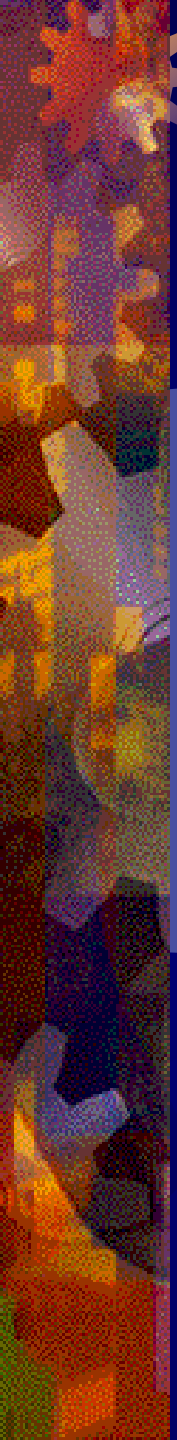
5. TAKE OTHER SAFETY PRECAUTIONS

OTHER SAFETY PRECAUTIONS

- PPE
- Lockout/Tag out
- Verify emergency response
- Remove sources of hazardous materials outside of confined space
- Ventilation

VENTILATION

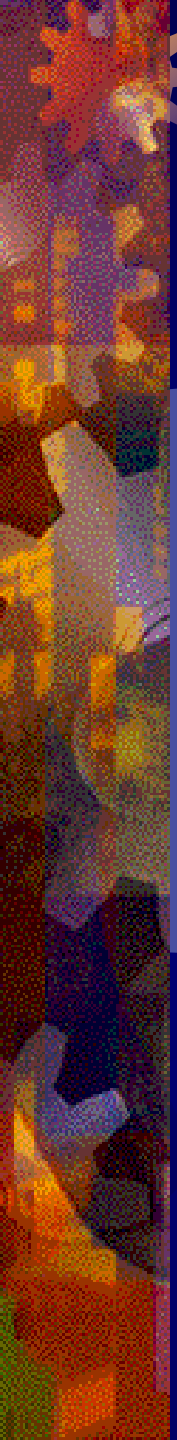
- Exhaust
  - Negative pressure
    - Local - for specific sources
    - General - for non-specific sources
- Purging
  - Positive pressure
    - Using inert gases in flammable/combustible environment
    - Causes need for additional PPE



6. PRE-ENTRY BRIEFING

PRE-ENTRY BRIEFING

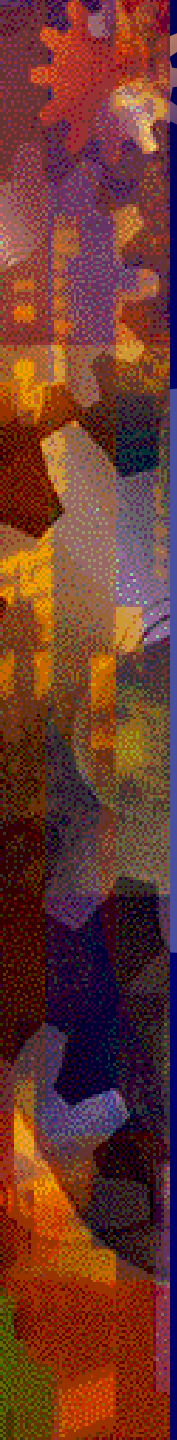
- Conduct meeting
- Include all affected persons
- Document topics discussed at the briefing.



