



Respiratory Protection Program

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Introduction

Various activities in academic and staff areas create conditions for potential exposures to airborne contaminants that could result in acute or chronic occupational disease. Where feasible, Purdue University's intention is to reduce individual exposures to these conditions as much as possible with engineering controls, substitution of less toxic materials and/or administrative controls. Where these controls are not feasible the use of respiratory protection may be the only alternative.

To ensure the health of faculty, staff, and students the written Respiratory Protection Program (RPP) was developed. This guidance document provides regulatory compliance and a consistent system for identifying and controlling respiratory hazards. The RPP is consistent with the regulatory requirements of the Occupational Safety and Health Administration (OSHA) Respiratory Protection Standard 29 CFR, 1910.134.

Scope

The RPP includes the use of *all* types of respirators regardless of the exposure level. The provisions of the RPP apply to everyone at Purdue University's West Lafayette Campus, Regional Campuses, University research farms and agricultural centers, and related facilities and operations.

Requirements

Respirators shall be provided by the University at no cost* when necessary to protect the health of the employee. The University shall provide respirators which are applicable and suitable for the purpose intended. Departments shall bear the cost of respiratory protective equipment and the cost of miscellaneous supplies.

- The RPP administrator, as designated by the Department of Radiological and Environmental Management (REM), shall be responsible for the establishment and maintenance of the RPP.
- REM shall approve all equipment and have the authority to require the use of respiratory protective equipment and to prohibit the use of such equipment.
- Only respiratory protective equipment approved by REM shall be purchased or utilized.
- Negative pressure respirators and demand respirators shall not be worn when conditions prevent a good face seal. Such conditions may be the growth of beard, side burns, or a skull cap that projects under the face-piece or temple piece of glasses. Any employee, who has facial hair which intrudes into the area where the respirator seals against the face, shall not be fitted with a negative pressure or demand respirator. Additionally, any employee who is not clean-shaven shall not be allowed to wear a negative pressure or demand respirator, even though he or she has previously obtained a satisfactory fit with a particular device.
- Medical evaluations shall be conducted by a Physician or Licensed Health Care Professional (PLHCP). The University currently has a contract with the Regional Occupational Care Center.
- The supervising department shall notify REM prior to assigning an employee to a task that could require the use of a respiratory protective device.
- Employees shall utilize and maintain respiratory protective equipment in accordance with procedures established by REM and outlined within this document.

- The supervising department shall ensure employees comply with the provisions of the RPP.
- Exceptions to this policy and the RPP shall require the approval of the RPP administrator.
- Copies of the RPP shall be made available, upon request, to affected employees. The program document is also available on the REM website.
- RPP forms are available on the REM website *Forms* webpage. Example forms are provided as Appendices in this document. Completed forms are to be submitted to REM.
- Where employees use respirators (dust masks only) and exposure levels are below established limits, they may do so in accordance with RPP Form 1, Information for Employees Using Respirators When Not Required Under the Standard (Appendix D).

** As used in this Policy, the term employee includes students when exposed to hazardous materials under the same conditions as employees. Students may be required to purchase respiratory protection equipment for laboratory courses.*

Responsibilities

The Supervisor Shall:

- Contact REM when they suspect a respirator may be required for a job;
- Attend training on proper selection, storage, use, and maintenance of respiratory protective equipment when employees they supervise are required to use such equipment;
- Ensure employees are scheduled and receive medical exams, when required;
- Ensure employees attend annual training on the proper storage, use, and care of respiratory protective equipment (to be performed during annual fit test);
- Supply employees with respiratory equipment specified by REM;
- Supply the necessary parts and equipment to clean and maintain the respirator;
- Ensure employees clean and maintain respiratory protective equipment properly; and
- Ensure emergency use respiratory protective equipment is kept in supervised work areas and is inspected on a monthly basis. A log of this inspection shall be maintained.

The Employee Shall:

- Attend training on the storage, use and care of respiratory protective equipment (performed prior to initial use and annually during fit test);
- Be clean-shaven in areas where facial hair may prevent a good face seal, when required to use negative pressure respiratory protective equipment;
- Store, use, and maintain respirators in accordance with instructions given; and

- Report to supervisor any operations or jobs for which they suspect respiratory protective equipment may be needed.

