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## **ORGANIZATION**

## ORGANIZATION

The Kent County Wastewater Treatment Facility has many “Confined Spaces” within our facility and areas of responsibilities. These spaces are integral to our operations. However, we recognize that sometimes it may be dangerous when employees must enter the spaces to perform maintenance, cleaning or to perform other types of work.

To help protect our employees from accidents and injury in these situations, as well as to comply with the OSHA “Permit-required Confined Spaces” Standard, the facility has created a “Permit-required Confined Space Program”.

To oversee the development of this program, as well as make sure it is carried out on an on-going basis, we have set up a “Confined Space” Committee. This committee is composed of the following individuals:

1 **R. Betschel/K. Powell**

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2 **J. Newton**

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3 **W. Vincent**

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4 **M. Harrington**

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5 **D. Whitney**

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**Specifically, the Committee’s responsibilities are as follows:**

- Oversees the development of our facility’s “Permit-required Confined Space Program”.
- Assigns responsibilities within the program to selected employees as needed.
- Reviews any Confined Space Entry operations when there is reason to believe that the program did not provide employees with adequate protection.
- Revises the program to correct any deficiencies that are found to exist.
- Reviews the program at least annually and revises it, as necessary, to ensure that employees are adequately protected from Confined Space hazards. (The dates of these reviews are recorded on the following page.)

***“PERMIT-REQUIRED CONFINED SPACE PROGRAM” REVIEWS***

To keep our “Permit-required Confined Space Program” current, and make sure it protects our employees from Confined Space hazards, Confined Space Entry Committee Reviews the program on at least an annual basis. The dates of our program reviews are noted below.

**DATE**

**SIGNATURE OF COMMITTEE**

**MEMBER VERIFYING REVIEW**

**October 19, 2009** \_\_\_\_\_

**R. Betschel** \_\_\_\_\_

\_\_\_\_\_

**K. Powell** \_\_\_\_\_

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## **CONFINED SPACE INFORMATION**

We recognize that gathering information and doing other preparation is essential to developing our program. In fact, we feel that it is so important that we have incorporated these preparatory steps into the program itself. This allows us to have a single document addressing all the Confined Space activities at our facility.

The first thing we did was to survey our facility, identify any Confined Spaces, and create a “profile” of each space describing its location, what type of space it is, entrances and exits, existing hazards, and so on. This information was compiled and listed using the forms on the following pages. M. Harrington & W. Vincent are responsible for seeing that this work was performed and that the information is kept up-to-date.

As part of this effort, any hazards associated with the space were identified and evaluated (performing testing when necessary for things such as oxygen content, toxic contaminants, etc.). We also determined what steps would be needed to isolate the space (such as locking or tagging out equipment, installing “blanks” in piping, etc.).

This information was noted on each space’s “profile”. Acceptable entry conditions were determined for each space and the actions that needed to be taken to obtain these conditions (such as inerting or ventilating the atmosphere, purging or flushing the space, etc.) were also noted on the profile.

The Confined Space Committee then reviewed the information about each space in our facility. Based on the type of Confined Space Entry operation that we felt would be undertaken for each space, we determined whether our employees would perform these operations or whether we would have them done by an outside contractor.

REFER TO “APPENDIX A” FOR LIST OF;

CONFINED SPACE AREA’S SURVEYED

CONFINED SPACE - DESIGNATIONS

CONFINED SPACE GROUPING

## **CLASSIFYING CONFINED SPACES**

At the same time, with all the information we had accumulated we were able to apply OSHA's definitions of the three types of Confined Spaces covered by the regulation and determine exactly what type of space each of our spaces was:

“Non-permit”

“Atmosphere Hazards Only”

“Permit-required”

The classifications were then recorded on each Confined Space Profile. If the space was determined to be a “Non-permit Space” the form on the following page was completed for that space and forwarded to our Confined Space Coordinator for future reference.

M. Harrington & W. Vincent are responsible for classifying any new Confined Spaces that are created in our facility, as well as to periodically review our “Non-permit” spaces if there are changes in their use of configuration that might increase the hazards to employees entering the spaces (Entrants).

**“NON-PERMIT CONFINED SPACE”..... SAFETY CERTIFICATION**

The following Confined Space has been reclassified as a “Non-permit Confined Space”. All hazards within the space have been eliminated.

Location: **NOT APPLICABLE AT THIS TIME**

Description: \_\_\_\_\_

Date

Certifying Employee

\_\_\_\_\_ (print name) \_\_\_\_\_ (signature)

**HAZARDS ORIGINALLY EXISTING IN THE SPACE**

**HOW ELIMINATED**

**CHECKED**

(Certifying employee must initial)

<p>0 _____</p> <p>_____</p>	<p>0 _____</p> <p>_____</p>	<p>_____</p> <p>_____</p>
<p>0 _____</p> <p>_____</p>	<p>0 _____</p> <p>_____</p>	<p>_____</p> <p>_____</p>
<p>0 _____</p> <p>_____</p>	<p>0 _____</p> <p>_____</p>	<p>_____</p> <p>_____</p>

**TESTS PERFORMED FOR ATMOSPHERIC HAZARDS (IF REQUIRED)**

EMPLOYEES  
INITIALS

- 0 Oxygen content greater than 19.5% and less than 23.5%. \_\_\_\_\_
- 0 No flammable gas or vapor levels exceed permissible limits. \_\_\_\_\_
- 0 Toxic air contaminants do not exceed permissible levels. \_\_\_\_\_

**EQUIPMENT LOG**

## ***EQUIPMENT INVENTORIES***

M. Harrington & W. Vincent are assigned to take inventory of the following types of equipment:

- ◆ Warning signs and entry barriers.
- ◆ Communication systems.
- ◆ Personal protective equipment.
- ◆ Emergency rescue equipment (both on and off-site).
- ◆ Lighting, ladders, and other equipment necessary to enter, operate in,
- ◆ and exit our spaces.

