

## RESPIRATORY PROTECTION PROGRAM

### OVERVIEW

The Respiratory Protection Program serves to provide guidance to management and employees working for the City of Mebane. It is the intent of this document to meet any local, state or federal mandates including those required pursuant to the regulations outlined under Occupational Health and Safety Administration's (OSHA) 29 Code of Federal Regulation 1910 and 1926. The City of Mebane Safety Committee Chair, or designee, shall investigate any accident that occurs within the jurisdictional limits for the City of Mebane.

### PURPOSE

The Respiratory Protection Program is created to provide guidance and expectation for employees and visitors of the City of Mebane. The programs shall be reviewed at least annually, and, based on the ever changing work and natural growth of the City of Mebane so shall these documents be modified to reflect such growth and change. The Safety Committee Chair, or designee, shall have responsibility for managing changes to the safety program.

The purpose of the Respiratory Protection Program specifies standard operating guidelines for protecting employees from respiratory hazards, according to the requirements of 29 CFR 1910.134. Respirators are to be used only where engineering control of respirator hazards is not feasible, while engineering controls are being installed, or in emergencies.

### RESPONSIBILITY

It is the responsibility of every employee to not only read, but also *understand* the information on these pages. Each employee of the City of Mebane should consider it a personal responsibility to engage in daily activity that is safe and consistent with these programs.

City of Mebane management has the expectation of each employee to understand their right to ask questions and seek more information if a program or task is not clear or well understood. If an employee has questions regarding the safety and health programs they should contact their supervisor for clarification.

The programs contained herein shall serve as a minimum guideline for entities coming on to City of Mebane property for the purposes of conducting business. Prior to conducting any project the entity shall establish compliance with the guidance set forth in this document.

Safety of employees, vendors, contractors and the public, city equipment and property will be considered the priority on any task and in no case shall it be compromised.

### ADMINISTRATIVE DUTIES

The City of Mebane Respiratory Protection Program Administrator is the Safety Committee Chair, unless otherwise designated. The Safety Committee Chair, or designee, is solely responsible for all facets of the program and has full authority to make necessary decisions to ensure success of this program. He/she will develop written detailed instructions covering each of the basic elements in this program, and is authorized to amend these instructions.

Appropriate training and experience that is commensurate with the complexity of the program to administer or oversee our Respiratory Protection Program qualify Safety Committee Chair, or designee.

## RESPIRATOR SELECTION

Respirators are selected on the basis of respiratory hazards to which the worker is exposed and workplace and user factors that affect respirator performance and reliability.

The Program Administrator will develop detailed written standard operating procedures governing the selection of respirators using the following guidelines:

- Select and provide respirators based on respiratory hazard(s) to which a worker is exposed and workplace and user factors that affect respirator performance and reliability.
- Select a NIOSH-certified respirator. (NIOSH stands for the National Institute for Occupational Safety and Health)
- Identify and evaluate the respiratory hazard(s) in the workplace, including a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form.
- Consider the atmosphere to be IDLH if you cannot identify or reasonably estimate employee exposure.
- Select respirators from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.

When selecting respirators for IDLH atmospheres:

- Provide these respirators:
  - A full face piece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or
  - A combination full-face piece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.
- Provide respirators NIOSH-certified for escape from the atmosphere in which they will be used when they are used only for escape from IDLH atmospheres.
- Consider all oxygen-deficient atmospheres to be IDLH.

*Exception: If you can demonstrate that, under all foreseeable conditions, the oxygen concentration can be maintained within the ranges specified in Table II of 29 CFR 1910.134 (i.e., for the altitudes set out in the table), then any atmosphere-supplying respirator may be used.*

When selecting respirators for atmospheres that are not IDLH:

- Select respirators appropriate for the chemical state and physical form of the contaminant.
- For protection against gases and vapors, provide:
  - An atmosphere-supplying respirator, or
  - An air-purifying respirator, provided that:
    - (1) The respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or
    - (2) If there is no ESLI appropriate for conditions in our workplace, implement a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life.

- For protection against particulates, provide:
  - An atmosphere-supplying respirator; or
  - An air-purifying respirator equipped with a filter certified by NIOSH under 30 CFR part 11 as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR 84, or
  - For contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

Respirator shall be provided that are adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations. \*

**Respirator Types and Uses**

The following types of respirators are in use in this facility for the following uses:

| Types  | Situation used                                       |
|--|--|
| Half mask respirator w/ organic vapor cartridges | When painting  |
| Escape airpack                                   | Escape purposes only from potential IDLH atmospheres |
| SCBA   | Structural Firefighting and IDLH atmospheres         |
| Full Face Gas Masks                              | Tear Gas exposure and biological particulates        |

Only NIOSH-certified respirators are selected and used. Where practicable, the respirators will be assigned to individual workers for their exclusive use.

