

**BY ORDER OF THE COMMANDER
913TH AIRLIFT WING**

**913 AW INSTRUCTION 91-303
21 AUGUST 2000**



Safety

CONFINED SPACE PROGRAM

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements Air Force Policy Directive 91-3, incorporating the Air force Occupational Safety and Health (AFOSH) Standard 91-25 and 29 CFR 1910.146. It establishes the commander's Confined Space Program as required by law.

SUMMARY OF REVISION

This revision has been globally modified to refine safety procedures. An (*) indicates revision from previous edition. An (*) indicates revision from previous edition.

1. Scope: This program provides the minimum safety requirements to be followed while entering, exiting, and working in confined spaces. This program is applicable to, but not limited to, any tank, boilers, vaults, wells, manholes, lift stations, fuel/water separators, tunnels, trenches, and pits. This program shall govern safety requirements for confined space entry. Safety, Fire Department and Bioenvironmental Engineering will determine individual physical limitations, hazards, and monitoring requirements. Requirements and procedures contained herein are considered mandatory.

*1.1. Entry into confined spaces on military specific equipment, e.g. Fuel Cell, will be governed by the applicable Technical Order or local operating instructions.

2. Application: This program is applicable to all personnel assigned to Willow Grove ARS, who in the performance of their duties, either on or off the installation, may be required to enter a confined space.

3. Terms and Definitions: The following terms and definitions apply to the program. Definitions are taken from AFOSH Stnd 91-25, ANSI Stnd Z117.1-1989, and 29 CFR 1910.146.

3.1. Attendant: An individual stationed outside the permitted space whom monitors the authorized entrants and performs the attendant's duties as assigned in this instruction.

3.2. Appendix: Checklist for Group II Non-Permit Confined Spaces.

3.3. Attachment: Work site-specific requirements attached.

3.4. Blinding/blanking: Inserting a solid barrier across the open end of a pipe leading into or out of the confined space, and securing the barrier in such a way as to prevent leakage of material into the confined space.

3.5. Confined space: An enclosed area that has the following characteristics: 1) its primary function is something other than human occupancy; 2) has restricted entry and exit; 3) may contain potential or known hazards; and 4) large enough, and so configured, that an employee can bodily enter and perform assigned work.

3.6. Double block and bleed: A method used to isolate a confined space from a line, duct or pipe by physically closing two in-line valves on a piping system and opening a "vented-to-atmosphere" valve between them.

3.7. Egress: The act of exiting or leaving.

3.8. Emergency: Any occurrence (including failure of hazard control or monitoring equipment) or event, internal or external to the confined space, which could endanger entrants.

3.9. Engulfment: The surrounding, capturing, or both, of a person by divided particulate matter or liquid.

3.10. Entrant: An employee who is authorized to enter a confined space. Authorized entrants may rotate duties serving as attendants if the permit program and the entry permit so state. The entrant must have all the proper training before entering a confined space.

3.11. Entry: The action by which a person passes through an opening into a confined space. Entry is considered to have occurred as soon as any part of the body breaks the plane of an opening into the space.

3.12. Entry permit: A document that is provided to allow and control entry into a permit-required space and contains the information about the location, type of work to be done, and hazards in the space. (AF Form 1024)

3.16. Entry permit system: An authorization and approval in writing that specifies who is entering the space, the location of the space, work to be done, existing hazards and signatures from Fire, Safety and Bioenvironmental, and protective measures taken. (Filling out AF Form 1024)

3.17. Group I confined spaces: Spaces requiring permit entry.

3.18. Group II confined spaces: Spaces not requiring a permit to enter, but will require initial monitoring where identified.

3.19. Hazard evaluation: A process to assess the severity of known or potential hazards in the confined space.

3.20. Hazardous atmosphere: An atmosphere that may expose employees to the risk of death, impairment of the ability to self-rescue, injury or acute illness from flammable gas, vapor, or mist in excess of 10% of its LFL, oxygen concentration below 19.5% or above 23.5%, toxic exposure, and any other atmospheric condition that is IDLH.

3.21. Hot work: Work within a confined space that produces arc, sparks, flames, heat, or other sources of ignition.

3.22. Immediately dangerous to life or health (IDLH): Any condition which poses an immediate threat of loss of life, or may result in irreversible or immediate severe health effects, eye damage or irritation, or other conditions which could impair escape from the permit space.

3.23. Inerting: Making the atmosphere of a space nonflammable, non-explosive, or chemically non-reactive by means of displacement or dilution.

3.24. Isolation: The separation of a space from unwanted forms of energy, which could be a serious hazard to confined space entrants. This can be accomplished by implementing lockout/tagout.

