

WAUPACA FOUNDRY, INC. RESPIRATORY PROTECTION PROGRAM

1.0 Purpose

To provide minimum requirements which will ensure that adequate Respirator Protection is provided to all employees and to assist in meeting the Occupational Safety & Health Administration (OSHA) Respiratory Protection Standard 1910.134 (which was referenced when preparing this document). This procedure establishes a comprehensive Respiratory Protection Program for all **Waupaca Foundry, Inc.**, locations.

2.0 Scope

In most cases the atmospheres at **Waupaca Foundry, Inc.** do not exceed limitations set by OSHA. The respirator program is offered to our employees for their protection, beyond what is required by OSHA regulations. Areas considered by OSHA regulations as potentially hazardous atmospheres are areas of air contaminate with harmful dust, fogs, fumes, mists, gases, smoke, spray or vapors. When engineering controls are not feasible or effective, appropriate respirators shall be provided and worn by the employees for the protection of their health. The respirators shall be applicable and suitable for the purpose intended.

3.0 Definitions

- A. **Annual** - within a twelve (12) month period
- B. **Program Administrator** - A trained person responsible for developing written operating procedure, coordinating selection of equipment to be purchased and employee training. The administrator is also responsible for the maintenance of the program.
- C. **Qualitative Fit** - Involves the introduction of a harmless odorless or irritating substance into the breathing zone of respirator wearers to test leakage.
- D. **Quantitative Fit** - The respirator wearer is exposed to a test substance introduced inside of a test chamber. The respirator is connected to instruments that measure leakage of substance into the face piece.
- E. **OSHA PEL** - Permissible Exposure Limit that is published and enforced by OSHA as a legal standard.
- F. **Approved Respirator** - Respirator that has been approved for industrial use by NIOSH or MSHA. Approved equipment will have an identifiable mark and approval number on the package.
- G. **Asphyxiant** - A physiologically inert gas that is present in sufficient quantity to exclude adequate oxygen supply.
- H. **IDLH - Immediately Dangerous to Life or Health.** Any atmospheric condition that poses an immediate threat to life, or which is likely to result in acute or immediate severe health effects, including oxygen deficiency.
- I. **Irritant** - Atmospheric contaminants that irritate the respiratory or nervous system. (not skin)
- J. **Oxygen Deficiency** - An atmosphere that contains less than 19.5% oxygen. Normal fresh air contains 20.9% oxygen.

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- K. **Respirator** - A protective device for the respiratory system designed to protect the wearer from inhalation of harmful airborne contaminants. There are two principal types of respiratory protective devices:
 - 1. Air purifying, which removes the contaminants from the air by filtering or chemical absorption before inhalation.
 - 2. Air supplied, which provides clean air from an outside source such as an air tank.
- L. **TLV's - Threshold Limit Values** (TLV's) are recommended limits of airborne concentrations of substances, which should not be exceeded. TLV's are guidelines issued by the American Conference of Governmental Industrial Hygienists (ACGIH).
- M. **Nuisance particulate or inert particulate** - particulates (particulate levels must not exceed PEL or TLV) which do not pose a toxic effect when exposures are kept under reasonable control.
- N. **PLHCP - Physician or other licensed health care professional**, is an individual whose legally permitted scope and practice through license, registration, or certification allows him/her to independently provide or be delegated the responsibility to provide some or all of the health care services required of the respirator standard. A PLHCP will be selected to conduct the medical evaluation, which consists of the administration of a medical questionnaire as a minimum.

4.0 Courtesy Particulate Respirators

Waupaca Foundry, Inc. Inc., does not recognize Courtesy Particulate Respirators in a separate category as defined by the OSHA regulation. Employees who wear what is considered to be a courtesy respirator in a Non-Required area are required to meet the standards set forth for employees in respirator required areas. This is above and beyond the requirements of OSHA's standard.

5.0. General Respirator Use - General Requirements

5.1 When respirators must be used to protect the health as a result of over exposure to inhalation hazards, made available to chemical spill response personnel, made available upon request, or otherwise mandated by management, this respiratory protection procedure will be utilized.