The Physician or Other Licensed Health Care Professional (PLHCP) Shall:

- Establish medical and physical criteria for users of respiratory protective equipment and opt to use the OSHA medical questionnaire or an equivalent; and
- Provide REM with written results verifying whether employees are medically fit to use a negative pressure respirator and/or restrictions of use.

The Department of Radiological and Environmental Management Shall:

- Make periodic surveys of operations and equipment at the University to assure adequate protection of employees is being provided;
- Review operations for which respiratory protective equipment may be required;
- Specify appropriate equipment. Only National Institute for Occupational Safety and Health (NIOSH) approved equipment will be specified when it is available. The job situation, exposures involved, and respiratory protection factors will be taken into consideration when specifying a respirator;
- Provide or arrange for training on the proper storage, use, and care of respiratory protective equipment;
- Maintain a list of employees medically approved for use of respiratory protective equipment;
- Generate a written Respiratory Protection Program and update as needed;
- Provide a completed copy of Appendix D of 29 CFR 1910.134 Information for Employees Using Respirators When Not Required under the Standard of when dust masks are voluntarily used by employees. See RPP Form 3 in Appendix D.
- Provide to the PLHCP a copy of the appropriate section of the OSHA Standard and information on respirator users; and
- Designate a Program Administrator to oversee and maintain the program

Process for Employees Entering the RPP

1. Employees or supervisors can contact REM at (765) 494-6371 to schedule an exposure assessment of their work area if they are unsure of the respiratory hazards in their workplace.
2. REM will come to your work area to perform the assessment and evaluate the following:
 - a. The nature of the respiratory hazard;
 - b. The physical and chemical properties of the air contaminant;
 - c. Warning properties of the hazardous chemical;
 - d. The adverse health effects of the respiratory hazard;
 - e. The nature of the work operation or process;
 - f. The time employees will wear respiratory protection during their shift
 - g. The employees' work activities and the potential stress of their work conditions;

- h. Additional protective clothing and equipment worn by the employee;
 - i. The results of the workplace sampling (if performed); and
 - j. Respirator use recommendations;
3. If assessment results identify the need for a respirator, a Request for Occupational Services (Form 89) will be sent to the employee. New employees will be issued a Form 89 upon hire in work areas or job classifications previously identified by an exposure assessment. Upon receipt of a Form 89, the employee shall contact the Regional Occupational Care Center to set up an appointment. The employee will be given the OSHA medical questionnaire at the clinic to complete before the examination. The extent of the examination will depend on the results of the questionnaire and discretion of the physician. Additional medical testing and analysis may be required for individuals who are also required to participate in a medical surveillance program for exposure to select agents (e.g. lead, beryllium).
 4. The office of Radiological and Environmental Management will receive a letter approximately 5-10 working days after the medical evaluation. The letter will state whether the employee is fit to use a respirator, fit with restrictions, or un-fit to use a respirator. REM will then contact the employee to schedule a fit testing date or discuss alternatives.

Selection of Respirators

General Requirements

- REM shall utilize information obtained during the work area assessment described above to select appropriate respirators for use.
- Appropriate respirators will be selected from among those approved and certified by the National Institute of Occupational Safety and Health (NIOSH).
- In situations where REM cannot identify or reasonably estimate employee exposure, the atmosphere will be considered Immediately Dangerous to Life or Health (IDLH).
- REM will provide a sufficient number of respirator models and sizes to ensure that the respirator is acceptable to, and correctly fits, the user.

Respirators for IDLH Atmospheres

- Employees will be provided with the following respirators for work in an IDLH environment:
 - A full facepiece pressure demand Self Contained Breathing Apparatus (SCBA) certified by NIOSH for a minimum service life of thirty minutes; or
 - A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.
- Respirators provided only for escape from IDLH atmospheres shall be NIOSH certified for escape from the atmosphere in which they are used.
- All oxygen deficient atmospheres shall be considered IDLH. Note: If the supervising department or REM can demonstrate that under all foreseeable conditions the oxygen content can be maintained within 16.0-19.5%, then any atmosphere supplying respirator may be used.

