



Permit Required Confined Spaces (PRCS)



**Awareness
Training**





Why should I care about Confined Spaces?



- One of the leading causes of occupational fatalities in this country
- The standard covers 240,000 workplaces and 12.2 million workers
- Workers make 4.8 million entries/year
- Standard may prevent 85% of fatalities and nearly 11,000 injuries
- **Still more than 20 deaths occur annually!**





Why should I care about Confined Spaces?



● Fatality Statistics-Cause of Death

- 47% Air (Oxygen, Gases, Vapors)
- 21% Drowning (Engulfment)
- 19% Toxic (Liquids, Vapors, etc above Permissive Exposure Limit (PEL))
- 2% Electrocution (Due to tools the victim took in with them)
- 10% Blunt Force Trauma
- 1% Burns

.....Examples of what **NOT** to do!

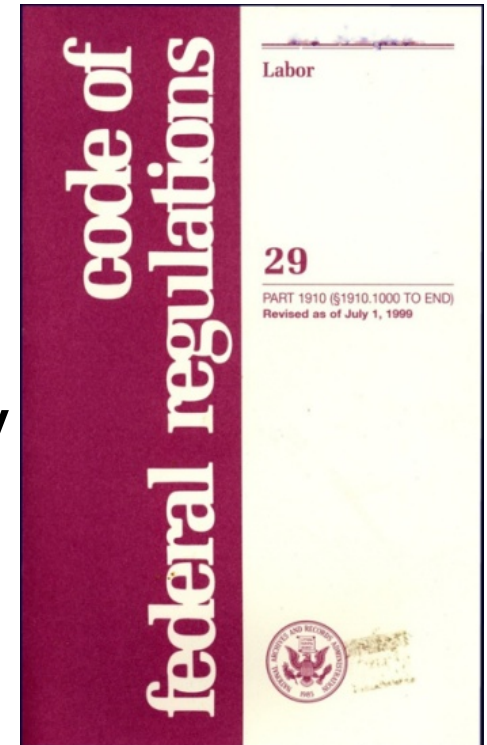




Permit Required Confined Spaces (PRCS)



- 29 CFR 1910.146 - Fed OSHA
 - Letters of Interpretation
 - General Duty Clause
- NAVMC DIR 5100.8 - Chapter 14
- BO 5100.1A W/Ch-1 - Base Policy
- Local SOP's



*Know the CFR, NAVMC DIR,
BO and your SOP!*



Confined Space: Definition

- A confined space means a space that:
 - 1. Is large enough and so configured that an employee can bodily enter and perform assigned work: AND
 - 2. Has a limited or restricted means for entry or exit; AND
 - 3. Is not designated for continuous employee occupancy.
- Yes to all = "Confined Space"

PRCS Signage





Confined Space Hazardous Atmosphere:



- Hazardous Atmosphere means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self rescue, or acute illness from one or more of the following cause:





Confined Space Hazardous Atmosphere:



- (1) Flammable gas, vapor, or mist in excess of 10 percent of its Lower Flammable Limit (LFL);
- (2) Airborne combustible dust at a concentration that meets or exceeds its LFL; Note: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet or less.
- (3) Atmospheric oxygen concentration is below 19.5 percent or above 23.5 percent;





Confined Space Other Serious Safety or Health Hazards



- Electrical equipment
- Mechanical equipment
- Visibility
- Biohazards
- Claustrophobia
- Noise
- Radiation
- Temperature
- Vermin





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Be aware of the many hazards!



Confined Space Common Hazards & Causes



- Oxygen Deficient Atmosphere
- Less than 19.5% Oxygen
- Consumption
 - Rusting metal, decomposing organic matter, drying paints solvents, fires
- Displacement
 - Evaporating products, gas or vapor leaks, decomposing matter, inerting tanks or vessels, fires generating Carbon Monoxide (CO) & Carbon Dioxide (CO₂)





Confined Space Signs and Symptoms -O2



- 19.5% = Minimum acceptable O2 level
- 15-19% = Decreased ability for strenuous work and impaired coordination
- 12-14% = Respiration increases, poor judgment
- 10-12% = Respiration increases, lips blue
- 8-10% = Mental failure, fainting, nausea, unconscious, vomiting
- 6-8% = 4 to 5 minutes possible recovery, 8 minutes fatal, 6 minutes 50% fatal
- 4-6% = Coma in 40 seconds, death





Confined Space Common Hazards & Causes



- Oxygen Enriched Atmosphere
- Oxygen above 23.5%
- Main concern is a fire hazard, causes material to become unstable
- Will absorb in clothing
- Leaking O2 hoses from work in spaces





Confined Space Common Hazards & Causes:



- Hydrogen Sulfide (H₂S) (Sewer gas)
- Affects central nervous system
- Produced by decaying organic matter and human septic waste
- Rotten egg odor, affects olfactory senses
- Threshold Limit Value (TLV) - 10 PPM
- Air Purifying Respirator (APR) not approved



Confined Space Common Hazards & Causes: CO



- Carbon Monoxide from incomplete combustion of fuels and organic matter
- No odor or warning properties
- By the onset of symptoms, in danger
- Threshold Limit Value (TLV) 25 PPM
- Affects central nervous system
- Air Purifying Respirator (APR) not approved