5.2 This written procedure will be implemented along with plant specific information to ensure an effective program is in place. The Director of Safety & Health for **Waupaca Foundry, Inc.-** will be the **program administrator**. The Safety Managers in each plant will be responsible for the execution of all applicable provisions of this procedure. The Director of Safety & Health is qualified by appropriate training and/or experience to properly oversee the program and conduct the required evaluations of the programs effectiveness.

5.2.1 A list of available specific respirators are identified in HSF 4-0021.

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- 5.2.2 Identification of location and hazard of intended respirator uses are identified in HSF 4-0021.
 - 5.2.3 Respirator users will be instructed and trained in the proper use, size, fit check, selection and limitations of the respirator they will be using, prior to its distribution to them.
 - 5.2.4 A list of employees who are trained and authorized to use/wear respiratory equipment will be maintained in the Health and Safety department.
 - 5.2.5 A written procedure for use of a respirator in an area with the regulated materials found in the vertical standard, including Cadmium and Lead may be found in the Appendix. These are the only materials from the vertical standard which are known to have historical presence at **Waupaca Foundry, Inc. Inc**, (Lead)
- 5.3 Employee(s) will receive training, be fit tested and receive written medical approval prior to being permitted to wear respirators.
- 5.4 Only **NIOSH or MSHA** approved respirators will be used.
- 5.5 Respirators will not be used or provided to employees until all requirements of this procedure are met.
- 5.6 Respirators, training and medical evaluations will be provided at no cost to the employees.
- 5.7 The written respirator program will updated as necessary by the **Program Administrator**. The Program Administrator will conduct a formal review at least annually. The most updated program will be maintained by the Program Administrator in the Health and Safety management system (OHSAS 18001) database available to all users at all times via the Lotus Notes system. See Appendix for Program Evaluation Guide.
- 6.0 **Work Area Surveillance**
- 6.1 Industrial Hygiene monitoring has been completed at all locations to assist in determining the need and type of respirator required, if any.
 - 6.2 The primary objective of monitoring will be to identify and control atmospheric contaminants through feasible and effective engineering controls.
 - 6.3 Respirators will be provided when:
 - 6.3.1 Effective engineering controls are not feasible.

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- 6.3.2 Engineering controls do not adequately reduce exposure levels below OSHA PEL's and recommended ACGIH-TLV's.
- 6.3.3 During the implementation of engineering controls where levels identified in #2 are exceeded.
- 6.3.4 It is necessary to protect the health of employees when no exposure level monitoring has been conducted.
- 6.3.5 It is necessary for emergency chemical spill response.

6.4 Respirator use will be re-evaluated when process, procedures or materials are changed, creating potential atmospheric contaminants. This applies whether or not the original operation/process required the use of a respirator.

6.5 Employee Notification:

Within 15 working days after the receipt of the results of any air monitoring, each affected employee must be notified of the results.

Notification may be either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

If the results exceed the PEL (permissible exposure level) the written notification shall also include a statement that the PEL has been exceeded and a description of the corrective action taken or to be taken to reduce exposure below the PEL.

7.0 **Respirator Selection**

- 7.1 Respirators have been and will continue to be selected based on the hazard to which the employees are exposed. The use of maintenance free (disposable) respirators is preferred due to the foundry environment and the ability to minimize the need for inspection, cleaning and disinfecting.
- 7.2 Respirators canisters shall only be used if they are properly identified for the contaminant and the maximum concentration expressed as a percent by volume of the atmosphere. Each canister must be color coded per OSHA requirements and can be easily distinguished from the others.
- 7.3 Only respirators that are approved by **NIOSH and /or MSHA** and the Program Administrator may be purchased for the specific hazard for which it was designed. These respirators must be used in compliance with the conditions of their certification.
- 7.4 In choosing respirators the following considerations shall be made:

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- 7.4.1 Estimated contaminant concentration where the respirator will be used, as determined by review of the Industrial Hygiene monitoring information. As well as determination of the anticipated exposure time by the employee.
 - 7.4.2 The Permissible Exposure Limit (PEL), Threshold Limit Value (TLV) and Short Term Exposure Limit (STEL) of the contaminant.
 - 7.4.3 The nature of the hazard such as physical and chemical properties of the contaminant (gas, vapor, particulate, etc.) and oxygen content.
Operation or process characteristics specific to foundry operation
Materials used or produced during the manufacturing process
Worker duties and activities
Abnormal situations that may arise and necessitate a different respirator selection (i.e.: emergency)
 - 7.4.4 Could the contaminant concentration be termed Immediately Dangerous to Life or Health (IDLH)?
 - 7.4.5 Does the contaminant have adequate warning properties? (Color, smell, smoke etc.)
 - 7.4.6 Where exposure cannot be identified or reasonably estimated, the atmosphere shall be considered to be IDLH.
- 7.5 Selection and Guide for respirators
- 7.5.1 Oxygen deficiency
-Self Contained Breathing Apparatus
Note - all oxygen deficient atmospheres (less than 19.5% O₂ by volume) shall be considered to be IDLH.
 - 7.5.2 Particulate (Dust)
-Particulate, mask / respirator
-Particulate, mist or fume respirator
-Air line respirator
-Abrasive Blasting respirator
-High efficiency particulate air (HEPA) filter
 - 7.5.3 Gaseous / Vapor
-Airline supplied respirator
-Chemical cartridge respirator with end of service life indicator (ESLI), provided by the manufacturer, or a schedule which implements change of the cartridges and canisters before the end of their service life, based on objective data. *This data must be written & available for review.
 - 7.5.4 Gaseous and Particulate
-Airline supplied respirator
-Chemical cartridge with additional particulate filter certified by NIOSH
 - 7.5.5 Gaseous IDLH

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- Self Contained Breathing Apparatus (SCBA)
- Supplied Air suits
- Gas Mask

- 7.5.6 Gaseous and Particulate IDLH
 - Self Contained Breathing Apparatus (SCBA)
 - Supplied Air suits
 - Gas mask with additional particulate filter certified by NIOSH

7.6 All oxygen deficient atmospheres (less than 19.5% O₂ by volume) will be considered IDLH.

7.6.1 In areas where the wearer, with failure of the respirator, could be overcome by a toxic or oxygen deficient (IDLH) atmosphere, at least one additional person shall be present at site of hazard area, outside of the IDLH atmosphere. Visual, voice or signed line communications must be maintained between all individuals present inside and outside of the IDLH atmosphere.

7.6.2 The employee(s) located outside the IDLH atmosphere must be trained and equipped to provide effective emergency rescue.

7.6.3 The Company or Program administrator must be notified before the employee(s) located outside of the IDLH atmosphere enters the IDLH atmosphere to provide emergency rescue.

***Entry into a confined space that contains an IDLH atmosphere is not permitted under any conditions.**

7.6.4 The Company or Program Administrator, once notified, provides necessary assistance and guidance appropriate to the situation.

7.6.5 Employee(s) located outside of the IDLH atmosphere area are equipped with:

7.6.5.1 Pressure demand or other positive pressure SCBA's or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA, and either;

7.6.5.2 Appropriate retrieval equipment for removing the employee(s) who enter the 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

7.6.5.3 Equivalent means for rescue where retrieval equipment is not required must be provided under paragraph (g) (3) (vi) (B).

7.7 Employees will not be permitted to use their own respirators purchased outside of the workplace. Company provided respirators only would be permitted for use on company property.

8.0 Air Quality - Supplied Air Systems

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- 8.1 Compressed air used for respiration must be of high purity. Breathing air must meet at least minimum requirements of Grade D breathing air as specified in Compressed Gas Association Commodity Specification G-7.1 1989 (current issue). Compressed oxygen must not be used in supplied air respirators or open circuit SCBA.