We then compared the equipment we had available with information on the “profiles” for each of our Confined Spaces. Any equipment that was called for on the Confined Space profiles that we did not have when our inventories were taken was acquired.

Once the initial inventories were conducted, all managers were notified that information regarding the acquisition of new equipment or the disposal of equipment currently on the lists must be coordinated with the Confined Space Entry Coordinator. (R. Betschel & K. Powell)



## **COMMUNICATIONS SYSTEMS/EQUIPMENT**

The following Communications Systems and Equipment are available in our facility for use during Confined Space entry operations. In addition to the equipment itself, the location within the facility is listed below. After entry operations have been completed, all equipment must be cleaned/de-contaminated and any necessary maintenance performed before it is returned to its original location.

### **COMMUNICATIONS SYSTEM/EQUIPMENT**

### **LOCATION**

Portable Radios

Main Office - Plant

(3) MSA Motorola XTS-5000

Admin Bldg, black room

(3) MSA, HCS helmet lapel

Admin Bldg, Betschel's office

Microphones (T5300 series)

Fanon megaphone

Admin Bldg, Betschel's office

## ***PERSONAL PROTECTIVE EQUIPMENT***

The following Personal Protective Equipment is available in our facility for use during Confined Space entry operations. In addition to the equipment itself, the location within the facility is specified. After entry operations have been completed, all equipment must be cleaned / decontaminated and any necessary maintenance performed before it is returned to its original location.

<b>Qty</b>	<b><u>PERSONAL PROTECTIVE EQUIPMENT</u></b>	<b><u>LOCATION</u></b>
1	Full Body Harness	Plant Store Room
5	Full Body Harness	(5) Maintenance Vehicles
1	1275 CFM Blower - Gas	Solids Handling Bldg
1	1275 CFM Blower - Electric	Solids Handling Bldg
2	Hose @ 10 feet each	Solids Handling Bldg
3	(4) Gas Atmospheric Monitor	Maintenance Vehicles
2	(4) Gas Atmospheric Monitor	Operations Room
#	Latex Gloves	Plant Store Room
#	Cotton Gloves	Plant Store Room
#	Neoprene Gloves	Plant Store Room
1	Fall Protection Lanyard	Per Maintenance Employee
1	Fall Protection Lanyard	Operations Store Room
1	Waders	Plant Store Room
1	7 Ft. Tripod with 2 way retrieval Device	Pump Station No. 3
1	7 Ft. Tripod with 2 way retrieval Device	Pump Station No. 7
3	Waders	Mech Room

**PERSONAL PROTECTIVE EQUIPMENT**

The following Emergency Rescue Equipment is available for use during Confined Space entry operations. In addition to the equipment itself, the location (within the facility or “off-site”) is specified. After entry operations have been completed, all equipment must be cleaned/decontaminated and any necessary maintenance performed before it is returned to its original location.

**QTY**

**ON-SITE EMERGENCY**

**LOCATION**

**RESCUE EQUIPMENT**

1 7 FT. Tripod with 2 Way retrieval Device

Plant Store Room

2 Full Body Harness

Operation Room

**OFF-SITE EMERGENCY  
RESCUE EQUIPMENT**

**LOCATION**



## **EMERGENCY RESCUE INFORMATION**

At the same time, we were working to determine how we would handle any emergencies that occurred during our Confined Space operations. Reinhold. Betschel was assigned the responsibility of working on these considerations and decided that we would use **in-house and off-site rescue services**

The off-site rescue groups were contacted and information about all rescue groups was documented on the next page. Additionally an on-going program has been established with these groups to periodically review information such as:

Confined Spaces located on our facility.

Hazards associated with these spaces.

Other pertinent information.

These groups are also given access to our facility to survey our Confined Spaces and to conduct rescue training as required to keep the knowledge and skills they need to perform rescues in our spaces current.

## **EMERGENCY RESCUE GROUPS**

The following Emergency Rescue Groups are “on-call” during any of the facility’s “Permit-required Confined Space” operations. In addition to the name of the group and their physical location, contact information (including telephone number, primary “contact person”, etc.) is listed.

INTERNAL GROUPS	CONTACT INFORMATION
1 Dave Whitney	(302) 698-1088
2 Kenneth Kennedy	(302) 335-3770
3 Jesse Wallace	(302) 335-3556
4 William Vincent	(302) 284-4007
EXTERNAL GOUPS	
Please see next page	

## **ENTRY PERMIT**

## ***ENTRY PERMITS***

The next thing the Confined Space Committee did was to adopt a standard “Entry Permit” format that we felt was appropriate for our facility. We chose the permit on the following page for several reasons.

First, it covers all of the information required by OSHA in their “Permit-required Confined Spaces” Standard.

Second, it sets this information up in a format that is easy to fill out as well as easy to read. Third, it presents the information in what we feel is a logical order so that it will be easy for our employees to work with.

The Committee felt that it was exceedingly important to have a well designed Entry Permit, since the Permit “guides” both the Entry Supervisor as well as our other employees through the company’s Confined Space operations.