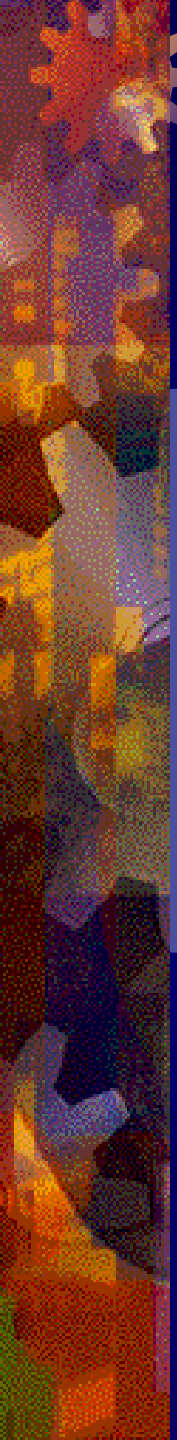
7. PERFORM ENTRY AND WORK

Entry documentation

- Each entrant should sign an entry log
  - Posted in immediate area



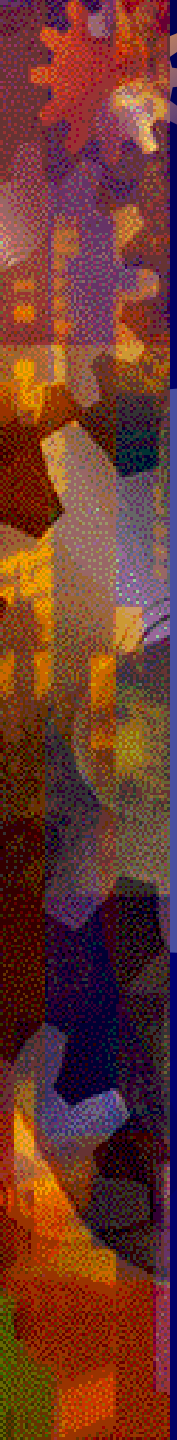
Follow work procedures and safety rules for job task!!!



8. PERFORM CONTINUOUS MONITORING

CONTINUOUS MONITORING

- REMEMBER the mentioned sampling methods!



9. EXIT THE CONFINED SPACE

EXITING THE CONFINED SPACE

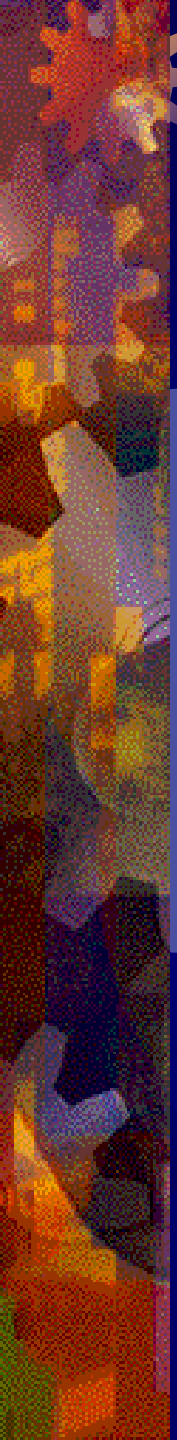
- When work is complete, when replacement arrives, or if an alarm sounds
- In the event of an emergency, utilize emergency rescue
- Remember to update the entry log!!

ON-SITE RESCUE

- Employer determined if on/off-site rescue will be used
- On-site, usually comprised of in-house personnel—
  - Motivated team
  - Extensive training
  - Practical exercises (min. once/12 months)
  - Regular reinforcement of training

OFF-SITE RESCUE

- Assessment necessary
  - Determine the practicality of off-site rescue
- If used:
  - Close proximity
  - Extensive pre-coordination
  - Must understand the hazards to be faced
  - Must have access to all spaces for pre-planning



10. CONDUCT DEBRIEFING

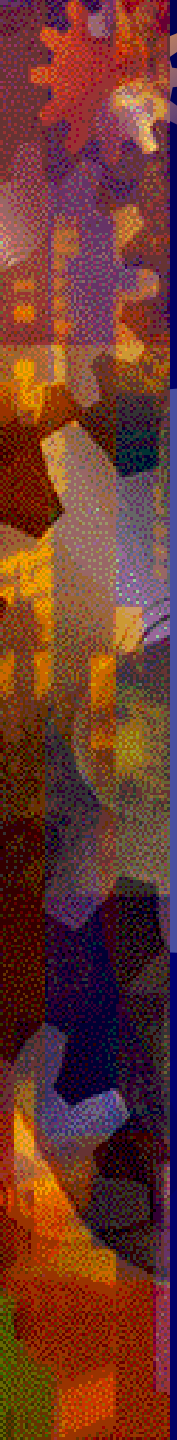
DEBRIEFING

- Discuss the success of the work
- Identify concerns that occurred
- Verify completion of all documentation
- Document meeting, if possible