3.25. Lower flammable limit (LFL): The lower flammable limit is 10%.

3.26. Lockout/tagout: Placing a lock and tag on the energy-isolating device to prevent unexpected start-up.

- 3.27. Non-permit-required confined space: Permit not required but does require atmospheric testing and maintaining of record (appendix).
- 3.28. Oxygen deficient atmosphere: Atmosphere containing less than 19.5% oxygen.
- 3.29. Oxygen enriched atmosphere: Atmosphere containing more than 23.5% oxygen.
- 3.30. Permit-required confined space: A confined space which has a 10% or more lower flammable limit (LFL) and/or oxygen level below 19.5% or above 23.5% and/or a high toxicity level prior to purging or ventilating.
- 3.31. Permissible exposure limit (PEL): The allowable air contaminant level established by the Dept. of Labor, Occupational Safety and Health Administration.
- 3.32. Qualified person: A person, who by reason of training, education, and experience is knowledgeable in the operation to be performed and is competent to judge the hazards involved.
- 3.33. Retrieval line: A line attached to an authorized entrant to assist in a non-entry rescue. To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an authorized entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant.
- 3.34. Shall: Denotes a mandatory requirement.
- 3.35. Should: A recommendation that is a sound safety and health practice. It does not denote a mandatory requirement.
- 3.36. Threshold limit value (TLV): The recommended air contaminant level established by the American Conference of Governmental Industrial Hygienists (ACGIH).
- 3.37. Toxic Atmosphere: An atmosphere containing a concentration of a substance above the published or otherwise known safe levels.
- 3.38. Will: Denotes a mandatory requirement.
- 3.39. Occupational Exposure Limit (OEL): The Bioenvironmental Engineer (BE) will determine the OEL using the most stringent limits from the following references: OSHA PELs, ACGIH TLVs, and other AFOSH Standards. If none of these references provide a limit to use, BE will request guidance through the MAJCOM/SG to HQ AFMOA/SGPA.

4. Duties and Responsibilities.

4.1. Functional Managers and Supervisors

4.1.1. Each functional manager, supervisor, and employee will ensure this program is enforced. Personal safety is of utmost importance. At no time will safety be jeopardized for the accomplishment of the task. Further it is their responsibility to ensure that everyone involved in the entry of any confined space is briefed and understands his/her role in the job task. Personnel shall be made aware of the hazards involved with confined spaces requiring entry, equipment to be used, precautions to be observed, and that no entry will be made if a condition exists which would constitute a safety hazard.

4.1.2. Supervisors or persons who authorize the entry will, in coordination with Safety, Fire Prevention, and Bioenvironmental Engineering, evaluate and conduct the necessary tests to determine potential hazards for each identified confined space. The evaluation shall include the following:

4.1.2.1. Physical characteristics, barriers and the location of the space.

4.1.2.2. Existing or potential atmospheric conditions to include; oxygen level, toxicity, and combustibility.

4.1.2.3. Risk of engulfment by bulk materials or liquids.

4.1.2.4. Future, current and past uses of the space that may adversely affect the atmosphere.

4.1.2.5. Any other physical or special hazards associated with the space such as: mechanical hazards, temperature extremes, and electrical shock.

4.1.2.6. If usage or conditions associated with entry change within the space, it is the responsibility of the workplace supervisor to notify Safety, Bioenvironmental, and Fire of the change for reevaluation.

4.1.2.7. Each supervisor/foreman having personnel required to enter a confined space shall personally supervise all tasks that require entry into Group I permit-required confined space.

4.1.2.8. Supervisors will document maintenance and user calibration of atmospheric testing equipment. Also, maintain a record of all atmospheric testing accomplished prior to working in a Group II. (Encl.) All instruments will be calibrated at least monthly, and will be zeroed before each use.

4.1.2.9. Supervisors will conduct annual training and ensure understanding of confined spaces. Document training on AF Form 55s.

*4.1.2.10. Upon completion of the task, the supervisor will terminate the entry and return the permit to the Safety Office. When conditions arise where the hazards have increased to the individual in the confined space, the supervisor will terminate operation, notify the Safety and Bioenvironmental offices and prevent entry until conditions can be made for safe entry again.

4.1.2.11. Supervisors will remove unauthorized individuals who enter or may attempt to enter.

4.1.2.12. Supervisors will verify that the fire department is available for rescue when workers are in a permit-required confined space.

4.1.2.13. Supervisors will determine, with the assistance of Safety, Bioenvironmental, and the Fire department, whether the permit-required confined space can be changed to a non-permit-required confined space.

4.1.2.14. Supervisors will ensure that all Personal Protective Equipment is available, used, maintained and inspected with proper documentation.