- 8.2 Breathing air may be supplied to respirators from cylinders, or air compressors. Compressors used to supply breathing air must be constructed and situated to prevent entry of contaminated air into the air supply system, minimize moisture content, have suitable in-line air purifying sorbent bed, filters and Carbon Monoxide alarm to ensure breathing air quality. A tag containing the most recent change date and the signature of the person authorized to make the change must be maintained at the compressor. Breathing air cylinders must be tested and accompanied by a certificate of analysis from the supplier that the breathing air meets the requirements for Type 1, Grade D breathing air.

9.0 Training Requirements

- 9.1 All employees who are issued a respirator will receive initial effective training prior to assignment. The training will be comprehensive and understandable. Re-training will be provided annually and when the following situations occur:
 - 9.1.1 Changes in the workplace or type of respirators render previous training obsolete.
 - 9.1.2 Inadequacies in employee knowledge or use of respirator are indicated.
 - 9.1.3 In the event where mandatory respirators are required.
*Such training will include routine use and emergency use personnel.

- 9.2 As a minimum, both workers and supervisors shall be trained in basic respiratory protection practices. I.e.: proper use, application, inspection, sizes, limitations, cleaning, and disposal.
Also, each shall be trained in the use of the specific respirator(s) for his/her use, including emergency use.

- 9.3 At a minimum the training program will include:
 - 9.3.1 Why the respirator is necessary and how improper fit, or maintenance can compromise the protective effect of the respirator.
 - 9.3.2 Limitations and capabilities of the respirator
 - 9.3.3 Use in emergency situations, including situations where the respirator malfunctions.
 - 9.3.4 How to inspect, put on and remove, use and check the seals of the respirator

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- 9.3.5 Procedures for maintenance and storage of the respirator
- 9.3.6 Recognition of medical signs and symptoms that may limit or prevent effective general requirements of this standard

9.4 Training records are to be retained which identify the following information:

- 9.4.1 Type of fit test completed (Qualitative / Quantitative)
- 9.4.2 Intended hazard (gases, vapors, dust, fumes, mist)
- 9.4.3 Respirator type and size
- 9.4.4 Instruction (respiratory protection, proper use, nature of the hazard, application, inspection, sizes, limitations, cleaning/disposal, clean shaven requirement)

10.0 Medical Surveillance

10.1 Employees will not be assigned to tasks requiring the use of negative pressure respirators or SCBA unless it has been determined that they are physically able to perform work and use the equipment safely. A physician or other licensed health care professional (PLHCP) shall examine these individuals and complete the appropriate medical questionnaire prior to fit testing or use.

It is the responsibility of the Safety, Health and Environmental department employees to identify those individuals that are required to wear respirators and the responsibility of the Health Services department to ensure they receive the appropriate medical evaluations prior to respirator use.

10.2 Medical Evaluation Guidelines. The presence of health impairment shall not necessarily preclude respirator use. The following shall be considered in the decision making process:

- The type and severity of the impairment
- The type of respirator, which is needed and will be worn (including consideration of the size and weight of the respirator)
- The effect of wearing the respirator on the impairment
- The nature of the job to be performed (physical requirements, and other protective clothing which may need to be worn)
- The frequency and duration of respirator use
- Temperature and humidity extremes that may be encountered

Many employees with mild respiratory or cardiovascular disease for example can and do wear respirators successfully. However, when such disease is moderate to severe, negative pressure, air purifying, or SCBA respirator use is in most cases not desirable.

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10.2.1 Physiological Factors

With negative-pressure respirators, resistance to inhalation is always experienced because the filter or chemical cartridge restricts airflow; in addition, the wearer must work against the exhalation valve upon expiration. Similar breathing resistance will be encountered when using a SCBA. The exhalation valve is designed to always maintain positive pressure within the mask;

therefore, significant exhalation resistance is encountered when using the SCBA. The weight of the SCBA (approximately 35#) will be of some concern, especially if the employee must perform strenuous work.