**ENTRY PERMIT FORM**

Permit Number \_\_\_\_\_

PRCS\*     HAZARDOUS AREA    DATE ISSUED : \_\_\_\_\_    DATE CANCELED : \_\_\_\_\_  
 ORIGINAL PERMIT TO REMAIN AT JOB SITE UNTIL COMPLETION - PERMIT VALID FOR MAXIMUM (8)  
 HOURS-COMplete ALL AREA

SITE LOCATION / DESCRIPTION : \_\_\_\_\_

PURPOSE OF ENTRY : \_\_\_\_\_

<b>SUPERVISOR</b>	<b>ATTENDANTS</b>	<b>ENTRANTS</b>
<b>STAND BY / RESCUE PERSONNEL</b>	<b>CONTACT PERSON</b>	<b>PHONE NUMBER</b>
		<b>911</b>

**PREPARATION FOR ENTRY**

NOTIFICATION OF AFFECTED DEPARTMENTS     PURGE/ FLUSH     BLANK/CAP     LOCKOUT/TAGOUT  
 BARRIERS     VENTILATION     COMMUNICATION EQUIPMENT - TYPE \_\_\_\_\_

**PERSONNEL PROTECTIVE EQUIPMENT (Y) YES (N) NO (NA) NOT APPLICABLE**

<input type="checkbox"/> FULL BODY HARNESS	<input type="checkbox"/> BLOWER	<input type="checkbox"/> RETRIEVAL DEVICE
<input type="checkbox"/> TRI-POD / DAVIT ARM	<input type="checkbox"/> RESPIRATOR	<input type="checkbox"/> FALL PROTECTION
<input type="checkbox"/> LIFELINES	<input type="checkbox"/> PROTECTIVE CLOTHING	<input type="checkbox"/> LIGHTING
<input type="checkbox"/> ATMOSPHERIC MONITOR	<input type="checkbox"/> LOCKOUT / TAGOUT	<input type="checkbox"/> PROTECTIVE CLOTHING
<input type="checkbox"/> FIRE EXTINGUISHER	<input type="checkbox"/> SCBA OR SUPPLIED AIR	<input type="checkbox"/> GLOVES NEOPRENE
<input type="checkbox"/> EYE PROTECTION	<input type="checkbox"/> FOOT PROTECTION	<input type="checkbox"/> HEAD PROTECTION
<input type="checkbox"/> RESUSCITATOR	<input type="checkbox"/> FIRST AID KIT	<input type="checkbox"/> OTHER

**ATMOSPHERIC MONITORING**

ALL CONFINED SPACE LOCATION WILL BE TESTED PRIOR TO ENTRY -- ALL LOCATIONS WILL MONITOR CONTINUOUSLY

**INSTRUMENT USED**

MAKE	MODEL	SERIAL NUMBER	CALIBRATION DATE	NAME

**TESTING RECORD**

SAMPLE	ACCEPT. CONDITION	INITIAL READING	30 Minutes	1 Hour	2 HOUR	4 HOUR
OXYGEN O2	> 19.5 < 23.5 %					
LEL	< 10 %					
HYDROGEN SULFIDE H2S	= < 10 PPM					
CARBON MONOXIDE CO	= < 35 PPM					
CHLORINE Cl <sub>2</sub>	= < 1 PPM					
Sulfur Dioxide SO <sub>2</sub>	= < 5 PPM					
OTHER:						

OTHER PERMIT IF REQUIRED :  HOT WORK     LOCK OUT     OTHER TYPE

ENTRY SUPERVISOR AUTHORIZING ENTRY: \_\_\_\_\_ Contact Nu.: \_\_\_\_\_

ATTACH ADDITIONAL SHEET as needed

\*PRCS (permit required confined space)

## **DUTIES AND TRAINING PROGRAM**

## **EMPLOYEE INVOLVEMENT**

Once a permit design was approved, the Committee then turned its attention to determining which of the facility's employees would be participating in Confined Space operations as:

- 0 Entry Supervisors ( S )
- 0 Entrants ( E )
- 0 Attendants ( A )
- 0 Testers/Monitors ( T )

R. Betschel & K. Powell are assigned the responsibility of selecting these employees and setting up their training programs.

This training has been structured so that the information outlined in the following pages is covered for each of the assigned positions. Based on the requirements of the "Permit-required Confined Space" Regulation, we decided that a combination of general education and "hands-on" training was needed (an "\*" in the outline shows where we have provided employees with "site-specific" information or set up "hands-on" programs).

**Program**

**Employee**

	S	E	A	T
• Entry Program Requirements	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Procedures necessary to prevent unauthorized entry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Confined Space Identification **	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• How to identify and evaluate the hazards before employee entry <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Entry Permit Components - Understanding the Process	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Procedures and practices for safe permit space entry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Responsibilities Duties of the Attendant	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Responsibilities Duties of the Entrant <input checked="" type="checkbox"/> <input type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Responsibilities Duties of the Entry Supervisor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Understanding of Posted Signs **	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Isolation Procedures **	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Identified personal protective equipment **	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Proper Use and Inspection of Personal Protective Equipment **	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Testing and monitoring equipment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Communication equipment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Lighting equipment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Barrier for general safety	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Equipment for ingress and egress	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Rescue and emergency equipment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Ventilation Equipment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Communication procedures	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Any other information needed for the safety of the employee	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Additional permits required, i.e. hot work	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Lock Out - Tag Out Requirements **	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- Isolation Procedure \*\*



## ***TRAINING CURRICULUM***

The curriculum followed by employees filling each of the roles in our Confined Space operations is shown on the following pages. This curriculum is updated whenever procedures are modified, new equipment is obtained or other changes are made to the way we conduct our Confined Space operations.

Each employee completing the courses is issued a “Training Certification” (an example is provided after the curriculum listings). The date, course description and instructor conducting the course, is also recorded on a Training Log. Lastly, employees who are certified as Entry Supervisors, Entrants and Attendants are listed on the following pages (the dates of initial training and “retraining” sessions are also noted on the lists). Retraining is conducted for these employees whenever:

- 0** There is a change in Permit Space Operations.
- 0** Employees appear to be deviating from required procedures.

***Duties of the Entry Supervisor***

1. Know the Hazards that may be encountered during entry
  - Mode
  - Signs or Symptoms
  - Consequences of Exposure
  -
2. Verifies by Checking
  - Permit Completeness
  - Specified tests have been conducted
  - Equipment and procedures are in place before endorsing and allowing entry
3. Terminates the entry and cancels the permit as needed
4. Verifies that rescue services are in place
5. Removes unauthorized individuals
6. Maintains terms of the permit and acceptable entry conditions when responsibility for a permit space transfers from one person to another

***ENTRY SUPERVISOR CURRICULUM***

The following education and training courses are given to our employees who will be filling the role of Entry Supervisor in any of our Confined Space entry operations.