Confined Space Common Hazards & Causes: Lower Explosive Limit (LEL)



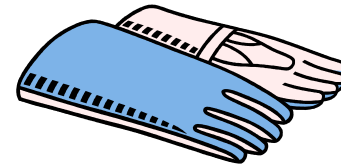
- LEL minimum concentration of a flammable gas or vapor that when mixed with air will explode or ignite
- An LEL reading of 10% is the max amount of flammable gas or vapor which may be present for hot work
- Are also extremely toxic below 10%
- For any LEL reading, other than normal meter fluctuation, cancel the permit unless the cause is known



Confined Space Responsibilities: Entrant



- Know the hazards, signs or symptoms and consequences of exposure
- Properly use equipment
 - Monitors
 - Retrieval equipment
 - PPE
 - LOTO
- Communicate with the Attendant





Confined Space Responsibilities: Attendant



- Perform no additional duties that might interfere with the attendants primary duty to monitor and protect the authorized entrant.





Confined Space Responsibilities: Entry Supervisor



- Verifies that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry
- Terminates the entry and cancels the permit
- Verifies that rescue services are available and that there is a means for summoning





Confined Space Responsibilities: Supervisor



- Provide annual refresher training that address local procedures and that is approved by the CSPM.
- Ensure that personnel receive the required initial and refresher training to include horizontal program training. Maintain documentation of training.
- Ensure all PRCs are properly labeled
- Ensure that internal audits of the program are conducted.



Confined Space Responsibilities: Department Head/CO/Directors

- Develop and publish an internal SOP to include an inventory for each PRCs
- Ensure compliance with the training requirements for all personnel as set forth in BO 5100.1A, NAVMC DIR 5100.8 and 29 CFR 1910.146.
- Ensure personnel adhere to SOP for all entries
- Conduct and document regular program audits



Confined Space Permit



- Purpose:
 - To ensure for safe entry into PRCSSs
 - Provide a means for the Entry Supervisor to document that the conditions for a safe entry have been met prior to employees making the entry
- Historical data for the space for evaluating the hazards
- Provide a copy to CSPM within 30 days

CONFINED SPACE ENTRY PERMIT

DATE/TIME PERMIT ISSUED:				EXPIRATION DATE/TIME:			
LOCATION (FAC #):				DESCRIPTION:			
PURPOSE OF ENTRY:						DEPT/DIV/SHOP:	
AUTHORIZED ENTRANT(S):				AUTHORIZED ATTENDANT(S):			
TIME OF ACTUAL ENTRY:				TIME OF COMPLETION OF ENTRY:			
<u>ATMOSPHERIC TEST DATA</u>							
TEST	PRE-ENTRY RESULTS	FOLLOW-UP TESTING RESULTS					
O₂ (19.5 – 22%)							
% LEL (<10%)							
CO (<25 ppm)							
H₂S (<10 ppm)							
TIME							
<u>TOXICS</u>							
1)							
2)							
PRE-ENTRY TESTING BY:					DATE:		TIME:
INSTRUMENT	MODEL	SERIAL #	GAS-CAL DATE/TIME		PASSED GAS-CAL: Y/N?		
ZERO CALIBRATION PRIOR TO ENTRY CONDUCTED BY:							

REQUIRED SAFETY CONTROLS/OBSERVED HAZARDS

REQUIREMENT	YES	NO	COMMENTS/CONTROL MEASURES/EQUIPMENT
ATTENDANT	X		
* Respiratory Protection			
* Protective Clothing			
* PPE			
Fire Extinguisher			
* Non-Entry Rescue Eqpt			
* Lockout/Tagout			
* Ventilation			
* Follow-up Testing			
* Other Controls			
Are workers trained?			
* COMMENTS REQUIRED IF CHECKED "YES"			
Communication: (Circle)	VISUAL	DIRECT VERBAL	PHONE RADIO
EMERGENCY CONTACT: BASE FIRE DEPARTMENT (EMS)			PHONE: 911
IS THE SPACE LABELED? YES or NO		OTHER COMMENTS:	
PERMIT ISSUED - ENTRY SUPERVISOR'S SIGNATURE:		PERMIT CANCELLED - ENTRY SUPERVISOR'S SIGNATURE:	
PRINT NAME HERE:		PRINT NAME HERE:	
PERMIT REVIEWED BY (INITIALS & DATE): SHOP SUPERVISOR			CSPM

- PERMIT MUST REMAIN AT ENTRY POINT(S) UNTIL WORK IS COMPLETE - A COPY MUST BE FORWARDED TO CSPM WITHIN ONE WEEK OF ENTRY -
 MAINTAIN ONE COPY AT SHOP LOCATION - ONLY AUTHORIZED ENTRANTS LISTED ON PERMIT MAY ENTER PRCS -PERMIT MUST BE FILLED OUT
 COMPLETELY - NOTIFY CSPM OF ANY UNEXPECTED HAZARDS OR EMERGENCIES ENCOUNTERED- FOR ASSISTANCE CALL CSPM - (910) 451-7449



Confine Space Detector Calibration



- Calibration for the different types of monitors will be conducted per the manufacturers instructions.
- Monitors will be verified for proper operation daily prior to use.
- Record the results of the calibration or bump test in the calibration log and on the permit.
- Fresh air or zero calibrate the monitor prior to each entry of the day.