4.2. Authorized Entrants: Workers entering confined spaces will:

4.2.1. Fully understand all hazards including signs or symptoms and consequences of exposure, procedures, safeguards, and emergency egress/rescue procedures before signing on the Confined Space Entry Permit (AF Form 1024).

4.2.2. Follow all safe work procedures and use equipment properly.

4.2.3. Notify the attendant and/or supervisor when hazards exist that have not been corrected.

4.2.4. Communicate with the attendant as necessary.

4.2.5. Notify attendant when a change in condition occurs while working in a confined space, including signs or symptoms of exposure to a dangerous situation or entrant detecting a prohibited condition.

4.2.6. Be trained in Hazard Communication, Lockout/Tagout and Confined Spaces.

4.2.7. Exit the permit-required confined space immediately when ordered by the attendant or supervisor, signs/symptoms of exposure appear, and the evacuation alarm is activated.

4.3. Attendants will:

4.3.1. Remain outside the confined space and at NO TIME attempt to make a rescue involving entry into the space.

4.3.2. Maintain continuous communications with entrants within the confined space by an approved means of communication.

4.3.3. Have authority to order entrants to exit the confined space at the first indication of unexpected hazards, change in behavior, prohibited conditions, changes outside of the space which can affect the inside of the confined space, or when workers are not performing their work duties safely.

4.3.4. Remain at the entrance of the confined space and never leave unless replaced by an equally qualified individual.

4.3.5. Keep unauthorized personnel away from the entrance of the space and ensure no smoking is allowed within fifty feet of the opening.

4.3.6. Summon rescue and other emergency services immediately.

4.3.7. Performs no other duties.

4.3.8. Be aware of behavioral effects of hazardous exposure.

4.3.9. Know the hazards including signs/symptoms and consequences of exposure.

4.4. Wing safety will:

4.4.1. Coordinate with Bioenvironmental and Navy Fire Dept. to identify, evaluate and conduct the necessary tests to determine the potential hazards for each confined space.

4.4.2. Maintain documentation identifying each confined space and the evaluation.

4.4.3. Reevaluate all confined spaces annually or when repairing spaces which require welding (which may cause a change in the atmosphere), reevaluate in coordination with Bioenvironmental Engineering and Fire Department.

4.4.4. Serve as the focal point for the implementation of this program.

4.4.5. Approve AF Forms 1024 for all permit-required confined spaces.

4.4.6. Conduct initial background training and ensure understanding of confined spaces.

4.5. Fire Protection services will:

4.5.1. Provide normal support for confined space rescue.

4.5.2. Assist Safety and Bioenvironmental during evaluation and identification of confined spaces.

4.5.3. Conduct rescue training for entrants and attendants needing rescue training (Fuel Cell Workers).

4.5.4. Assist in determining atmospheric monitoring.

4.5.5. Sign off on AF Form 1024. (NOTE: This is not an authorization. This is to ensure that the Fire Dept. is aware that someone is entering a Permit-Required Confined Space and that they will be available for rescue, if needed).

4.6. Bioenvironmental Engineering will:

4.6.1. Conduct Respirator Training and fit testing.

4.6.2. Recommend proper respiratory and other protective clothing as necessary.

4.6.3. Provide local training on the use, calibration, and care of atmospheric testing and monitoring equipment.

4.6.4. Assist Safety and Fire during evaluation and identification of confined spaces.

4.6.5. Assist in determining atmospheric monitoring.

4.6.6. Sign off on AF Form 1024.

5. Confined Space Groups (GROUPS I and II).

5.1. Group I Confined Space: A permit required confined spaces. An AF Form 1024 shall be filled out and signed off by site supervisor/requesting official, Bioenvironmental, Fire Services, Functional Manager, Safety, entrants and attendants prior to entry.

*5.1.1. Safety, Fire, and Bioenvironmental shall be notified prior to entry into a Group I confined space.

5.1.2. Monitoring shall be continuous throughout the entry of a Group I confined space.

5.1.3. An attendant shall be present and use communication at all times during entry of a Group I confined space. Some types of communication are radios, talking, or rope tugs.

5.1.4. Only explosion proof or intrinsically safe equipment will be used when flammable or explosive atmospheres are present or suspected.

5.1.5. Upon initial testing, if contaminants are detected and/or the space provides inadequate oxygen levels, the supervisor will ensure ventilation is provided prior to and during entry. Entry WILL NOT be authorized until controls are put into place (i.e. Ventilation) and re-monitoring is performed to ensure safe acceptable levels are identified.

5.1.6. When work performed inside the confined space has the potential to cause an IDLH atmosphere or toxic atmosphere without industrial ventilation, the supervisor will ensure ventilation is used to maintain acceptable entry/atmospheric conditions within the space.