TYPE OF COURSE

(VIDEO, LECTURE, "HANDS-ON", ETC.)

COURSE TITLE/DESCRIPTION

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

## ***DUTIES OF AN AUTHORIZED ENTRANT***

### **Hazard Recognition**

- Know the Hazards
- Recognize Signs and Symptoms
- Understand the consequences of exposure
- Review the Posted Entry Permit

### **Communication**

- Maintain Contact with attendant
- Notify attendant when entrant initiates self evacuation
- Notify the attendant when entering or leaving the space

### **Protective Equipment**

- Be familiar with PPE, i.e. retrieval lines, clothing , respirator
- Use the PPE
- Be aware of the external barriers and their use

### **Self Rescue**

- Exit when ordered to do so by the attendant
- Exit when an automatic alarm sounds
- Exit when the entrant perceives danger



## ***DUTIES OF THE ATTENDANT***

- Remain Station Outside The Space During The Confined Space Operation
- Continuously Maintain An Accurate Count Of All Persons In The Confined Space
- Recognize Potential Confined Space Hazards
- Provide When Possible, Surveillance Of The Support Equipment
- Maintain Effective And Continuous Contact With The Authorized Entrants During Entry
- Order Evacuation From The Confined Space When:
  - You Observe A Condition Which Is Not Allowed In The Permit
  - You Detect Behavioral Effects Of The Potential Hazard Exposure
  - You Detect An Outside Situation Which Could Endanger The Entrants
  - You Detect An Uncontrolled Hazard In The Confined Space
- Summon Rescue Service As Soon As You Determine The Entrant Need Help To Escape the Confined Space
- Take Action As Necessary When Unauthorized Person Approach The Space
- Warn Unauthorized Persons Away From The Space
- Request The Unauthorized Person To Exit The Space Immediately If They Have Entered
- Warn The Authorized Entrant To Exit The Space And Advise The Entry Supervisor
- DO NOT ENTER THE CONFINED SPACE AND ATTEMPT A RESCUE OF THE ENTRANT
- Be Capable Of Using Any External Rescue Equipment
- Perform Any Other Rescue Duty WITHOUT Entering The Space



**ENTRY SUPERVISORS Training Log**

**Employee:** \_\_\_\_\_ **Employee #:** \_\_\_\_\_ **Department:** \_\_\_\_\_

<b>DATE</b>	<b>TYPE OF TRAINING OR COURSE DESCRIPTION</b>	<b>INSTRUCTOR</b>	<b>CERTIFICATION OF TRAINING &amp; TESTING (Instructor's Signature)</b>



*ATTENDANTS Training Log*

Employee: \_\_\_\_\_ Employee : \_\_\_\_\_ Department: \_\_\_\_\_

<b>DATE</b>	<b>TYPE OF TRAINING OR COURSE DESCRIPTION</b>	<b>INSTRUCTOR</b>	<b>CERTIFICATION OF TRAINING &amp; TESTING (Instructor's Signature)</b>



## ***CERTIFIED ENTRANTS***

The following personnel have completed the training necessary to assume the role of “Authorized Entrants” in any Confined Space entry operations that we conduct.

<b><u>PERSON</u></b>	<b><u>DATES TRAINED/RETRAINED</u></b>
A. Argo	November 12, 2009
C. Austin	November 12, 2009
M. Berry	November 12, 2009
W. Branham	July 12, 2007
N. Callaway	November 12, 2009
J. DeBloois	November 12, 2009
J. Gerardi	July 12, 2007
M. Harrington	November 12, 2009
R. Harrington	November 12, 2009
D. Melvin	November 12, 2009
M. Millman	July 12, 2007
R. Mosely	November 12, 2009
S. Mullins	November 12, 2009
S. O’Toole	November 12, 2009
M. Parker	November 12, 2009
K. Powell	July 12, 2007
W. Richards	November 12, 2009
M. Robbins	November 12, 2009
J. Schulties	November 12, 2009
J. Wallace	November 12, 2009
J. Webb	July 12, 2007
W. Woodall	November 12, 2009
W. Wootten	November 12, 2009



## **STANDARD OPERATING PROCEDURES**

## **OPERATING PROCEDURES**

Once these tasks were finished, we were ready to develop the actual procedures to be used during Confined Space operations at our facility. R. Betschel & K. Powell were assigned the responsibility of developing these procedures, as well as updating them whenever necessary to keep them current. The procedures below must be followed for any Confined Space operations conducted by our employees.

- 1** Whenever it is determined that Confined Space work must be performed at the Kent County Wastewater Facility, a request is submitted to KCW Asst Public Works Director; if the work must be performed at the pump or lift stations, a request must be submitted to the Maintenance Supervisor.
- 2** An Entry Supervisor is then appointed.
- 3** The Entry Supervisor then consults the Confined Space Log to determine what type of space the operations will be conducted in (“Non-permit”, Hazardous Atmosphere Only” or “Permit-required”).
- 4** If the space is “Non-permit” space, the Entry Supervisor selects the employees needed for the job and proceeds with the work.
- 5** If the space is a “Hazardous Atmosphere Only” space, the Entry Supervisor will have the space readied for entry by executing the tasks listed on the “Hazardous Atmosphere Only Confined Space Entry Certification” form (a sample of which is on the following page).
- 6** The Supervisor will date and sign the form when all the preparations are completed.
- 7** The Supervisor will also post the Certification form at the entrance to the space.
- 8** If the space is a “ Permit Required” confined space as identified in the confined space log the entry supervisor will have the space readied for entry and complete the entry permit.
- 9** All entries will be recorded on the confined space entry operations log prior to and at the completion of the operation.





