

Operations and Maintenance Procedures

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O&M Section # 18.3	SCUD Task # 240
Section: Emergency	Revision Date: 09/06/16

Inside Gas Leak Investigation

SCOPE AND PURPOSE

This procedure is to provide personnel performing inside leak investigations with the necessary procedures for prompt and effective response and to protect life and property as required by §192.615.

RESPONSIBILITY

The Service Department Supervisor, or other designee, is responsible to ensure that inside leak investigations are performed as soon as possible and as described in this procedure. All inside leak investigations shall include an investigation for carbon monoxide.

PERSONNEL SAFETY (Where Applicable)

- The first person to respond to a report of gas detected inside a building shall take every necessary action to ***protect life and property***.
- No open flames.
- No smoking
- Turn on and “Zero” detection equipment outside in clean air (gas and carbon monoxide free), before taking readings.
- ***Knock*** on the door – ***DO NOT*** ring the doorbell.
- DO NOT use the telephone in the area of a suspected gas leak.
- Establish a safety perimeter to prevent bystanders and unauthorized personnel from entering the area.
- Use the required safety equipment.

EQUIPMENT AND MATERIALS

Combination - Combustible Gas Indicator (CGI)/Electronic Gas Detector (EGD)/Carbon Monoxide Detector

Combustible Gas Indicator (CGI) - Shows gas readings in percent (%) gas, LEL or UEL

Communication method (Radio, Cell Phone, etc)

Other equipment and materials as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform inside leak investigations. Refer to the OQ Plan for specific qualification requirements.

MAINTENANCE & OPERATION OF INSTRUMENTS

Each instrument used for leak detection and evaluation shall be operated in accordance with the manufacturer’s recommended operating instructions.

CALIBRATION OF INSTRUMENTS

Each instrument used for leak detection and evaluation shall be calibrated in accordance with the manufacturer’s recommended calibration instructions.

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INSTRUCTIONS

While approaching the building; ensure that all equipment, such as (Flashlight, CGI, Gas Detector, CO detector etc) is turned on and zeroed outside in clean air. Also observe the area for obvious signs of a gas leak using sight, smell, and hearing. Signs may include, but are not limited to:

- Dead or dying grass, shrubs, or trees
- Absence of growth in paving cracks
- Cracked or crusted soil, or mildewed soil
- Absence of grass overhang on curbing or walkways
- Odor of gas
- Sound of escaping gas

I. Customer Not at Home - The gas meter must be turned off and locked.

Attempt to determine the condition inside the building - Using an instrument capable of alerting the user to the presence of a gas leak and carbon monoxide, check around the entrance door and any other available openings such as, but not limited to, crawl space vents, windows, etc. Also check along the ground around the perimeter of the foundation if possible.

- a. If there is an indication of gas along the ground contact the appropriate SCUD authority, see **SCUD Procedure # EMER004-Outside Leak Investigation.**
- b. If there is an indication of carbon monoxide inside the building see **SCUD Procedure # EMER002-Carbon Monoxide Leak Investigation.**
- c. ***If there is an indication of gas inside the building:***
 - Immediately notify:
 - Service Department Supervisor or his appointee
 - Fire Department
 - Police Department
 - 1. Establish a safety perimeter and prevent unauthorized personnel from entering the building – DO NOT allow entry into the building until it has been checked and deemed safe for entry.
 - 2. Check around the outside perimeter of the building, if possible, next to the building foundation and obtain CGI readings checking for the presence of gas in the ground outside the building. If the presence of gas is detected in the ground contact the Underground Maintenance Supervisor or his appointee, see **SCUD Procedure # EMER004-Outside Leak Investigation.**
 - 3. Conduct a check of adjacent structures for the presence of a gas leak.
- d. If no gas or carbon monoxide is detected inside or outside, leave a door hanger explaining why the gas meter is off.
- e. The proper paper and/or electronic Odor Report shall be completed for all leak investigations regardless of the findings.

II. Customer at Home

Assess the condition inside the building - Using an instrument capable of alerting the user to the presence of a gas and carbon monoxide, check around the entrance door. As you enter the premise, sample the air up high.

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- a. If carbon monoxide is detected when entering, see **SCUD Procedure # EMER002-Carbon Monoxide Leak Investigation**.
- a. If when entering, the investigation shows that a hazardous condition (gas greater than 1%) exists, take action immediately!
 - Do Not operate any switches.
 - Evacuate the structure leaving the door open as you exit. Evacuate to a safe distance.
 - Cut off the gas supply to the structure.
 - Eliminate all ignition sources if possible.
 - If the source of gas is suspected or known to be located outside the structure, call for assistance and vent gas away from the structure if possible. Remove vault, manhole and valve box covers and check for gas.
 - Establish and identify restricted zones. This may be accomplished by using warning tape to identify the zone's perimeter.
 - Do Not re-enter the structure until the gas level drops below 1%.
 - Once the building is safe for re-entry, see the following
- b. **If no hazardous condition is found when entering inside, further checks need to be made with the CGI.**
 1. Question occupants regarding the location of the odor
 - Check accessible gas plumbing and appliances.
 - Check floor, wall and ceiling joints.
 - Check cracks in basement and foundation walls.
 - Check floor drains and sump pump cavities.
 - Check underground utility entrances if known and accessible.
 - Check outside around building, gas meter, plumbing and appliances.
 2. If gas is detected at a nonhazardous level.
 - Try to determine source/location of leak.
 - If possible, tighten fitting and stop leak;
 - If the leak cannot be fixed; Disconnect and plug or cap leak; or, Isolate the leak by shutting off a valve and tag the valve; or, Turn off and lock the meter stop; and, Advise the customer to have the leak repaired and call for an inspect to have the gas turned back on.