Confined Space Emergency Response



- Non-Entry rescue authorized only!
- Most PRCS deaths are from would be rescuers
- Maintain a means to communicate with the Fire Dept, annotate on permit
- Dial **911!!**





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ExoFit Safety Harness
Capital Safety/DBI Sala D-Ring Harness



DBI Sala II 8300030
Attach w/ 2 FT Tripod



Petal A10V
Various Grant Hardware
* optional



BW Honeywell Max XT II
Qualitair Portable Pump Gas Detector



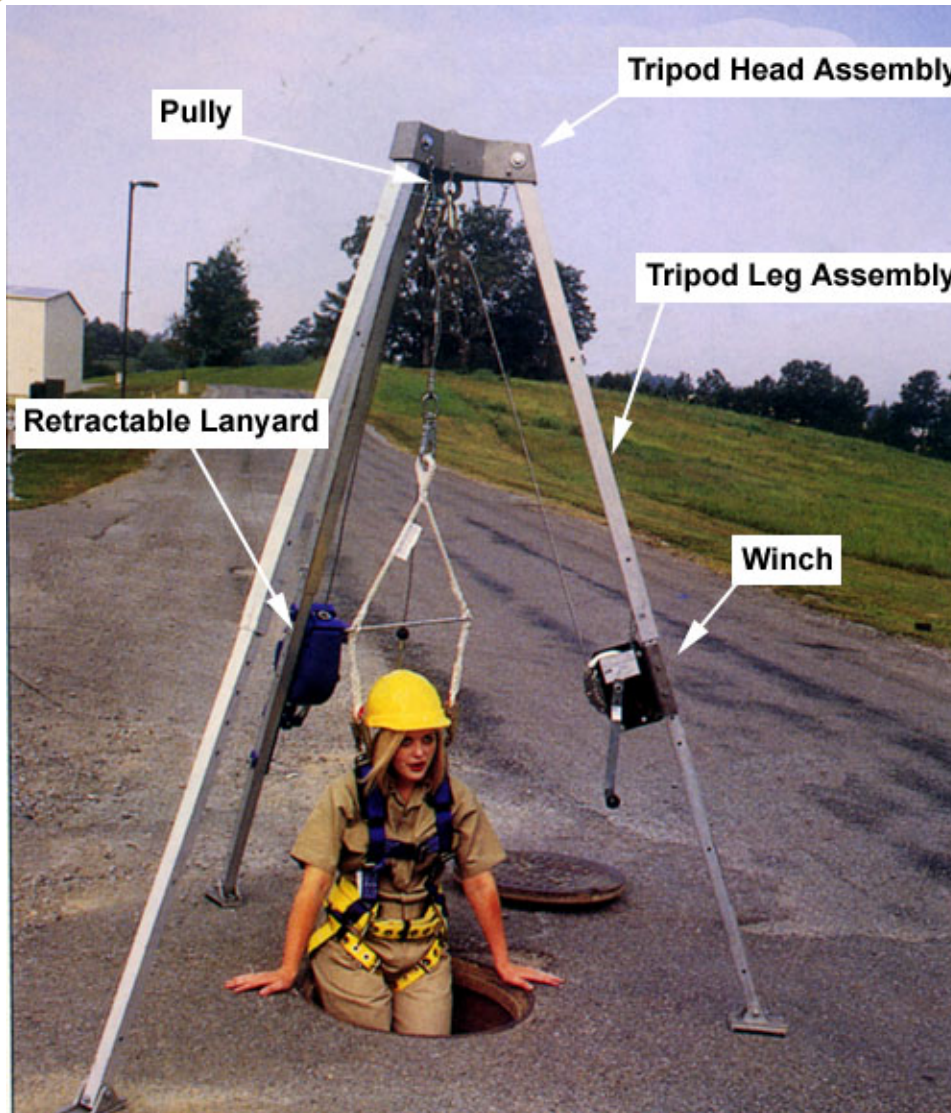
RamFan UB20
POT Blower/Extractor 25 FT Cordless



PPE and other safety gear



Permit Required Confined Spaces (PRCS)



*Know how
to use and
take care
of PPE and
special
gear*



Permit Required Confined Spaces (PRCS)



*Know how to use and keep
detectors calibrated*



Permit Required Confined Spaces (PRCS)



*Know and practice
your Emergency
Action Plan (EAP)*





Permit Required Confined Spaces (PRCS)



Confined Spaces come in limitless places and sizes...all are DANGEROUS!



Permit Required Confined Spaces (PRCS)



*Be prepared for the
unexpected in all entries*



Permit Required Confined Spaces (PRCS)



Follow the SOP....know your duties



Questions?



Confined Space - Do
it right make it
SAFE

Contact the PRCS Program Manager at 451-5725