## Operational Procedure

- CS1** The entry supervisor will then fill out the Entry Permit using the information that they find on the “profile” for the Confined Space to be entered, as well as on our Equipment Inventory Lists and other information we have compiled and maintained.
- CS2** The Entry Supervisor will select employees to participate in the Confined Space operation, and assign them the roles of Entrants or Attendants.
- The Supervisor will also confirm that the employees have had the required training for the role that they have been assigned.
- CS3** The Supervisor will then hold a “pre-entry” meeting with all participants, reviewing the work to be done within the space, the location and description of the space to be entered, any tests that will be conducted on the space before entry, equipment that will be needed, etc.
- CS4** Any equipment that will be needed during the Confined Space operations will then be requisitioned and brought to the entry site.
- CS5** A copy of the Entry Permit will be posted at the entrance to the space. Or be kept in the possession of the exterior entrant at all time
- CS6** The entrance to the space will be opened and appropriate guard rails or other barriers set up to both prohibit unauthorized persons from entering the space as well as to protect employees working in the space (Entrants) from external hazards.
- CS7** The space will be tested to determine if acceptable entry conditions exist. Tests will be conducted to OSHA standards and will include:
- Oxygen levels.
  - Presence of combustible gas.
  - Presence of toxic contaminants.
  - Other tests, as indicated by the Permit.  
(performed in the above order.)
- CS8** The authorizing Entry Supervisor will sign the Permit allowing entry into the space.
- CS9** Testing or monitoring equipment will be installed as required, to assure that acceptable entry conditions are maintained during the course of the Confined Space operations.

- CS 10** “Non-entry” rescue equipment will be set up, if required.
- CS 11** Entrants will put on all appropriate personal protective equipment, full body harnesses and the like.
- CS 12** Entrants will then enter the space and begin operations.
- CS13** The Attendant will monitor Entrants within the space, keeping track of where they are, we well as maintaining a count of the total number of Entrants working within the space.

## EMERGENCY SITUATIONS

Under normal circumstances, Confined Space operations would continue until the work specified on the Entry Permit is completed. However, we recognize that despite all our preparations and precautions, it is possible for emergencies to occur during these types of operations. In these cases, the following steps will be taken:

- ES 1** The Attendant, upon recognizing that an emergency situation exists (or having been notified by an Entrant of such a situation) will notify all Entrants to evacuate the space.
- ES 2** The Attendant will also notify the Entry Supervisor and the company’s Confined Space Emergency Coordinator.
- ES 3** The Attendant or the company’s Confined Space Emergency Coordinator will contact the following groups, in this order:
- The Rescue Services Groups specified on the Entry Permit.
  - Ambulance services, hospitals and other emergency support groups, as called for.
  - The operation’s Entry Supervisor, if they are not at the Confined Space site.
- ES 4** If the Attendant is responsible for monitoring more than one Confined Space, he or she will do one of the following:
- Notify another Attendant who is on-site, or an employee who is qualified to assume the role of Attendant, that they are attempting non-entry rescue operations, and have that employee assume Attendant responsibilities for the other spaces.
  - Instruct Entrants in the other spaces to evacuate the spaces immediately.
- ES 5** The Attendant will then execute any “non-entry” rescue procedures appropriate to the situation.
- ES 6** If non-entry rescue efforts are not successful for all employees within the Confined Space, the Attendant will assist the arriving Rescue Services Groups by providing them any information that will be helpful to their rescue attempts, including:
- Information on the Entry Permit.
  - Observations of the situation.
  - Information provided to the Attendant by the Entrants.

- Any other helpful or pertinent information.

**ES 7** Once rescue of the Entrants in this space is completed, the Confined Space Emergency Coordinator will obtain and forward to medical and other authorities any information that would be helpful to them in providing medical treatment to the rescued Entrants, including information such as:

- Material Safety Data Sheets (MSDS's) for any chemical the Entrants may have been exposed to.
- Entrants personnel files.
- Entrants medical histories, if available.

**ES8** The Confined Space Emergency Coordinator will then follow our standard procedures for notifying relatives, and taking other steps appropriate to the situation.

**ES 9** The Entry Supervisor will immediately cancel the Entry Permit, noting the nature of the problem causing the emergency situation (to the extent known at the time).

## CONCLUDING OPERATIONS

If no emergency situation occurs, once Confined Space operations are completed, the following steps will be taken to conclude the process:

**CC 1** All Entrants will exit the space, removing any equipment or tools that were taken into the space as part of the operation.

**CC 2** Entrances to the space will be closed (and locked or sealed as appropriate).

**CC 3** The Entry Supervisor will cancel the Permit and return it to the Confined Space Entry Coordinator noting any problems that occurred during Confined Space operations.

**CC 4** Equipment will be cleaned and any necessary maintenance performed, then returned to its proper location in the facility.

## **CONTRACTOR INVOLVEMENT**

While these procedures address all the considerations necessary for Confined Space operations that are conducted by our employees, we recognize that there may be times when outside contractors will be involved in Confined Space operations in "Permit Spaces" at our facility. In these instances, the following steps will be taken:

**CT 1** The contractor will be informed of the following:

- That the space is a "Permit-required" space and entry will only be allowed through compliance with a "Permit-required Confined Space Program".
- The space's known hazards.