10.2.2 Pulmonary Factors

Respirator wearers shall be examined for evidence of respiratory impairment such as emphysema, chronic obstructive lung disease, bronchial asthma, fibrotic lung disease, etc. The historical and clinical evidence of impairment of pulmonary function, including chest x-ray findings and a reduction in vital capacity or forced expiratory volume, may justify forbidding a person to wear a respirator that restricts inhalation and exhalation. However the individual may perform adequately in a continuous-flow supplied air device.

10.2.3 Cardiovascular Factors

The use of air purifying, demand-type or pressure-demand supplied air devices may create a serious problem for employees with symptomatic cardiovascular disease. These people may be able to use a continuous flow device. Their physician will make the final decision.

10.2.4 Other health considerations that may prevent wearing a respirator

Uncontrolled diabetes; epilepsy, uncontrolled by medication; alcoholism; use of certain medication; punctured ear drum; skin sensitivities (facial); impaired or non-existent sense of smell; and other conditions that the physician determines to place the employee at added physical risk.

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10.2.5 Psychological Limitations

Factors such as claustrophobia or significant anxiety about respirator use may preclude their use. A physician shall be consulted for advice in these cases.

10.3 Medical Evaluation Procedure

10.3.1 Employee medical evaluation to determine his/her ability to wear a respirator will be administrated by a designated health care professional (PLHCP), using a specific medical questionnaire. **At Waupaca Foundry, Inc.**, the PLHCP will include the Health Services Nursing Personnel, along with the physicians that are employed as consultants to **Waupaca Foundry, Inc.**

Medical evaluations are completed during the pre-employment screening process, as well as annually during the Health Fair (*with the exception of the Tell City and Etowah facilities which completes the annual evaluation during the employees annual physical, which is held during their hire anniversary month). Medical evaluations will be conducted prior to the employee being fit tested or required to use a respirator.

10.3.2 Employees who work in areas of potentially hazardous exposure will participate in ongoing medical monitoring.

10.3.2.1 Chest x-ray will be performed as part of the pre-employment physical, and every 3-5 years (depending on level of exposure) for all **Waupaca Foundry, Inc.** employee's that are employed in the plant facilities. **Waupaca Foundry, Inc.** requires a "reading" of the x-ray film by a radiologist with additional training, and certified as a "B" reader. The PLHCP will review the findings of the "B" reader, and request additional testing, etc. as needed.

10.3.2.2 A spirometry test will be completed as part of the pre-employment physical, as well as annually. The trained nursing personnel evaluate the results at the time of the test. The consulting physician to the Waupaca Foundry will also evaluate the results for respirator clearance. Spirometry criteria per Medical Director: If the employee's spirometry results are less than 80 percent of the predicted values this information should be reviewed with the employee. It is recommended that the information be provided to the employee's Personal Physician for further examination for evaluation.

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10.3.2.3 All employees will be given a medical questionnaire at the time of hire and annually thereafter. Emphasis should be directed to symptoms of the Respiratory system, cardiovascular system, and smoking history. The employee is given the opportunity to ask questions, to ask for clarification, and to review the results of the evaluation with the PLHCP.

10.3.3 Follow Up Medical Evaluation

10.3.3.1 A follow up medical examination will be provided for employees who have a positive response to questions regarding symptoms of the respiratory system, cardiovascular system or smoking history. The follow up medical examination will include any medical test, consultations or other diagnostic procedures that the PLHCP deems necessary to make a final determination regarding the employees ability to use respiratory protection safely.

10.3.4 Administration of the Medical Questionnaire

10.3.4.1 Administration of the medical questionnaire and the medical examinations will be done confidentially during the employees normal working hours or at a time and place convenient to employees. The medical questionnaire will be administered in a manner that ensures that the employee understands its content and has an opportunity to ask questions. Additional questions may be added to the medical questionnaire at the discretion of the assigned PLHCP.