If the leak is in the gas plumbing, advise the customer that a pressure test may be required to prove the leak has been repaired. The pressure test must be performed by the repairer and witnessed by SCUD.
 3. If gas is detected or smelled but no reason for the odor is found in structures such as a mall or apartment building, the investigation should be extended to adjacent piping of surrounding systems until a reason for the gas indication can be determined and stopped. The leak may be in an adjacent shop or apartment.
 4. **If gas is detected or smelled, but the source of the leak cannot be found, the meter/s must be locked off and the Service Department and Underground Maintenance Supervisors or their appointees contacted.**
 5. If no gas is detected anywhere, complete documentation

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REPORTING/NOTIFICATION

The SCUD employee shall complete documentation in accordance with the Operation and Maintenance Manual. The proper paper and/or electronic Odor Report shall be completed for all leak investigations regardless of the findings.

ABNORMAL OPERATING CONDITIONS

<i>AOC Main Category</i> (Examples of Specific AOCs)	Reactions to AOC, as appropriate	
<i>Unplanned escape of product from a pipeline</i> <ul style="list-style-type: none"> Blowing/Escaping gas/Grade I leak 	<ul style="list-style-type: none"> ➤ Protect life & Property ➤ Prevent accidental ignition ➤ Notify appropriate personnel ➤ Notify Fire/Emergency Responders ➤ Initiate Emergency Plan 	<ul style="list-style-type: none"> ➤ Locate source/cause of AOC ➤ Use appropriate PPE ➤ Stop gas flow ➤ Make repairs/eliminate AOC
<i>Fire or Explosion</i> <ul style="list-style-type: none"> Fire on a pipeline Explosion 	<ul style="list-style-type: none"> ➤ Protect life & Property ➤ Prevent accidental ignition ➤ Notify appropriate personnel ➤ Notify Fire/Emergency Responders ➤ Initiate Emergency Plan 	<ul style="list-style-type: none"> ➤ Locate source/cause of AOC ➤ Use appropriate PPE ➤ Stop gas flow ➤ Make repairs/eliminate AOC
<i>Unplanned Pressure Deviation</i> <ul style="list-style-type: none"> Unplanned Decrease in Pressure & or No Press. Unplanned Increase in Pressure 	<ul style="list-style-type: none"> ➤ Protect life & property ➤ Notify appropriate personnel ➤ Initiate Emergency Plan as Needed 	<ul style="list-style-type: none"> ➤ Locate source/cause of AOC ➤ Make repairs/eliminate AOC
<i>Unplanned Flow Rate Deviation</i> <ul style="list-style-type: none"> Unplanned Increase in Flow Unplanned Decrease in Flow & or No Flow 	<ul style="list-style-type: none"> ➤ Protect life & property ➤ Notify appropriate personnel ➤ Initiate Emergency Plan as Needed 	<ul style="list-style-type: none"> ➤ Locate source/cause of AOC ➤ Make repairs/eliminate AOC
<i>Unplanned Status Change</i> <ul style="list-style-type: none"> Inoperable/Failure of a Pipeline Component Stray Current on a Pipeline – Electric Shock 	<ul style="list-style-type: none"> ➤ Protect life & property ➤ Notify appropriate personnel ➤ Initiate Emergency Plan as Needed 	<ul style="list-style-type: none"> ➤ Locate source/cause of AOC ➤ Make repairs/eliminate AOC
<i>Inadequate Odorization or Reports of Gas Odor</i> <ul style="list-style-type: none"> Low odorization Over odorization & or Odor complaint 	<ul style="list-style-type: none"> ➤ Protect life & property ➤ Prevent accidental ignition ➤ Notify appropriate personnel 	<ul style="list-style-type: none"> ➤ Locate source/cause of AOC ➤ Make repairs/eliminate AOC
<i>Improper Installation/Misalignment of Components</i> <ul style="list-style-type: none"> Improper fitting/component 	<ul style="list-style-type: none"> ➤ Protect life & property ➤ Prevent accidental ignition 	<ul style="list-style-type: none"> ➤ Notify appropriate personnel ➤ Make repairs/eliminate

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installation <ul style="list-style-type: none"> • Misalignment of fittings/components 	AOC
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RELATED PROCEDURES

EMER002 - Carbon Monoxide Investigation

EMER004 - Outside Gas Leak Investigation

MAINT009 - Gas Leak Survey