- Any experiences we have had with hazards in the space.
  - Precautions and procedures that we have implemented for protecting our employees in and around the space.
- CT 2** If any of our employees will be working in the space at the same time contractor employees are in the space, the Entry Supervisor will obtain a copy of the contractor's Entry Permit.
- CT 3** The Entry Supervisor will examine the contractor's Entry Permit and compare it with the Entry Permit covering work that our employees are performing to determine if:
- Employees will be attempting to work in the same areas at the same time
  - Any operations conducted by either our employees or contractor employees are incompatible.
  - Any other situations exist that appear to have the potential to cause problems or result in increased hazards for either group.
- CT 4** If our Entry Supervisor determines that any circumstances exist that would create increased hazards for either our employees or contractor personnel, the Supervisor will temporarily halt operations until the situation is analyzed and alternate procedures are put into place that will ensure a safe environment.
- CT 5** If no chance of increased hazards exist, both groups will proceed with entry operations, coordinating the activities called for under each groups "Permit-required Confined Space Program", including:
- Setting up protective barriers.
  - Installing "non-entry rescue" equipment.
  - Entry of workers.
  - Exit of workers.
  - And other activities.
- CT 6** When the contractor's work is complete, a "debriefing" will be conducted, a copy of the contractor's Entry Permit will be obtained and any problems reported by the contractor will be noted.
- CT 7** The copy of the contractor's Entry Permit will be forwarded to our Confined Space Entry Coordinator and files for future reference.

The Kent County Facility feels that the policies and procedures we have developed for Confined Space operations are comprehensive and well thought out. Every effort has been made to provide whatever safeguards are possible for our employees. We will continually review and update these procedures to conduct Confined Space operations as safely as possible for we realize that our employees' safety is the primary concern.

## **GLOSSARY**

## **GLOSSARY**

**Acceptable Entry Conditions** - The condition that must exist in a permit space to allow entry and to ensure that the employees involved with the Permit-Required Entry can safely enter and work within the space.

For the purpose of the operating procedure the Acceptable Entry conditions for Sussex County Engineering Department shall be ;

Oxygen Concentration Not Less than 19.5 % nor Greater Than 23.5 %

Flammable - Less Than 10 % of the LFL

Hydrogen Sulfide - 5 PPM

Carbon Monoxide - 35 PPM

Chlorine - 1 PPM

Sulfur Dioxide - 5 PPM

Effective measure will be utilized to either control or preferably eliminate conditions that would cause or contribute to atmospheric conditions beyond those acceptable entry conditions.

Energy Source will be locked out.

Continuous monitoring will be employed to maintain acceptable entry conditions.

**Acute Effect** - An adverse effect on a human or animal body with severe symptoms developing rapidly and coming quickly to a crisis. Examples include dizziness, nausea, skin rash, tearing of the eyes, unconsciousness, death.

**Airline Respirator** - A respirator that's connected to a compressed breathing quality air source. Connection is made through a hose line from the air source regulator to the user. Breathing quality ( Grade D ) air is delivered continuously in a sufficient volume to meet the wearer's breathing requirements. All respirators must meet NOISH approval.

**Asphyxiate** - A vapor or gas that replaces the oxygen content within the space , or by reducing the blood's ability to carry oxygen. The vapor or gas can cause unconsciousness or death by suffocation.

**Attendant** - an employee stationed outside one or more permit spaces who monitors the authorized entrant(s) and who performs all attendant's duties assigned in the permit required confined space program.

**Authorized entrant** - an employee who is authorized by Sussex County Engineering to perform entry into a permit required confined space. Authorized entrants shall be trained in accordance with the training requirements of 29 CFR 1910.146

**Blanking or Blinding** - The absolute closure of a pipe, line , or duct by the securing of a solid plate that completely covers the opening and that is capable of withstanding the maximum pressure of the product flowing through the opening. With no leakage beyond the closure item.

**Capable of being "LOCKED OUT"** - An energy isolating device will be considered to be "capable of being locked out" in either of the two following situations.

If it is designed with an attachment to which a lock can be attached or it has a locking mechanism built into it.

**Carcinogen** - A substance or agent that can cause a growth of abnormal tissue or tumors in humans or animals. A material identified as an animal carcinogen does not necessarily cause cancer in humans.

**Chemical Cartridge Respirator** - A respirator that uses various chemical substances (cartridges) to purify inhaled air of certain gases or vapors. This type of respirator must be used in a atmosphere with sufficient oxygen concentrations. This type of respirator is effective for concentrations no more then ten times the TLV of the contaminant, if the contaminant has warning properties below the TLV.

**Chronic Effect** - A adverse effect on a humans or animal body. Symptoms develop slowly over a long period of time or which recur frequently.

**Chronic Exposure** - Long term contact with a substance

**Combustible** - Liable to take fire, a substance that burns readily

**Confined Space** - means a space that:

1. Is large enough and so configured that an employee can bodily enter and perform assigned work
2. Has limited or restricted means of entry or egress and
3. Is nor designed for continuous employee occupancy.

**Disconnect** - A device that cuts off the source of power to a machine or piece of equipment. An acceptable disconnect must be lockable so that no one, except the employee operating the disconnect, can re-energize the equipment.

**Dissipate** - Allowing the stored energy to run down or be used up after shutting off the primary energy source.

**Double Block and Bleed** - The closure of a line , duct, or pipe by closing and locking or tagging two inline valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

**Emergency** - Means any occurrence, including any failure of hazard controls or monitoring equipment or event internal or external to the Permit Space that could endanger the entrant.

**Employer** - Kent County Wastewater Treatment Facility

**Energized** - Connected to an energy source or containing residual or stored energy.

**Energy Isolating Device** - A mechanical device that physically prevents the transmission or release of energy.

**Energy Source** - Any source of the following types of energy

Electrical	Mechanical	Hydraulic	Pneumatic
Chemical	Thermal	Gravity	Radioactive

**Engulfment** - the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

**Entry** - the action by which a person passes through an opening into a PRCS. Entry is considered to occur as soon as any part of the body breaks the plane of the opening into the space.

**Entry permit** - the written or printed document that is provided by the employer to allow and control entry into a PRCS and that contains the information specified in this procedure.

**Entry supervisor** - the person (supervisor, crew chief or designated employee) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations and terminating it.

**Explosion-proof** - electrical equipment that is approved for use in Class I, II and III, Division 1 Hazardous Locations as defined in NFPA 70, Chapter 5, and NFPA 493.