Respirators for Non IDLH Atmospheres

- Employees will be provided with a respirator that is adequate to protect their health and ensure compliance with all other OSHA statutory and regulatory requirements.
- Assigned protection factors (APFs) specified in Table 1 of 29 CFR 1910.134 (d)(3)(i)(A) shall be taken into consideration when determining appropriate respirator use. See Table 1 in Appendix A.
- Maximum Use Concentration (MUC) calculations will be utilized during the respirator selection process.
- MUCs will not be applied to conditions that are IDLH. If a calculated MUC exceeds an IDLH level for a hazardous substance, or the performance limits of the cartridge or canister, then the maximum MUC will be set at the lower level (IDLH). The respirators selected shall be appropriate for the chemical state and physical form of the contaminant (which will have been identified during the work area hazard assessment).
- For protection against gases and vapors, employees shall be provided with:
 - An atmosphere supplying respirator; or
 - An air-purifying respirator with an end-of-service-life indicator (ESLI) certified by NIOSH or a change schedule for canisters and cartridges which is based on objective information or data that will ensure the canisters and cartridges are changed before the end of their service life.
- For a cartridge without an ESLI, service life will be estimated based on monitoring data and work conditions in conjunction with an ESL estimating calculator. This will allow for the estimated maximum use duration before replacement ensuring breakthrough does not occur. Listed below are OSHA-recognized general guidelines that can be used to estimate cartridge service life:
 - For chemical with a boiling point of >70°C (158°F) and the concentration is less than 200 ppm you can expect a service life of 8 hours at a normal work rate.
 - Service life is inversely proportional to work rate.
 - Reducing the concentration by a factor of 10 will increase the service life by a factor of 5.
 - Humidity above 85% will reduce service life by 50%.
- For protection against particulates, employees will be provided with:
 - An atmosphere-supplying respirator; or
 - An air-purifying respirator equipped 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 30 CFR 11 before July 10, 1995); or
 - For contaminants consisting of primarily 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.

Medical Evaluation

Initial Medical Evaluation

Prior to respirator use, a medical evaluation must be completed to ensure an individual's fitness to wear a respirator. The medical evaluation consists of an OSHA required questionnaire and general physical administered by an occupational health clinic. Depending on the results of the questionnaire and information from the physical, additional medical testing may be required. All initial (baseline) medical

evaluations will include completion of the questionnaire, a general physical, and a pulmonary function test. Other agent specific tests may be required by OSHA (e.g. lead, beryllium). See the OSHA Respirator Medical Evaluation Questionnaire (29 CFR 1910.134, Appendix C).

Administration of the Medical Questionnaire and Examinations

The medical questionnaire and examination(s) shall be administered confidentially during normal working hours and the employee will be provided an opportunity to discuss the questionnaire and examination results with the PLHCP.

Supplemental Information for the PLHCP

- The following information will be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to wear a respirator
 - Type and weight of the respirator
 - The duration and expected frequency of use
 - The expected physical work effort
 - Additional protective clothing and equipment to be worn; and
 - Likely temperature and humidity extremes that may be encountered.

- The PLHCP will be provided with a copy of the written respiratory protection program.

Note: *If the University replaces the PLHCP, the RPP administrator shall ensure that the new PLHCP obtains the aforementioned documentation. OSHA does not require medical re-evaluations solely because a new PLHCP has been selected.*

Medical Determination

A written recommendation regarding an employees' ability to wear a respirator will be provided to the RPP administrator. The recommendation will include only information specific to the employees' ability to wear a respirator. This would include any limitations on respirator use, the need for follow-up examinations, and a statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

Note: *If the PLHCP finds a medical condition that may place an employee's health at increased risk if a negative pressure respirator is used, the supervising department shall provide a powered air purifying respirator (PAPR) if the PLHCP determines that the employee can use such a respirator. If a subsequent evaluation finds that the employee is medically able to use a negative pressure respirator, then the supervising department is no longer required to provide a PAPR.*

Additional Medical Evaluations

Additional medical evaluations (including the OSHA Respirator Medical Evaluation Questionnaire, physical, and pulmonary function test at a minimum) will be performed annually for Purdue Fire, Purdue Police, and REM. For all other positions requiring respirator use, additional medical evaluation will be performed in accordance to the NIOSH minimum frequency recommendations.