**MEDICAL EVALUATIONS**

A medical evaluation to determine whether an employee is able to use a given respirator is an important element of an effective Respiratory Protection Program and is necessary to prevent injuries, illnesses, and even, in rare cases, death from the physiological burden imposed by respirator use.

Persons will not be assigned to tasks requiring use of respirators nor fit tested unless it has been determined that they are physically able to perform the work and use the respirator.

All medical questionnaires and examinations are confidential and handled during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire is administered so that the employee understands its content. All employees are provided an opportunity to discuss the questionnaire and examination results with their physician or other licensed health care professional.

Before any initial examination or questionnaire is given, the city provides the medical provider with the following information so that he/she can make the best recommendation concerning an employee's ability

to use a respirator:

- Type of the respirator to be used by the employee;
- Duration and frequency of respirator use (including use for rescue and escape);
- Expected physical work effort; and
- Additional protective clothing and equipment to be worn.

Once the provider determines whether the employee has the ability to use or not use a respirator, he/she sends the City of Mebane a written recommendation containing only the following information:

- Limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;
- The need, if any, for follow-up medical evaluations; and
- A statement that the medical professional has provided the employee with a copy of their written recommendation.

**Follow-up medical examination:**

A follow-up medical examination will be provided if a positive response is given to any question among questions 1 through 8 in Section 2, Part A of Appendix C of 29 CFR 1910.134 or if an employee's initial medical examination demonstrates the need for a follow-up medical examination.

**Additional medical examinations:**

The City of Mebane provides additional medical evaluations if:

- An employee reports medical signs or symptoms that are related to ability to use a respirator;
- A medical provider, supervisor, or the respirator program administrator informs the employer that an employee needs to be reevaluated;
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, and temperature) that may result in a substantial increase in the physiological burden placed on an employee.

**FIT TESTING**

It is axiomatic that respirators must fit properly to provide protection. If a tight seal is not maintained between the face-piece and the employee's face, contaminated air will be drawn into the face-piece and be breathed by the employee. Fit testing seeks to protect the employee against breathing contaminated ambient air and is one of the core provisions of our respirator program.

In general, fit testing may be either qualitative or quantitative. Qualitative fit testing (QLFT) involves the introduction of a gas, vapor, or aerosol test agent into an area around the head of the respirator user. If that user can detect the presence of the test agent through subjective means, such as odor, taste, or irritation, the respirator fit is inadequate.

In a quantitative respirator fit test (QNFT), the adequacy of respirator fit is assessed by measuring the amount of leakage into the respirator, either by generating a test aerosol as a test atmosphere, using

ambient aerosol as a test agent, or using controlled negative pressure to measure the volumetric leak rate. Appropriate instrumentation is required to quantify respirator fit in QNFT.

The City of Mebane makes sure those employees are fit tested at the following times with the same make, model, style, and size of respirator that will be used:

- Before employees are required to use any respirator with a negative or positive pressure tight-fitting face-piece;
- A different respirator face-piece (size, style, model, or make) is used;
- At least annually;
- When the employee reports, or the City of Mebane, supervisor, or Program Administrator makes visual observations of changes in the employee's physical condition that could affect respirator fit; and
- When the employee, subsequently after passing a QLFT or QNFT, notifies the Program Administrator or supervisor that the fit of the respirator is unacceptable. That employee will be retested with a different respirator face-piece.

Employees must pass one of the following fit test types that follow the protocols and procedures contained in 29 CFR 1910.134 Appendix A:

- QLFT (Only used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less. May be used to test tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators if tested in the negative pressure mode); or
- QNFT (May be used to fit test a tight-fitting half face-piece respirator that must achieve a fit factor of 100 or greater OR a tight-fitting full face-piece respirator that must achieve a fit factor of 500 or greater OR tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators if tested in the negative pressure mode).

### **PROPER USER PROCEDURES**

Once the respirator has been properly selected and fitted, its protection efficiency must be maintained by proper use in accordance with 29 CFR 1910.134(g). The City of Mebane ensures with written procedures that respirators are used properly in the workplace. Our proper respirator use procedures are:

The City of Mebane has used the following checklist to ensure that proper use procedures include coverage of OSHA requirements:

#### **Face-piece Seal Protection**

- Do not permit respirators with tight-fitting face-pieces to be worn by employees who have:
  - Facial hair that comes between the sealing surface of the face-piece and the face or that interferes with valve function; or
  - Any condition that interferes with the face-to-face-piece sealer valve function.
- If an employee wears corrective glasses or goggles or other personal protective equipment, ensure that such equipment is worn in a manner that does not interfere with the seal of the face-piece to the face of the user.
- For all tight-fitting respirators, ensure that employees perform a user seal check each time they put on the respirator using the procedures in 29 CFR 1910.134.