**Fall protection** - a positive means of preventing or arresting a fall using equipment designed for this purpose and certified by the manufacturer according to ANSI A10.14. Equipment may include safety belts, lanyards, lifelines, retractable lifelines, full-body harnesses, hooks, slings, etc. Refer to 29 CFR 1926.104.

**Hazardous atmosphere** - atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);

Airborne Combustible Dust 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 (1.52m) or less.

Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;

Atmospheric concentration of any substance for which a dose or permissible exposure limit (PEL) is published by OSHA Subpart G or Subpart Z which could result in employee exposure in excess of its dose or permissible exposure limit; **NOTE:** An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.

Any atmospheric conditions that is immediately dangerous to life or health

**Hot Work** - The employers written authorization to perform operations capable of providing a source of ignition.

**Immediately Dangerous to Life or Health** - any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individuals ability to escape unaided from a permit space.

**Inert** - atmospheres which air has been displaced by a non-reactive, non-flammable gas, such as nitrogen to such an extent that the resulting atmosphere is non-combustible.

**Isolation** - The process by which a permit space is removed from service and completely protected against the release of energy and material in the space.

**Lower Explosive Limit (LEL), Lower flammable limit (LFL)** - The lowest concentration of a flammable gas or vapor in air which will ignite if any ignition source is present. Concentrations below the LEL are too lean to burn.

**% Lower explosive limit (% LEL), % Lower flammable limit (% LFL)** - way of representing the concentration of a flammable gas or vapor in terms of the percent of the Lower Explosive Limit. This is a way for gauging the relative hazard the presence of a flammable gas or vapor poses. For example, Hydrogen:

LEL of Hydrogen = 4% H<sub>2</sub> in air

100% LEL of Hydrogen = 4% H<sub>2</sub> in air

10% LEL of Hydrogen = 0.1 x 4% H<sub>2</sub> in air = 0.4% H<sub>2</sub> in air

**NOTE:** Refer to the gas monitor user's manual for information on flammable/combustible gas correction factors for instruments calibrated with methane.

**Multiple employer** - the host employer plus other employers from outside the company (i.e., contractors).

**Non-Permit confined space** - a confined space that does not contain, or in the case of atmospheric hazards, does not have the potential to contain any hazard capable of causing death or physical harm to an entrant.

**Oxygen deficiency** - atmospheres containing less than 19.5% oxygen at 1 atmosphere pressure.

**Oxygen enrichment** - atmospheres containing greater than 23.5% oxygen at 1 atmosphere pressure.

**Permit required confined space (PRCS)** - A CONFINED SPACE that:

Has one or more of the following characteristics are present:

1. Contains or has the potential to contain a hazardous atmosphere; or
2. Contains a material that has the potential for engulfing an entrant; or
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
4. Contains any other recognized serious safety or health hazard.

**Permit System** - The employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

**Prohibited Condition** - any condition that is not allowed by the permit during the period when entry is authorized.

**Rescue Service** - means the personnel designated to rescue employees from permit spaces. That will be the local fire department and or rescue squad under agreement to the Sussex County Engineering Department.

**Retrieval System** - The equipment used for non - entry rescue of employees from permit spaces.

**Testing** - The process by which the hazards that may confront entrants of the space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

**Upper explosive limit (UEL), Upper flammable limit (UFL)** - the highest concentration of a flammable gas or vapor in air which will ignite if an ignition source is present. Concentrations above the UEL. are rich to burn.

## **CONFINED SPACE LOCATIONS**

**AREAS SURVEYED FOR CONFINED SPACES**

The following areas have been surveyed to determine whether any “Confined Spaces” are located within these parts of the facility. The teams assigned to inventory each area are also shown.

	<b><u>AREA</u></b>	<b><u>INVENTORY TEAM</u></b>
1	Maintenance - Pump Stations	Fisher Safety
2	Maintenance - Lift Stations	Fisher Safety
3	Screen Units Dover Air Force Base Apartments	Fisher Safety
<b>Main Facility -</b>		
1	Sewage Receiving Station	Craig Harvey & Fisher Safety
2	Influent Screening Facility	Craig Harvey & Fisher Safety
3	Clarifier	Craig Harvey & Fisher Safety
4	Recycle Wet Well	Craig Harvey & Fisher Safety
5	Drainage Sump Pumping Station	Craig Harvey & Fisher Safety
6	Solids Pump Station -	Craig Harvey & Fisher Safety
7	Metering Vault	Craig Harvey & Fisher Safety
8	Chlorine Contact Chamber	Craig Harvey & Fisher Safety
9	Effluent Screen Facility	Craig Harvey & Fisher Safety
	Chlorine Contact Chambers	Craig Harvey & Fisher Safety
10	Sludge Holding Tank	Craig Harvey & Fisher Safety
11	Post Effluent Sampling Chamber	Craig Harvey & Fisher Safety

**CONFINED SPACES - DESIGNATION**

**County Location - Maintenance Responsibilities**

	<b>LOCATION</b>	<b>DESCRIPTION</b>	<b>CLASSIFICATION</b>
	<b>Pump Station</b>		<b>(PERMIT-REQUIRED, ATMOSPHERIC HAZARD ONLY, NON-PERMIT)</b>
PS -4	<b>Rising Sun</b>	<b>Relay Site</b>	<b>Non Permit</b>
PS -6	<b>Dover Air Force Base Apartments</b>	<b>Screening Location</b>	<b>Non Permit</b>
PS 7	<b>Milford</b>	<b>Wet Well</b>	<b>Non - Permit Must have ventilators operating &amp; Test atmosphere</b>
PS 8	<b>Little Haven</b>	<b>Wet Well</b>	<b>Permit Required</b>
PS 18	<b>North Bowers</b>	<b>Wet Well ( 2 )</b>	<b>Permit Required</b>
PS 7	<b>Milford</b>	<b>Dry Well</b>	<b>Non Permit</b>
PS 11	<b>Magnolia</b>	<b>Dry Well</b>	<b>Non Permit</b>