Age	Medical Testing Frequency
Less than 35 years	Every 5 years after baseline
35-44 years	Every 2 years after baseline
45 years or older	Every year after baseline

(NIOSH Recommendation-Criteria Document 91-119 APPENDIX H)

Additional medical evaluations are required immediately if:

- An employee reports medical signs or symptoms that are related to their ability to use a respirator;
- A PLHCP, supervisor, or the RPP administrator informs the employer that an employee needs to be re-evaluated;
- Information from the respiratory program, including observations made during fit testing and program evaluation need to be re-evaluated; or
- A change occurs in workplace conditions that may result in a substantial increase in the physiological burden place on an employee.

A medical evaluation **is not required** for exposure situations where the level is below the OSHA limit or any other industry standards (e.g. ACGIH-TLV). Laboratory analytical data is required to determine if exposure is likely to be less than regulatory requirements. In these situations a dust mask may be used. Voluntary dust mask users are required to read and sign a copy of the Information for Employees Using Respirators When Not Required Under the Standard (RPP Form 3 located in Appendix D).

Fit Testing

The fit testing procedure provides verification and written documentation that a specific manufacture, model, and size of tight fitting respirator is capable of maintaining a minimum level of protection in accordance with regulatory requirements. Two categories of fit testing are OSHA-accepted methods, Quantitative fit testing (QNFT) and Qualitative Fit Testing (QLFT). The first method establishes an actual numerical value with the use of specialized equipment; the second is dependent on individual subjectivity to yield a minimum acceptable level. Either method may be used but the QNFT is preferred.

General Requirements

- Fit testing *may not* be administered until REM obtains notification following a medical approval for fitness to wear or such documentation is provided by the employee, which indicated that it has been completed within the previous 12 months.
- Fit testing shall be conducted on an annual basis for any tight fitting face piece respirator (including an N95 or filtering facepiece) where an exposure exists above an OSHA-Permissible Exposure Limit (PEL) or American Conference of Governmental Industrial Hygienists (ACGIH)-Threshold Limit Value (TLV). It is also required where known or suspect exposure to etiological agents may occur.
- Fit testing requires the individual to be clean shaven where facial hair has the potential to prevent an adequate seal with the sealing surface of the respirator. An additional fit test must be performed whenever the employee, supervisor, or RPP administrator makes visual observations of changes to the employee's physical conditions that could affect respirator fit.
- The QTFT and QLFT shall follow the procedures as outlined in accordance with 29 CFR 1910.134 Appendix A, Mandatory Fit Testing Procedures.

- Successful completion of a fit test is defined as an OSHA-accepted QNFT protocol as equal to or greater than 100 for tight-fitting half masks, or equal to or greater than 500 for tight-fitting full facepieces.
- Fit testing of tight-fitting atmosphere supplying respirators and tight-fitting powered air purifying respirators shall be accomplished by performing the QNFT or QLFT in the negative pressure mode.
- Qualitative fit testing of tight-fitting respirators shall be accomplished by temporarily converting the respirator user's actual facepiece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator facepiece with the same sealing surfaces as a surrogate for the atmosphere-supplying or PAPR facepiece.
- Quantitative fit testing of tight-fitting respirators shall be accomplished by modifying the facepiece to allow sampling between the nose and mouth. This requirement shall be accomplished by installing a permanent sampling probe onto a surrogate facepiece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the facepiece.
- Modifications of these respirators for fit testing shall be completely removed, and the face-piece restored to NIOSH approved configuration, before the facepiece can be used in the workplace.

Respirator Use and Limitations

Facepiece Seal Protection

- Tight-fitting facepieces shall not be worn by employees who have facial hair that comes between the sealing surface of the facepiece and the face or that interferes with the valve function; or any condition that interferes with the face-to-facepiece seal or valve function.
- If an employee wears glasses or other PPE, REM shall ensure that such equipment is worn in a manner that does not interfere with the seal of the facepiece.
- For all tight-fitting respirators, the user needs to perform a seal check each time they don the respirator. Instructions for performing a user seal check are available in Appendix B-1 of 29 CFR 1910.134 User Seal Check Procedures.