10.3.5 Information to be provided to the PLHCP

10.3.5.1 The following information shall be provided to the PLHCP prior to recommendations being made regarding the employees ability to wear a respirator:

- Type and weight of respirator to be worn
- Duration and frequency of use (including rescue & escape)
- Expected physical work effort involved
- Additional protective clothing and equipment to be worn
- Temperature and humidity extremes that may be encountered
- A copy of this written respirator procedure
- The medical questionnaire to be used
- A written medical authorization form found in appendix
- A copy of the medical evaluation requirement of OSHA 1910.134 Standard

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10.3.5.2 When a facility replaces a PLHCP the information noted above will be provided directly or transferred from the former PLHCP.

10.3.6 Medical Determination of Respirator users

The facility will obtain from the PLHCP written recommendations regarding the employees ability to use a respirator safely. These recommendations shall be limited to:

- 10.3.6.1 Whether or not the employee is medically able to use a respirator.
- 10.3.6.2 Any limitations on respirator use related to medical or workplace conditions.
- 10.3.6.3 The need, if any, for follow-up medical evaluations.
- 10.3.6.4 Documentation that the PLHCP has provided the employee with a copy of the written recommendations.

10.3.7 Substitution of Respirators with Powered Air Purifying Respirators (PAPR). If an employee fails the medical evaluation for use of a negative pressure respirator, a PAPR may be provided if the PLHCP finds that the employee may use such a respirator safely.

10.3.8 Additional Medical Evaluation. Additional medical evaluations may be necessary as determined by the health care provider when:

- 10.3.1.1 An employee reports medical signs or symptoms that are related to their ability to use a respirator.
- 10.3.1.2 A PLHCP, supervisor, or respirator program administrator decides that the employee is in need of re-evaluation.
- 10.3.1.3 Any part of the respirator protection program including observations made during fit testing indicates a need for the employees re-evaluation.
- 10.3.1.4. Change in the workplace conditions that may place increased physiological burden on an employer.

The decision about the frequency of the re-evaluation schedule will be made by the PLHCP.

10.3.9 Record keeping. The PLHCP will keep on file the written opinion on the employee's ability to use the respirator. These medical records will be kept for thirty (30) years after the last day of employment, as required by OSHA standard 29 CFR 1910.1020.

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Corporate Consulting Health Care Provider:

Dr. James Mayr

American Industrial Medical

9040 Glenwood Drive

Greendale, WI 53129

Telephone (414) 425-9500

PLHCP:

WAUPACA LOCATIONS:

Janice Nasberg LPN

Leslie Schramm LPN

Marlyce Wehmeyer LPN

Terra Bork, LPN

Holly Henning LPN

MARINETTE LOCATION:

April Ganter RN

Michael Paris, LPN

Candice Kenney LPN

TELL CITY LOCATION:

Gwenn Sanders - LPN/EMT

Aaron Meyer - LPN/EMT

James R Jarboe – Paramedic

Whitney Carter - RN/EMR

Consulting Health Care Provider:

Steven Syler, MD; Tell City Clinic

ETOWAH LOCATION:

Lorene Powers LPN

Dan Vaughn LPN

Caleb Martin EMT-IV

Consulting Health Care Provider

Richard Sharpe, Athens Medical Group

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11.0 Respirator Fit Testing Guidelines

- 11.1 Each respirator wearer will be fit tested for the specific negative or positive pressure tight fitting face piece respirator he/she will be permitted to wear. The wearer will be instructed on how to perform a negative pressure test (face piece fit check). Fit testing will be performed only after medical evaluation, and authorization has been given.
- 11.2 At a minimum, employees using tight fitting face piece respirators must pass a qualitative fit test which involves the introduction of harmless, odorous or irritating substances into the breathing zone of the respirator wearer under test conditions. If the wearer does not detect the presence of the substance then the proper fit is believed to be obtained. Qualitative fit testing procedures (using either irritant smoke, isoamyl acetate, suchaine or Bitrex) can be used for fit testing tight fitting face pieces with fit factors of 100 or less.
- 11.3 Where respirators are used to protect against exposure to highly toxic materials quantitative fit testing is recommended. This will permit measurement to actual leakage of the test substance into the respirator and does not depend on the wearers sense of smell or taste to determine proper fit. Quantitative fit testing procedures (actually measuring the reduction in exposure from the respirator) must be used for all tight fitting face pieces requiring fit factors greater than 100.
- 11.4 Respirators shall not be issued to or used by an employee when a good face seal cannot be attained. Such conditions include:
1. Growth of facial hair (beard) that interferes with proper face seal.
 2. Side burns
 3. Absence of teeth or dentures
 4. Temple piece of glasses
- 11.5 If corrective eyewear is required, it shall be worn so as not to affect the fit of the face piece. A proper seal cannot be established if eyewear temple bars extend through a respirators sealing edge. As a temporary measure, glasses with short temple bards, or without temple bars may be taped in. Wearing contact lenses in a contaminated atmosphere with a respirator is prohibited. Eyeglass kits are available from the manufacturer for full-face respirators used at Waupaca Foundry, Inc.
- 11.6 To assure proper protection, the wearer will be instructed to perform face piece fit checks each time the respirator is put on.