### Continuing Respirator Effectiveness

- Appropriate surveillance must be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, reevaluate the continued effectiveness of the respirator.
- Ensure that employees leave the respirator use area:
  - To wash their faces and respirator face-pieces as necessary to prevent eye or skin irritation associated with respirator use; or
  - If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece; or
  - To replace the respirator or the filter, cartridge, or canister elements.
- If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece, replace or repair the respirator before allowing the employee to return to the work area.

### Procedures for IDLH Atmospheres

Ensure that:

- One employee or, when needed, more than one employee is located outside the IDLH atmosphere;
- Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;
- The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue;
- The supervisor, or designee, is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue;
- Employee(s) located outside the IDLH atmospheres are equipped with:
  - Pressure demand or other positive pressure SCBA's, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either:
  - Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or
  - Equivalent means for rescue where retrieval equipment is not required under the bullet item above this one.

### Procedures for Interior Structural Firefighting

In addition to the requirements set forth in the row above for Procedures for IDLH Atmospheres, in interior structural fires, ensure that:

- At least two employees enter the IDLH atmosphere and remain in visual or voice contact with one another at all times;
- At least two employees are located outside the IDLH atmosphere; and
- All employees engaged in interior structural firefighting use SCBA's and observe the "Buddy System" when entering IDLH atmospheres. (2 in 2 out)
- One of the two individuals located outside the IDLH atmosphere may be assigned to an additional role, such as incident commander in charge of the emergency or safety officer, so

long as this individual is able to perform assistance or rescue activities without jeopardizing the safety or health of any firefighter working at the incident.

- Nothing in this Proper Use Procedures section is meant to preclude firefighters from performing emergency rescue activities before an entire team has assembled.

## MAINTENANCE AND CARE PROCEDURES

In order to ensure continuing protection from respiratory protective devices, it is necessary to establish and implement proper maintenance and care procedures and schedules. A lax attitude toward maintenance and care will negate successful selection and fit because the devices will not deliver the assumed protection unless they are kept in good working order.

### Cleaning & disinfecting

The City of Mebane provides each respirator user with a respirator that is clean, sanitary, and in good working order. Refer to Appendix B-2 of 29 CFR 1910.134 and the recommendations by the respirator manufacturer.

The respirators are cleaned and disinfected at the following intervals:

| Respirator type                             | Are cleaned and disinfected at the following interval          |
|---|--|
| Issued for the exclusive use of an employee | As often as necessary to be maintained in a sanitary condition |
| Issued to more than one employee            | Before being worn by different individuals                     |
| Maintained for emergency use                | After each use   |
| Used in fit testing and training            | After each use   |

- Respirator issued for the exclusive use of an employee must be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.
- Respirators maintained for emergency use must be cleaned and disinfected after each use.
- Respirators used in fit testing and training must be cleaned and disinfected after each use.

### Storage

Storage of respirators must be done properly to ensure that the equipment is protected and not subject to environmental conditions that may cause deterioration. Ensure that respirators are stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they are packed or stored in on fire apparatus, police vehicles, and in lockers.

These are maintained clean and in bags to prevent deformation of the face piece and exhalation valve. In addition, emergency respirators are kept accessible to the work area; stored in compartments and covers that are clearly marked as containing emergency respirators; and stored in accordance with any applicable manufacturer instructions.

### Inspection

In order to assure the continued reliability of respirator equipment, it must be inspected on a regular basis. The frequency of inspection is related to the frequency of use. Here are our frequencies for inspection:

| Respirator type                            | Inspected at the following frequencies  |
|--|---|
| All types used in routine situations       | Before each use and during cleaning   |
| Maintained for use in emergency situations | At least monthly and in accordance with the manufacturer's recommendations, and checked for proper function before and after each use |
| Emergency escape-only respirators          | Before being carried into the workplace for use   |

Respirator inspections includes a check:

- For respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face piece, head straps, valves, connecting tube, and cartridges, canisters or filters; and
- Of elastomeric parts for pliability and signs of deterioration.
- For self-contained breathing apparatus, in addition to the above, monthly, we maintain air and oxygen cylinders in a fully charged state and recharge when the pressure falls to 90% of the manufacturer's recommended pressure level and determine that the regulator and warning devices function properly.

Also for respirators maintained for emergency use, the city certifies the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator. See attached documentation.

### Repairs

Respirators that fail an inspection or are otherwise found to be defective are removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and only with the respirator manufacturer's NIOSH-approved parts designed for the respirator;
- Repairs must be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and
- Reducing and admission valves, regulators, and alarms must be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

### Discarding of respirators

Respirators that fail an inspection or are otherwise not fit for use and cannot be repaired must be discarded. We use the following discarding procedures:

- Take out of service immediately and ascertain a replacement.