5.1.7. If the confined space requires the opening of a ground pit/manhole, it shall be barricaded to prevent accidental entry by unauthorized personnel. At no time will the confined space be left open and unattended.

5.1.8. If conditions associated with the entry or work processes change, the permit shall be revoked until the space can be reevaluated.

5.1.9. When welding, cutting, and brazing are required, a hot work permit shall be obtained from the Navy Fire Department.

5.1.10. Welding equipment (including arc-welding units) shall remain outside of the confirmed space.

5.1.11. Continuous monitoring will be conducted while welding is taking place.

6. Atmospheric Testing: Due to the potential of hazardous conditions, atmospheric monitoring is required as to ensure safe conditions are maintained. The conditions and the nature of the work determine the frequency and types of testing. The continuous monitoring of oxygen levels, flammable vapor levels, and toxicity levels are required for all confined space operations unless indicated on the entry permit. All data will be recorded on attachment 2 for non-permit-required confined spaces. This data will be audited annually by the Wing Safety Office.

*6.1. If applications of preservatives, paints, epoxies, solvents, etc., are to be introduced to the confined space, the permit will indicate the application. If the application is not indicated on the permit, a new permit must be issued.

*6.2. No individual will enter into a Group I and II confined space until testing is accomplished and all levels are safe for entry.

*6.3. Sampling devices will be equipped with audible or visible warning devices or both.

*6.4. A sampling device will be able to simultaneously test for oxygen and combustible gases without having to manually switch to test the different areas.

*6.5. All sampling devices will be calibrated prior to use IAW the manufacturer's specifications prior to use and will be annotated on AF Forms 2032 and 1024.

*6.6. A self-check of the sampling device will be conducted prior to sampling the confined space.

6.7. If a confined space is exited for more than thirty minutes, the space will be re-tested prior to re-entry. In addition, a self-check of the sampling device must be accomplished.

*6.8. If at anytime during the entry of a confined space, the monitor readings exceed the authorized levels, entry will not be permitted. Safety, Bioenvironmental, and Fire will be notified and the permit revoked.

7. Emergency Response and Rescue Procedures: The supervisor/foreman will plan emergency and rescue procedures consistent with the operations and conditions in the confined space.

*7.1. Emergency rescue will be performed by the Navy Fire Department personnel (Except in Fuel Cell operations). The attendant shall not attempt rescue until the fire department arrives to assist in rescue procedures.

*7.1.1. Fuel Cell emergency rescue will follow the Fuel Cell's Emergency Response Plan. The Emergency Response Plan allows for properly trained Fuel Cell Personnel, the attendant and equipment monitor/runner, to be the Initial Rescue Team.

7.2. Entry into a confined space IDLH atmosphere is prohibited.

8. Rescue Equipment: All safety belts, harnesses, life lines and straps will meet ANSI Standard Z359 and will have the manufacturer's name, identification code, and date of manufacture stamped on the equipment or on a permanently attached tag.

*8.1. All rescue equipment will be inspected by the supervisor upon initial receipt and by the individual prior to each use. The responsible supervisor will accomplish a scheduled inspection of all equipment, both in use and in storage, every six months as a minimum. The supervisor will maintain a written record of this inspection. The record will identify each

piece of equipment by part number, list its condition, and note any defects and the action taken to correct the defects. Any item not meeting the ANSI standard must be removed from service.

9. Training Requirements: The functional manager is responsible for the training of personnel required to enter a confined space and for the safety of the entire operation. Training will be in coordination with Safety, Bioenvironmental Engineering, and the Fire Department. Anyone required to enter into a confined space must be trained in confined spaces.

9.1. Training will be broken down into three areas: 1) Confined Spaces and Hazard Recognition; 2) Atmospheric Monitoring and Respirator Training; and 3) Rescue Training. All training will be given annually.

9.2. Training will be documented on the Employee Safety and Health Record (AF Form 55) as Confined Space Training.

10. Warning Signs and Symbols: Each permit-required confined space will have a sign, placard or other effective means (education and training) to identify the location of a confined space and to prevent unauthorized entry.

10.1. When working in a confined space, signs and symbols will be used to indicate there is work in progress within the confined space. Traffic cones and barricades that prevent individuals from entering the confined space shall be in place. At NO TIME shall a confined space be left open while unattended.

