



Operations and Maintenance Procedures

SCUD Procedure # MEAS001	Page 1 of 4
O&M Section # 3	SCUD Task # 640
Section: Measurement	Revision Date: 09/06/16

Odorization - Odorizer Inspection, Testing, Preventive and Corrective Maintenance

SCOPE AND PURPOSE

This procedure is to ensure continuous, reliable operation of odorizers.

RESPONSIBILITY

The Measurement Supervisor, or other designee, is responsible to ensure that odorizer inspection, testing and maintenance is performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Odorants are flammable and should be handled with care.

EQUIPMENT AND MATERIALS

Leak Detector Equipment
Odorizer manufacturer's User's Manual
Records from the previous inspection
Odorant
Other equipment and materials as needed

OPERATOR QUALIFICATION

This activity is a covered task under the SCUD Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform periodic odorizer inspection, testing, preventive and corrective maintenance. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

Handling Odorants

The following precautions should be taken when handling odorants:

- Avoid breathing vapor,
- Keep away from heat and sources of ignition,
- Provide adequate ventilation,
- Avoid contact with eyes or skin,
- Wear goggles and non-permeable gloves, such as PVC or nitrile rubber. (Odorants can penetrate vinyl gloves.),
- Clothing may absorb odorant. It may be advisable to change clothes before leaving the work area. Also, note that odorants can be adsorbed by leather and metal: e.g., belts, belt buckles and coins,
- Emptied containers may contain hazardous residues. DO NOT CUT OR GRIND ON THE CONTAINER,
- Dispose of empty containers per manufacturers recommended practices.
- Provide metallic containers with electrical grounding.

Operations and Maintenance Procedures

SCUD Procedure # MEAS001	Page 2 of 4
O&M Section # 3	SCUD Task # 640
Section: Measurement	Revision Date: 09/06/16

Odorization - Odorizer Inspection, Testing, Preventive and Corrective Maintenance

Handling Odorant Spills

Odorant spills require immediate response. Since the spreading of odor is the result of vaporization of the liquid odorant, methods should be used to decrease the vapor escape. Minor drippings can be treated with bleach solutions to react with the odorant to produce less odiferous compounds or absorbed with soil or sand and removed to a closed container for approved and controlled disposal. Do not use dry or powdered bleach.

Large spills should be contained immediately. The contaminated area should be diked and/or connected to a sump from which the spilled material can be transferred to a closed container. Personnel should stay upwind and wear air-supplied masks or self-contained breathing apparatus. Do not use bleach solutions on large spills as the liquids will drive the odorant deeper into the soil and increase the contaminated area. Reaction between a large quantity of bleach with a large odorant spill may also cause the spilled odorant to heat up sufficiently to start a fire or injure personnel responding to the spill. If necessary, notify emergency responders, local public official and neighboring gas utilities.

Further information on odorant safety is available on the Material Data Safety Sheet for the specific odorant in use.

Inspection and Maintenance

In preparation for an odorizer inspection the following information should be obtained:

- Total volume of gas, in MCF, that passed through the odorization facility since the previous inspection
- The odorant storage tank level from the previous inspection
- Amount of odorant added since the previous inspection

Inspection of Odorizers

- Check the odorant tank for adequate supply. Add odorant if necessary
- Read and record the odorant tank level
- Inspect all odorizer components and piping for gas and/or odorant leaks making repairs if leaks are found
- Inspect odorizer for proper operation following manufacturer's instructions
- If adjustments are necessary, record odorizer settings as left
- Record all maintenance and repairs performed

Verifying Odorant Rate



Operations and Maintenance Procedures

SCUD Procedure # MEAS001	Page 3 of 4
O&M Section # 3	SCUD Task # 640
Section: Measurement	Revision Date: 09/06/16

Odorization - Odorizer Inspection, Testing, Preventive and Corrective Maintenance

Determine the amount of odorant used, in pounds:

Odorant used = lbs of odorant remaining at this inspection minus lbs of odorant remaining at the previous inspection plus lbs of odorant added since previous inspection.

If odorant measurements are in gallons, multiply by 6.76 to convert gallons to pounds (NOTE: Check the specifications for the density in lbs/gallon for the specific odorant you are using).

If the odorant storage tank measurement are in inches check the manufacturer's literature for the odorizer's specific conversion factor from inches to pounds or gallons.

Calculate the odorization rate by dividing the pounds of odorant used by the MCF of gas that passed through the odorizer since the previous inspection.

Odorization level should be established by the user of this procedure based on the recommendations of the odorant manufacturer and the results of periodic sampling of odorant under **SCUD Procedure MEAS002**.

Conduct an odor test according to **SCUD Procedure MEAS002** to verify that odorant can be readily detected in the gas leaving the odorization facility.

Preventive and Corrective Maintenance

Follow the odorizer manufacturer's instructions for preventive and corrective maintenance

REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

ABNORMAL OPERATING CONDITIONS

AOC Main Category (Examples of Specific AOCs)	Reactions to AOC, as appropriate
<p><i>Unplanned escape of product from a pipeline</i></p> <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 ➤ Locate source/cause of AOC ➤ Use appropriate PPE ➤ Stop gas flow ➤ Make repairs/eliminate AOC
<p><i>Unplanned Flow Rate Deviation</i></p> <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 ➤ Locate source/cause of AOC ➤ Make repairs/eliminate AOC



Operations and Maintenance Procedures

SCUD Procedure # MEAS001	Page 4 of 4
O&M Section # 3	SCUD Task # 640
Section: Measurement	Revision Date: 09/06/16

Odorization - Odorizer Inspection, Testing, Preventive and Corrective Maintenance

<p><i>Unplanned Status Change</i></p> <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
<p><i>Inadequate Odorization or Reports of Gas Odor</i></p> <ul style="list-style-type: none"> • Low odorization • Over odorization • 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

RELATED PROCEDURES

MEAS002 – Odorization - Periodic Sampling