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**AIR QUALITY PROCEDURES**

When atmosphere-supplying respirators are being used to protect employees it is essential to ensure that the air being breathed is of sufficiently high quality. The City of Mebane's procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators include coverage of the following OSHA requirements:

**Compressed Air, Compressed Oxygen, Liquid Air, and Liquid Oxygen Used for Respirators:**

- Compressed and liquid oxygen must meet the United States Pharmacopoeia requirements for medical or breathing oxygen.
- Compressed breathing air must meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:
  - Oxygen content (v/v) of 19.5-23.5%;
  - Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less;
  - Carbon monoxide (CO) content of 10 ppm or less;
  - Carbon dioxide content of 1,000 ppm or less; and
  - Lack of noticeable odor.
- Ensure that compressed oxygen is not used in atmosphere-supplying respirators that have previously used compressed air.
- Ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.

**Cylinders Used to Supply Breathing Air to Respirators:**

- Cylinders must be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR 173 and 178).
- Cylinders of purchased breathing air must have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air.
- The moisture content in the cylinder must not exceed a dew point of -50 deg. F (-45.6 deg. C) at 1 atmosphere pressure.

**Compressors:**

- Ensure that compressors used to supply breathing air to respirators are constructed and situated so as to:
  - Prevent entry of contaminated air into the air-supply system;
  - Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg. C) below the ambient temperature;
  - Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters must be maintained and replaced or refurbished periodically following the manufacturer's instructions; and
  - Have a tag containing the most recent change date and the signature of the person authorized by the City of Mebane to perform the change. The tag must be maintained at the compressor.
- For compressors that are not oil-lubricated, ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.

- For oil-lubricated compressors, use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply must be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.

#### Breathing Air Couplings:

- Ensure that breathing air couplings are incompatible with outlets for non-breathable worksite air or other gas systems. No asphyxiating substance must be introduced into breathing air lines.

#### Breathing Gas Containers:

- Use breathing gas containers marked in accordance with the NIOSH respirator certification standard, 42 CFR, Part 84.

#### Filters, Cartridges, and Canisters:

- Ensure that all filters, cartridges and canisters used in the workplace are labeled and color-coded with the NIOSH approval label and that the label is not removed and remains legible.

### TRAINING

The most thorough respiratory protection program will not be effective if employees do not wear respirators, or if wearing them, do not do so properly. The only way to ensure that our employees are aware of the purpose of wearing respirators, and how they are to be worn is to train them.

The City of Mebane training program covers both the:

- Respiratory hazards to which our employees are potentially exposed during routine and emergency situations, and
- Proper uses of respirators, including putting on and removing them, any limitations on their use, and their maintenance.

Both training parts are provided prior to requiring an employee to use a respirator in the workplace.

All employees are to be retrained annually and when the following situations occur:

- Changes in the workplace or the type of respirator render previous training obsolete;
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or
- Any other situation arises in which retraining appears necessary to ensure safe respirator use.

### PROGRAM EVALUATION

It is inherent in respirator use that problems with protection, irritation, breathing resistance, comfort, and other respirator-related factors occasionally arise in most respirator protection programs. Although it is not possible to eliminate all problems associated with respirator use, the program attempts to eliminate as many problems as possible to improve respiratory protection and encourage employee acceptance and safe use of respirators.

At the City of Mebane, program evaluation, performed annually by our program administrator, involves the

following:

- Conducting evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.
- Regularly consulting employees required to use respirators to assess their views on program effectiveness and to identify any problems. Any problems that are identified during this assessment must be corrected. Factors to assess include, but are not limited to:
  - Respirator fit (including the ability to use the respirator without interfering with effective workplace performance)
  - Appropriate respirator selection for the hazards to which the employee is exposed
  - Proper respirator use under the workplace conditions the employee encounters
  - Proper respirator maintenance

#### REFERENCES

- 29 CFR 1910.134, Respiratory Protection, and Appendices,
- 42 CFR 84, Approval of Respiratory Protective Devices,
- ANSI Z88.2, Respiratory Protection,
- NIOSH Guide to Industrial Respiratory Protection-1987 (however, this may be out of date),
- NIOSH Guide to the Selection and Use of Particulate Respirators Certified Under 42 CFR 84 (4/23/96).

***\*\*Identify who fit tests and the medical clearance\*\****

**Policy Review and Critique Form**

**Review by:**

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**Date:**

1 / 28 / 2015

**Type of review:**

Annual:  X                       Post-Emergency:      

**Problems leading to review:**

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**Problems noted during review:**

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**Action to be taken:**

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