11. Group I Confined Space Requiring Permits. The following is a list of Group I Confined Spaces Requiring Entry Permits:

*11.1. Lift Station/Barminuator, Lower Level, Basewide Bldg 206, 232, 235/236 - Space #1

11.2. Oil/Water Separators, Basewide - Space #2

11.3. Storage Tanks 207/224, Fuel Farm - Space #3

11.4. Electrical/Communication Manholes, Basewide - Space #4

11.5. Stormdrain Manholes, Basewide - Space #5

11.6. Sewage Manholes, Basewide - Space #6

11.7. Heating Plant Boilers, Bldg 212, 2nd Flr - Space #7

11.8. Expansion Tanks, Bldg 212, 3rd Flr - Space #8

11.9. Water Tank, Bldg 210 - Space #12

11.10. Fuel Tanks #221/225, Behind Bldg 212 - Space #11

11.11. LANS Vaults, Basewide - Space #14

12. Group II Confined Space Not Requiring Permits. The following is a list of Group II Confined Spaces not requiring Entry Permits:

12.1. Fuel Pump Rm., Bldg 208 - Space #9

12.2. Crawl Space, Bldg 203 - Space #10

12.3. Hangar 230, Trench - Space #13

13. The Confined Space Program Team (CSPT): The CSPT members are: Wing Commander, Ground Safety Manager, Bio Environmental Engineer, Fuel Cell Repair Supervisor, Fuels Distribution Supervisor, Civil Engineer Operations Supervisor and NAS Fire Department Fire Chief as appointed by letter of designation.

14. Annual Review. This program will be reviewed annually. Organizations utilizing Confined Space Entry will be informed if there are changes to 29CFR1910.146 or AFOSH Standard 91-25, which necessitate a change to the program.

FREDDIE M. HEGLER, Col, USAFR
Commander

Attachment 1

Table 1. 913 AW Willow Grove ARS Confined Space – Lift Station

DATE OF SURVEY: 1 Oct 96		TYPE OF SPACE: Sewage Lift Stations	
SPACE NUMBER: 1	GROUP: 1		PERMIT TYPE: Required
LOCATION: Basewide Lift/Pump Station and Barminuator Section			
FREQUENCY OF ENTRY: As Needed		OPR FOR ENTRY: Navy/Contractor/CE	
REASON FOR ENTERING SPACE: Equipment Monitoring and Maintenance			
PPE REQUIRED: Fall Protection Devices, Gloves, Footwear, Hearing Protection			
SPECIAL INSTRUCTIONS: Initial and Continuous Air Monitoring			
AIR MONITORING EQUIPMENT: Multi-Gas Meter			
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%, LFL: 10%, CO: 0-25 PPM, H2S: 0-10 PPM			
VENTILATION REQUIRED: Yes			
RESCUE EQUIPMENT: Lifeline, Retrieval Device			
ADDITIONAL INFORMATION: Slip Hazard			
ATTENDANT REQUIRED: Yes			
MEANS OF ISOLATION: Lockout/Tagout			
POSSIBLE HAZARDS: Methane, H2S, Oxygen Deficiency, Noise			

Table 2. 913 AW Willow Grove ARS Confined Space – Oil/Water Separator

DATE OF SURVEY: 1 Oct 96		TYPE OF SPACE: Oil/Water Separator	
SPACE NUMBER: 2	GROUP: 1		PERMIT TYPE: Required
LOCATION: Basewide			
FREQUENCY OF ENTRY: As Needed		OPR FOR ENTRY: CE/POL/Contractor	
REASON FOR ENTERING THE SPACE: Maintenance and draining water out of the vault			
PPE REQUIRED: Gloves, Rubber Boots			
SPECIAL INSTRUCTIONS: Initial/Continuous Air Monitoring			
AIR MONITORING EQUIPMENT: Multi-Gas Meter			
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%, LFL: 10%, CO: 0-25PPM, H2S: 0-10PPM			
VENTILATION REQUIRED: Yes			
RESCUE EQUIPMENT: Retractable Lifeline, Gloves			
ADDITIONAL INFORMATION: None			
ATTENDANT REQUIRED: Yes			
MEANS OF ISOLATION: Lockout/Tagout			
POSSIBLE HAZARDS: Oxygen Deficiency, Slip Hazards, JP-8 Fuel			

Table 3. 913 AW Willow Grove ARS Confined Space – Fuel Pump Room

DATE OF SURVEY: 1 Oct 96		TYPE OF SPACE: Fuel Pump Room
SPACE NUMBER: 9	GROUP: II	PERMIT TYPE: Not Required
LOCATION: Building 208		
FREQUENCY OF ENTRY: As Needed		OPR FOR ENTRY: CE/POL/Contractor
REASON FOR ENTERING THE SPACE: Maintenance and normal fuel operations		
PPE REQUIRED: Hearing Protection		
SPECIAL INSTRUCTIONS: Record Data on Attachment		
AIR MONITORING EQUIPMENT: Multi-Gas Meter		
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%, LFL: 10%		
VENTILATION REQUIRED: As Necessary		
RESCUE EQUIPMENT: None		
ADDITIONAL INFORMATION: Configuration		
ATTENDANT REQUIRED: As Necessary		
MEANS OF ISOLATION: Lockout/Tagout		
POSSIBLE HAZARDS: JP-8, Configuration, Noise		