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- 11.7 Fit testing of negative or positive pressure respirators with tight fitting face pieces must be performed initially, whenever a different respirator face piece is issued and at a minimum annually.
- 11.8 Additional fit testing shall be conducted whenever the employee, the company, the PLHCP, the supervisor, or the program administrator make visual observations of changes in the employees physical condition (i.e.: weight loss, facial scarring, dental changes, cosmetic surgery) that may affect the respirator fit. In addition, fit testing and check will be conducted if the employee subsequently notifies the company or PLHCP that the fit of the respirator is unacceptable.
- 11.9 Fit testing of tight fitting atmosphere supplying respirators and powered air purifying respirators must be performed in the negative pressure mode, regardless of the mode of operation (positive or negative pressure).
- 11.10 The fit testing of tight fitting face piece respirators will be conducted in accordance with the OSHA accepted fit test method for qualitative fit testing (QLFT) and quantitative fit testing (QNFT).
- 11.11 A record of the most recent fit test will be maintained in the employees medical file, and will contain:
 - 1. The name of the employee fit tested
 - 2. The type of fit test performed
 - 3. The specific make, model, style and size of the respirator that was fit tested
 - 4. The date of the test
 - 5. The pass/fail results for qualitative fit tests (or the fit factor and strip chart recording or other recording of the test results for quantitative fit testing).

12.0 Maintenance and Care

- 12.1 All respirators must be inspected routinely and before and after each use by the wearer. All respirators that are not routinely used but are maintained for emergency use, including SCBA equipment must be inspected after each use and at least monthly. Emergency "Escape Only" respirators shall be inspected before being carried into the work area for use. Records of the monthly inspections must be maintained for equipment and include the name of the person conducting the inspection, the date, findings, corrective action and serial number or other identifier for the respirator.
The respirator inspection shall include:

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- 12.1.1 Tightness of the connections
- 12.1.2 Face Piece, Valves, Connecting tubes, canisters, filters and/or cartridges
- 12.1.3 Head straps and head harness
- 12.1.4 Any other part that may affect the performance of the respirator

Also applicable for SCBA:

- 12.1.5 Regulators and warning devices, ensure proper function
- 12.1.6 Ensure high pressure cylinder of compressed air/oxygen are fully charged
 - *Must be recharged when below 90% of manufacturers recommended level
- 12.1.7 Rubber or elastomer parts for pliability and signs of deterioration

- 12.2 Routinely used, non-disposable, respirators must be cleaned and disinfected as frequently as necessary to ensure that proper protection is provided for the wearer. The wearer is responsible for this cleaning. Respirators used for fit testing and training, will be cleaned and disinfected after each use if not handled exclusively by the intended user. Respirators maintained for emergency use shall be cleaned and disinfected after each use.
- 12.3 Disposable respirators shall be inspected by the wearer and discarded when they are used or show signs of deterioration. If the respirators integrity is in question, it should be discarded and replaced.
- 12.4 Non-disposable respirators must be inspected during cleaning. These inspections shall be documented.
- 12.5 Repairs of adjustments to a respirator will be made only by people who have been appropriately trained to perform such operations; with manufacturer's NIOSH approved parts, which have been designed for the specific respirator. Repairs to respirators will be made only according to the manufacturer's recommendations and specifications for the type and extent of the repairs to be made. Reducing and admission valves, regulators and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.
- 12.6 Respirators will be stored to protect them from damage, contamination, sunlight, extreme temperatures, excessive moisture, and damaging chemicals. Emergency use respirators shall be readily accessible.