11. VERIFYING COMPLETION

VERIFY COMPLETION

- The entry supervisor should remain for at least 30 minutes after the entry to ensure the security of the site and that no hazards remain (ex. Fires)



ELEMENTS OF A WRITTEN PROGRAM

PROGRAM ELEMENTS:

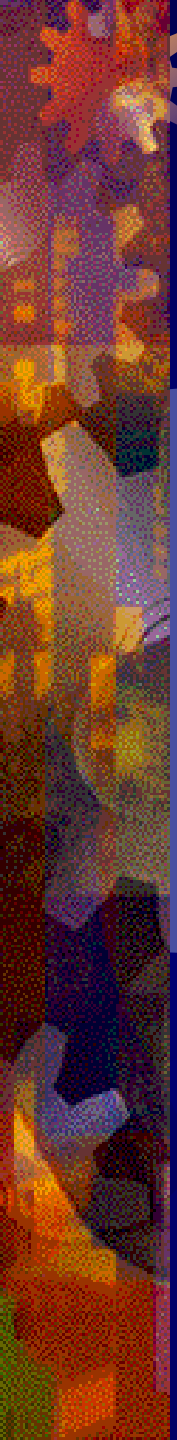
- Identification and location of ALL recognized confined spaces
- Hazard evaluation procedures
- Warning procedures
  - Ex: Signs at entrance

MORE ELEMENTS...

- Written procedures for pre-entry and entry
- Written procedures for permitting

MORE ELEMENTS…

- Assignment of responsibilities
  - Entrant
  - Attendant
  - Entry supervisor



RESPONSIBILITIES

ENTRANT

- Know the hazards associated with the space
- Follow the instructions on the permit
- Use required equipment properly

ENTRANT cont'd

- Continually communicate with attendant
- Alert the attendant when necessary
- Exit the space quickly when required

ATTENDANT

- Know the hazards associated with the space
- Be aware of the effects of hazardous exposures
- Maintain accountability of entrants

ATTENDANT cont'd

- Remain on duty until properly relieved
- Monitor the status of the entrant as appropriate
- Communicate with the entrant as appropriate

ATTENDANT cont'd

- Summon rescue and/or emergency assistance
- Monitor activities inside and outside the space
- Perform non-entry rescue in accordance with policy

ATTENDANT cont'd

- Perform no duties that interfere with attendant duties
- Order evacuation of the space when dictated

SUPERVISOR

Continued

- Know the hazards associated with the space
- Ensure all entries on the written permit are appropriate
- Ensure all tests, procedures and equipment are used

SUPERVISOR cont'd

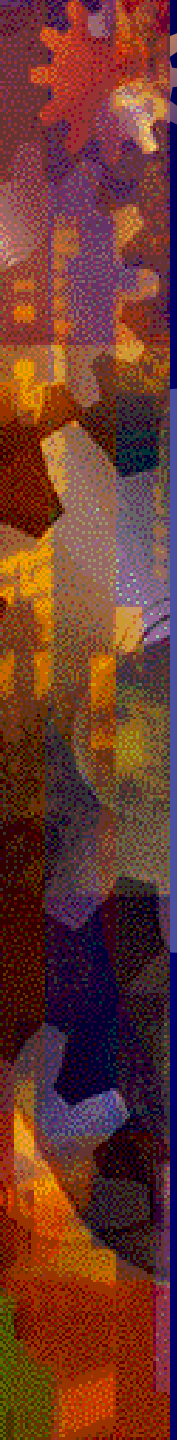
- Terminate entry authorization when appropriate
- Verify that rescue services are available
- Verify methods are in place to summon rescue services