Table 4. 913 AW Willow Grove ARS Confined Space – POL Tanks

DATE OF SURVEY: 1 Oct 96		TYPE OF SPACE: POL Tanks	
SPACE NUMBER: 3	GROUP: 1		PERMIT TYPE: Required
LOCATION: (2) Storage Tanks #207, #224			
FREQUENCY OF ENTRY: As Needed		OPR FOR ENTRY: CE, Contractor	
REASON FOR ENTERING THE SPACE: Maintenance and Cleaning			
PPE REQUIRED: Hard Hat, Gloves and Boots, Respirator			
SPECIAL INSTRUCTIONS: Initial Continuous Monitoring			
AIR MONITORING EQUIPMENT: Multi-Gas Meter			
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%, LFL: 10%, CO: 0-25PPM, H2S: 0-10PPM			
VENTILATION REQUIRED: Yes			
RESCUE EQUIPMENT: Retractable Lifeline Setup with Full Body Harness			
ADDITIONAL INFORMATION: None			
ATTENDANT REQUIRED: Yes			
MEANS OF ISOLATION: Drain all Fuel, Blanking			
POSSIBLE HAZARDS: Oxygen Deficiency, LFL's, JP-8 Fuel, Slip Hazard			

Table 5. 913 AW Willow Grove ARS Confined Space – Crawl Space

DATE OF SURVEY: 1 Oct 96		TYPE OF SPACE: Crawl Space	
SPACE NUMBER: 10	GROUP: II	PERMIT TYPE: Not Required	
LOCATION: Under Building 203			
FREQUENCY OF ENTRY: As Needed		OPR FOR ENTRY: CE/Contractor	
REASON FOR ENTERING THE SPACE: Maintenance/Repair			
PPE REQUIRED: Eye Protection, Hard Hat and Gloves			
SPECIAL INSTRUCTIONS: Record Data on Attachment			
AIR MONITORING EQUIPMENT: Multi-Gas Meter			
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%, LFL: 10%, CO: 0-25PPM, H2S: 0-10PPM			
VENTILATION REQUIRED: As Necessary			
RESCUE EQUIPMENT: None			
ADDITIONAL INFORMATION: Configuration			
ATTENDANT REQUIRED: No			
MEANS OF ISOLATION: Lockout/Tagout			
POSSIBLE HAZARDS: Animals, Rodents, Electrical, H2S			

Table 6. 913 AW Willow Grove ARS Confined Space – Elec/Comm Manhole

DATE OF SURVEY: 1 Oct 96		TYPE OF SPACE: Elec/Comm Manhole	
SPACE NUMBER: 4	GROUP: 1		PERMIT TYPE: Required
LOCATION: Basewide			
FREQUENCY OF ENTRY: As Needed		OPR FOR ENTRY: CE/CF/Contractor/270th	
REASON FOR ENTERING THE SPACE: Maintenance/Repair			
PPE REQUIRED: Gloves, Rubber Boots, Hard Hat			
SPECIAL INSTRUCTIONS: Initial/Continuous Air Monitoring			
AIR MONITORING EQUIPMENT: Multi-Gas Meter			
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%, LFL: 10%, CO: 0-25PPM, H2S: 0-10PPM			
VENTILATION REQUIRED: Yes			
RESCUE EQUIPMENT: Retractable Lifeline			
ADDITIONAL INFORMATION: None			
ATTENDANT REQUIRED: Yes			
MEANS OF ISOLATION: Lockout/Tagout			
POSSIBLE HAZARDS: Electrical Shock, H2S, Oxygen Deficiency			

Table 7. 913 AW Willow Grove ARS Confined Space – Stormdrain/Manholes

DATE OF SURVEY: 1 Oct 99		TYPE OF SPACE: Stormdrain/Manholes	
SPACE NUMBER: 5	GROUP: I		PERMIT TYPE: Required
LOCATION: Basewide			
FREQUENCY OF ENTRY: As Needed		OPR FOR ENTRY: CE/Contractor	
REASON FOR ENTERING THE SPACE: Maintenance/Repairs			
PPR REQUIRED: Gloves, Rubber Boots, Hard Hat			
SPECIAL INSTRUCTIONS: Initial/Continuous Air Monitoring			
AIR MONITORING EQUIPMENT: Multi-Gas Meter			
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%, LFL: 10%, CO: 0-25PPM, H2S: 0-10PPM			
VENTILATION REQUIRED: Yes			
RESCUE EQUIPMENT: Retractable Lifeline			
ADDITIONAL INFORMATION: None			
ATTENDANT REQUIRED: Yes			
MEANS OF ISOLATION: Lockout/Tagout			
POSSIBLE HAZARDS: Flooding, Electrical Shock, Slips/Falls, Drowning, Methane, Oxygen Deficiency, Carbon Monoxide, H2S			