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- 12.7 Respirators will be placed or stored so that the face piece and exhalation valve will rest in a normal position and function will not be impaired by the elastomers setting in an abnormal position.
- 12.8 The 6000 series respirators will be kept in the Health Services department or stockroom. A listing 5000/6000 is maintained in the Lotus Notes database. The employee must sign out the 5000 series respirator or 6000 series cartridges at the Waupaca location. The only employee's allowed to use these respirators are employees that are listed by Health Services (who have completed medical evaluation and training). Cartridges will also be kept and distributed in this manner. The stockroom will not distribute or deliver these respirators to the workstation. The employee is responsible to pick up his or her own respirator or cartridges at the stockroom.
- 12.9 ESLI (End of Service Life Indicator)
Employees will be trained regarding the limitations of their respirator. Disposable respirators are primarily used **at Waupaca Foundry, Inc.** Employees who have been fit tested and approved to use the 5000 series respirator will be instructed to dispose of their mask after each use, or as recommended by the specific manufacturer's instructions. Employees who have been fit tested for the 6000/7800 series respirator will be instructed to dispose of their cartridges after each use or as recommended by the manufacturer. Manufacturer instructions for 3M products recommend the following:
- 12.9.1 Failure to follow all instructions and limitations of the use of this respirator and failure to wear this respirator during all time of exposure can reduce the respirator effectiveness and may result in illness or death.
- 12.9.2 The dust, mist, gases, and vapors, which can be dangerous to your health, include those, which you may not be able to see.
- 12.9.3 Before use, the wearer must first be trained by the employer in proper respirator use in accordance with applicable safety and health standards.
- 12.9.4 Leave the area immediately and replace the respirator if it:
1. Becomes damaged.
 2. You taste or smell contaminants or an irritation occurs.
 3. Breathing becomes difficult.
 4. Dizziness or other distress occurs.
- 12.10 Store this respirator in a sealed container/bag away from contamination when not in use.

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13.0 Selection of Respiratory Protection

In July 1995, NIOSH updated and modernized the Federal regulation for certifying air purifying particulate respirators (42 CFR 84). The respirators certified under this new regulation are tested under much more demanding conditions than the old regulation, which means they will provide additional protection for the employees of **Waupaca Foundry, Inc.**

13.1 The new Part 84 regulation provides for nine (9) classes of filters - three levels of filter efficiency, each with three categories of resistance to filter efficiency degradation. Specifically:

13.1.1 The three levels of filter efficiency are 95%, 99%, and 99.97%. Each receives a corresponding numerical designation ("95" "99" or "100").

13.1.2 The three categories of resistance to filter efficiency degradation are labeled N, R, and P. These relate to the filter's degradation capacity in the presence of oil aerosols. The "N" designation means the filter is not resistant to oil. The "R" stands for oil-resistant, and "P" is for oil-proof.

13.2 Choosing the appropriate Part 84 respirator:

13.2.1 If no oil particles are present in the work environment, use a filter of any series (i.e., N-, R-, or P-series).

13.2.2 If oil particles (e.g., lubricants, cutting fluids, glycerine, etc.) are present, use an R- or P-series filter. Note: N-series filters cannot be used if oil particles are present.

13.2.3 If oil particles are present and the filter is to be used for more than one work shift, use only a P-series filter.

Selection of filter efficiency (i.e., 95%, 99%, 99.97%) depends on how much filter leakage can be accepted. High filter efficiency means lower filter leakage.

14.0 Forms

HSF 4-0097 Respirator Maintenance and Care
HSF 4-0098 Respirator Program Evaluation Guide