SUPERVISOR cont'd

- Remove unauthorized individuals attempting entry
- Determine when transfer of responsibility takes place
- Ensure operations are consistent with the permit

SUPERVISOR cont'd

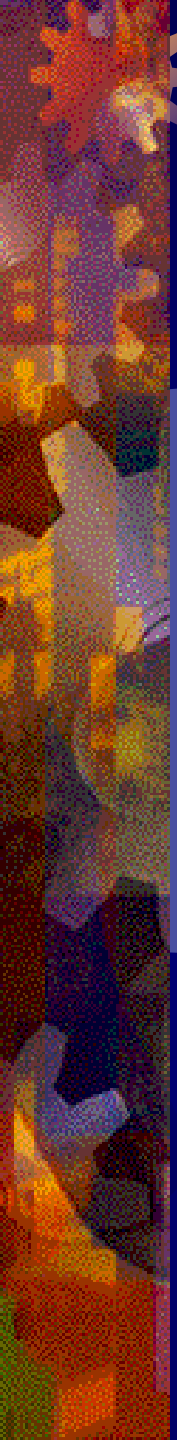
- Perform non-entry rescue in accordance with policy
- Perform no duties that interfere with supervisor duties



EMERGENCY RESPONSE

Emergency Response

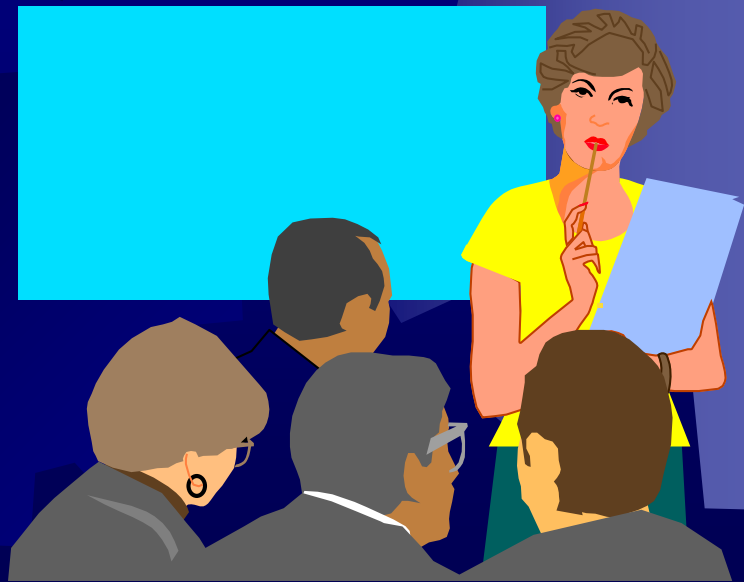
- Attendant alerts the rescue services
- Close off the area
- Get authorized entrants out of the space
- Perform first aid if needed.
- Chest or body harnesses are worn by authorized entrant to allow for safe rescue.



CONFINED SPACE EQUIPMENT

EXAMPLES…

CONFINED SPACE TRAINING



TRAINING REQUIREMENTS

- New employees
  - At time of employment, if affected…or…
  - When delegated affected responsibility
- Existing employees
  - Refresher training
  - Rescue drills at least annually

TRAINING CONTENT

- All aspects of the written program
- Emergency procedures
- Document all training activities

RECORD KEEPING REQUIREMENTS

- Written program
- Training records
- Atmospheric testing records
- Permitted and non-permitted entries into confined spaces


SELF-TEST

Let's review…

- What is a confined space?
- What is difference between permitted and non-permitted confined spaces?
- List 3 examples of permitted confined spaces.
- When do I need PPE?
- When should I test the atmosphere?

Let's review...

- What is the safe oxygen level?
- What are the 2 options for emergency response?
- Where should the permit be maintained during entry?
- When should an entrant exit the confined space?

FOR ADDITIONAL ASSISTANCE…

Call your Loss Prevention Representative