Table 8. 913 AW Willow Grove ARS Confined Space – Sewage Manholes

DATE OF SURVEY: 1 Oct 96		TYPE OF SPACE: Sewage Manholes	
SPACE NUMBER: 6	GROUP: 1		PERMIT TYPE: Required
LOCATION: Basewide			
FREQUENCY OF ENTRY: As Needed		OPR FOR ENTRY: CE/Contractor	
REASON FOR ENTERING THE SPACE: Maintenance/Repair			
PPR REQUIRED: Gloves, Rubber Boots, Hard Hat			
SPECIAL INSTRUCTIONS: Initial and Continuous Air Monitoring			
AIR MONITORING EQUIPMENT: Multi-Gas Meter			
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%, LFL: 10%, CO: 0-25PPM, H2S: 0-10PPM, METHANE			
VENTILATION REQUIRED: Yes			
RESCUE EQUIPMENT: Retractable Lifeline			
ADDITIONAL INFORMATION: None			
ATTENDANT REQUIRED: Yes			
MEANS OF ISOLATION: Lockout/Tagout			
POSSIBLE HAZARDS: Slips/Falls/Flooding/Methane/H2S/Carbon Monoxide			

Table 9. 913 AW Willow Grove ARS Confined Space – Boilers

DATE OF SURVEY: 1 Oct 96		TYPE OF SPACE: Boilers	
SPACE NUMBER: 7	GROUP: 1		PERMIT TYPE: Required
LOCATION: Second Floor in Building 212			
FREQUENCY OF ENTRY: As Needed		OPR FOR ENTRY: Contractor	
REASON FOR ENTERING THE SPACE: Maintenance/Repair			
PPR REQUIRED: Gloves, Rubber Boots, Hard Hat			
SPECIAL INSTRUCTIONS: Initial/Continuous Air Monitoring			
AIR MONITORING EQUIPMENT: Multi-Gas Meter			
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%, CO: 0-25PPM			
VENTILATION REQUIRED: Yes			
RESCUE EQUIPMENT: Retractable Lifeline			
ADDITIONAL INFORMATION: None			
ATTENDANT REQUIRED: Yes			
MEANS OF ISOLATION: Lockout/Tagout			
POSSIBLE HAZARDS: Configuration/Oxygen Deficiency			

Table 10. 913 AW Willow Grove ARS Confined Space – Expansion Tank

DATE OF SURVEY: 1 Oct 96		TYPE OF SPACE: Expansion Tank	
SPACE NUMBER: 8	GROUP: 1		PERMIT TYPE: Required
LOCATION: Third Floor in Building 212			
FREQUENCY OF ENTRY: As Needed		OPR FOR ENTRY: Contractor	
REASON FOR ENTERING THE SPACE: Maintenance/Repairs			
PPR REQUIRED: Gloves, Rubber Boots, Hard Hat, Goggles			
SPECIAL INSTRUCTIONS: Initial/Continuous Air Monitoring			
AIR MONITORING EQUIPMENT: Multi-Gas Meter			
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%, LFL: 10%, CO: 0-25PPM			
VENTILATION REQUIRED: Yes			
RESCUE EQUIPMENT: Retractable Lifeline			
ADDITIONAL INFORMATION: None			
ATTENDANT REQUIRED: Yes			
MEANS OF ISOLATION: Lockout/Tagout			
POSSIBLE HAZARDS: Configuration, Exposure to Caustic Materials			

Table 11. 913 AW Willow Grove ARS Confined Space – Fuel Tanks

DATE OF SURVEY: 1 Oct 96		TYPE OF SPACE: Fuel Tanks	
SPACE NUMBER: 11	GROUP: 1		PERMIT TYPE: Required
LOCATION: Behind Building 212 – Fuel Tanks 221/225			
FREQUENCY OF ENTRY: Maintenance and Repair		OPR FOR ENTRY: CE/Contractor	
REASON FOR ENTERING THE SPACE: Maintenance/Repair			
PPE REQUIRED: Gloves, Rubber Boots, Goggles			
SPECIAL INSTRUCTIONS: Initial/Continuous Monitoring			
AIR MONITORING EQUIPMENT: Multi-Gas Meter			
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%, LFL: 10%, CO: 0-25PPM, H2S: 0-10PPM			
VENTILATION REQUIRED: Yes			
RESCUE EQUIPMENT: Retractable Lifeline			
ADDITIONAL INFORMATION: None			
ATTENDANT REQUIRED: Yes			
MEANS OF ISOLATION: Lockout/Tagout			
POSSIBLE HAZARDS: Configuration, Oxygen Deficiency, LFL's, Slip Hazard			