## CONFINED SPACES - DESIGNATIONS

### Operations Responsibilities

	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>CLASSIFICATION</u>
	<b>Main Plant</b>		<b>(PERMIT-REQUIRED, ATMOSPHERIC HAZARD ONLY, NON-PERMIT)</b>
1	<b>Sewage Receiving Station</b>		<b>Permit Required</b>
2	<b>Influent Screening Facility</b>		<b>Permit Required</b>
3	<b>Clarifier</b>		<b>Non Permit under normal Working Condition and inspection procedures</b>
			<b>Permit Required Depending on induced hazard</b>
4	<b>Recycle Wet Well</b>		<b>Permit Required</b>
5	<b>Drainage Sump Pumping Station</b>		<b>Permit Required</b>
6	<b>Solids Pump Station -</b>		<b>Permit Required</b>
7	<b>Metering Vault</b>		<b>Non Permit</b>
8	<b>Chlorine Contact Chamber</b>		<b>Non Permit , expect for induced hazards</b>
9	<b>Effluent Screen Facility @ Chlorine Contact Chambers</b>		<b>Permit Required may be classified with authorization</b>
10	<b>Sludge Holding Tank</b>		<b>Permit Required Confined Space</b>
11	<b>Post Effluent Sampling Chamber</b>		<b>Permit Required</b>

## **CONFINED SPACE LOCATION - GROUPINGS**

The infrastructure and facilities that are under the control and responsibility of the Kent County Wastewater Facility are similar in operations, configurations and hazards. The identification of confined space and the designation for entrant associated with them will be transferred to other locations. If at any time the perimeters would change that will effect the confined space designations the confined space coordinator will make the necessary change in designation, and related requirements for entry. The confined space coordinator will promptly notify all departments of these changes and the change in operating procedure for any entry.

Station will be designated according to the confined space unit surveyed.

The following spaces have been identified as being identical to **PS - 6 Dover Air Force Base Apartments** and are designated as a **NON - PERMIT REQUIRED CONFINED SPACE** all applicable entry procedure **WILL BE FOLLOWED.**

<b>Location</b>	<b>Station Number</b>	<b>Wet Well</b>
Smyrna	PS - 1	permit required
Reichhold	PS - 2	permit required below grating
Dover	PS - 3	permit required
Isaac Branch	PS - 14	
Tidbury Branch	PS - 15	
Felton	PS - 21	permit required
Capitol Park	PS - 22	permit required below top floor

The following spaces have been identified as being identical to **PS -16 Dykes Branch** and are designated as a **PERMIT REQUIRED CONFINED SPACE** all applicable entry procedure **WILL BE FOLLOWED.**

<b>Location</b>	<b>Station Number</b>	<b>Wet Well</b>
Moore's Lake	LS - 3	permit required
Generals Greene	PS - 5	permit required
DAFB Housing	PS - 9	permit required
Cheswold	PS - 12	permit required
Frederica	PS - 13	permit required
Garrisons Lake	PS - 20	permit required
Felton Heights	PS - 21A	permit required
Holly Hills	PS - 24	permit required

The following space have been Identified as being identical to **PS - 8 Little Haven** and are designated as a **PERMIT REQUIRED CONFINED SPACE** (for wet well entry) all applicable entry procedure WILL BE FOLLOWED.

Location	Station Number
Holly Cove	LS - 1
Huntley Circle	LS - 2
Kent Acres	LS - 4
St Jones Commons	LS - 4A
RT10	LS - 5, 5A, 5B, 5C, 5D
Hickory Dale Drive	LS - 6
Road 331	LS - 7
Moores Meadows	LS - 8
Moores Meadows II	LS - 9
Rest Stop - Delaware	PS - 1B
Air Base Stations	PS - 6A, 6B, 6C, 6D, 6E, 6F
High Point	PS - 8
Bowers Landing	PS - 8B
Riverside	PS - 9A
Garrison Lake 1	PS - 10
Magnolia	PS - 11A, 11B, 11C
Lakeshore	PS - 12B
Kenton	PS - 12C
Fox Point	PS - 12E
Cheswold Car Wash	PS - 12H
Frederica	PS - 13B, 13C, 13D
Mifflin Meadows	PS - 15A, 15B, 15C
North Bowers	PS - 18
South Bowers	PS - 18A
Carlisle Village	PS - 19
Woods of Carlisle Village	PS - 19A
Garrison	PS - 20A, 20B, 20C, 20D
Lake Forest High	PS - 21A
Chimney Hill	PS - 21C
Kentwood	PS - 23
Carter Road	PS - 24A, 24B
Colony Inn	PS - 26
Burtonwood	PS - 28A
Little Creek	PS - 29, 29A
Liepsic Stations	PS - 30, 30A, 30B
South Central Bypass Stations (Double Run)	PS - 40, 41, 42, 43, 44, 45

**Recommendations for Actions**

Situations and conditions can change rapidly within the enclosures of a confined space. Every supervisor, attendant and entrant has the responsibility to be aware of this occurrence.

It is therefore imperative that if at any time an employee observes or senses any condition that has not been identified in the hazard assessment of that confined; they **are not to enter the space**.

Any confined space with an unrecognized condition or situation that has not be identified, will not be entered until a full determination of those conditions are evaluated. This evaluation process will include but is not limited to atmospheric testing, or sampling to determine the hazard and have the proper personal protective equipment available for the entrant use.

An example of this situation would be the potential introduction of an unknown toxic or chemical from an industrial application. This situation would require a testing or sampling of the atmosphere or influent to determine the product to define the danger to the employees.

It is imperative that every employee understand the character of the environment that they work with and the potential for rapid changes within those spaces.