Table 12. 913 AW Willow Grove ARS Confined Space – Water Tank #210

DATE OF SURVEY: 15 Jun 99		TYPE OF SPACE: Water Tank #210	
SPACE NUMBER: 12	GROUP: 1		PERMIT TYPE: Required
LOCATION: Wright Brothers Street			
FREQUENCY OF ENTRY: As Needed		OPR FOR ENTRY: CE/Contractor	
REASON FOR ENTERING THE SPACE: Maintenance and Cleaning			
PPR REQUIRED: Hard Hat, Gloves			
SPECIAL INSTRUCTIONS: Initial Monitoring			
AIR MONITORING EQUIPMENT: Multi-Gas Meter			
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%			
VENTILATION REQUIRED: As Needed			
RESCUE EQUIPMENT: Retractable Lifeline with Full Body Harness			
ADDITIONAL INFORMATION: None			
ATTENDANT REQUIRED: Yes			
MEANS OF ISOLATION: Lockout/Tagout, Drain all water			
POSSIBLE HAZARDS: Oxygen deficiency, Slip Hazard, Drowning			

Table 13. 913 AW Willow Grove ARS Confined Space – Hangar Trench

DATE OF SURVEY: 15 Jun 99		TYPE OF SPACE: Hangar Trench	
SPACE NUMBER: 13	GROUP: II		PERMIT TYPE: Not Required
LOCATION: Hangar 230			
FREQUENCY OF ENTRY: As Needed		OPR FOR ENTRY: CE/Contractor	
REASON FOR ENTERING THE SPACE: Calibrate Explosive Meter			
PPR REQUIRED: Gloves, Eye Protection			
SPECIAL INSTRUCTIONS: Initial Air Monitoring, Record Data on Attachment			
AIR MONITORING EQUIPMENT: Multi-Gas Meter			
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%, LFL: 10%, CO: 0-25PPM			
VENTILATION REQUIRED: Yes			
RESCUE EQUIPMENT: None			
ADDITIONAL INFORMATION: None			
ATTENDANT REQUIRED: Yes			
MEANS OF ISOLATION: None			
POSSIBLE HAZARDS: Slip Hazard, Oxygen Deficiency, LFL's, JP-8			

Table 14. 913 AW Willow Grove ARS Confined Space – LANS Vaults

DATE OF SURVEY: 15 Jun 99		TYPE OF SPACE: LANS Vaults	
SPACE NUMBER: 14	GROUP: I		PERMIT TYPE: Required
LOCATION: Basewide			
FREQUENCY OF ENTRY: As Needed		OPR FOR ENTRY: CE/CF/Contractor/270th	
REASON FOR ENTERING THE SPACE: Maintenance and Inspection			
PPR REQUIRED: Hard Hat			
SPECIAL INSTRUCTIONS: Initial Air Monitoring			
AIR MONITORING EQUIPMENT: Multi-Gas Meter			
AIR MONITORING RESULTS REQUIRED: O2: 19.5-23.5%, CO: 0-25PPM			
VENTILATION REQUIRED: Yes			
RESCUE EQUIPMENT: Retractable Lifeline with Body Harness			
ADDITIONAL INFORMATION: None			
ATTENDANT REQUIRED: Yes			
MEANS OF ISOLATION: Lockout/Tagout			
POSSIBLE HAZARDS: Slip Hazard, Oxygen Deficiency, Carbon Monoxide			

Attachment A2. GROUP II (NON-PERMIT) CONFINED SPACE CHECKLIST

DATE: _____ **LOCATION:** _____

LEL READING: _____ **OXYGEN READING:** _____ **TOXIC:** _____

BY WHOM (sign):

ENTRANT (sign):

WORK PERFORMED:

TIME ENTERED: _____ **AM/PM**

DATE: _____ **LOCATION:** _____

LEL READING: _____ **OXYGEN READING:** _____ **TOXIC:** _____

BY WHOM (sign):

ENTRANT (sign):

WORK PERFORMED:

TIME ENTERED: _____ **AM/PM**

DATE: _____ **LOCATION:** _____

LEL READING: _____ **OXYGEN READING:** _____ **TOXIC:** _____

BY WHOM (sign):

ENTRANT (sign):

WORK PERFORMED:

TIME ENTERED: _____ **AM/PM**