Continuing Respirator Effectiveness

- The supervisor and RPP administrator shall be notified by the employee if there is a change in work area condition or degree of employee stress that may affect respirator effectiveness. REM shall re-evaluate the effectiveness of the respirator if work conditions change.
- Employees shall leave the respirator use area if any of the following are observed or if the following tasks need to be performed:
 - To wash their face and respirator facepiece to prevent eye or skin irritation resulting from respirator use;
 - Vapors or gas breakthrough is observed;
 - Change in breathing resistance;
 - Facepiece leakage; or
 - To replace the respirator, filter, cartridge, or canister elements.

- If any employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece, REM shall re-evaluate the effectiveness of the respirator and the employee shall refrain from the work environment until the problem is resolved.

IDLH Environments

- Before working in an IDLH environment the fire department must be notified.
- If work must be done in an IDLH environment, one or more employees shall remain outside the IDLH atmosphere. Visual, voice, or signal line communication shall be maintained at all times.
- Employee(s) located outside the IDLH atmosphere need to be trained and equipped to provide effective emergency rescue. They shall be equipped with:
 - Pressure demand or other positive pressure SCBA, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA;
 - Appropriate retrieval equipment for removing the employee(s) who enter the hazardous atmosphere where the retrieval equipment would not increase the overall risk resulting from entry; or
 - Equivalent means for rescue where retrieval equipment cannot be used for safety reasons.
- In a rescue situation the fire department must be alerted before anyone enters the IDLH environment. The fire department will respond and assist with IDLH environment entry.

Structural Firefighting

All employees engaged in interior structural firefighting shall use SCBAs and enter IDLH atmospheres in tandem. At least two employees shall remain outside the IDLH atmosphere.

Note: *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 office, so long as the individual is able to perform assistance or rescue activities without jeopardizing the safety or health of any firefighter working at the incident. Nothing in the section is meant to preclude firefighters from performing emergency rescue activities before an entire team has assembled.*

Respirator Maintenance

Cleaning and Disinfecting

It is the employee's responsibility to clean their respiratory equipment. Each employee will be issued a respirator for their use only. Respirators shall not be shared.

- For re-usable elastomeric facepieces a thorough cleaning should be done at the end of each days use. The respirator should be disassembled and washed in warm water using a mild detergent. Following washing, the respirator should be rinsed and allowed to air dry then be re-assembled and place in a dust tight container. Alcohol or detergent pads can be used for light cleaning during use but thorough cleaning is needed at the end of a shift. Cleaning procedures are available in Appendix B-2 of 29 CFR 1910.134 Mandatory Respirator Cleaning Procedures.
- Dust masks and single use respirators should be disposed of after becoming visible soiled. Loose fitting hoods may require laundering after becoming soiled.

- Emergency use respirators shall be cleaned and disinfected after each use.
- Respirators used for fit testing shall be cleaned and disinfected after each use.

Storage

All respirator protection equipment must be stored in a dust tight container. The storage must not cause physical distortion to elastomeric parts. Avoid storing in direct sunlight and extremes of temperature. Chemical cartridges should be stored in airtight zip-lock bags to prevent adsorption of chemical during storage thus reduce their use life. Emergency respirators shall be kept accessible to the work area and shall be stored in clearly marked compartments or containers according to manufacturer instructions.

Inspection

- Employees shall ensure that respirators are inspected as follows:
 - All respirators used in routine operations shall be inspected before each use and during cleaning;
 - All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer's recommendations, and shall be checked for proper function before and after each use, See the Respirator Inspection Record (RPP Form 5) in Appendix E; and
 - Emergency escape respirators shall be inspected before being carried into the workplace for use.
- All Respirator inspections shall include the following:
 - Check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to the facepiece, head straps, valves, connecting tubing, and cartridges, canisters, or filters; and
 - A check of elastomeric parts for pliability and signs of deterioration.
- SCBA and Emergency Use Respirators shall be inspected monthly, documented, and in addition to the inspection responsibilities above also include:
 - An inspection of the air and oxygen cylinders – maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level; and
 - A determination that the regulator and warning devices function properly.
- Documentation of the monthly SCBA and Emergency Use Respirators shall include:
 - Date of the inspection;
 - Signature of the person performing the inspection;
 - The findings and required remedial action; and
 - The serial number or other means of identifying the inspected respirators.
- Emergency use and SCBA inspection information shall be documented on a tag or label that is attached to the compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information shall be maintained until replaced following a subsequent certification

Repairs

Respirators that fail an inspection or are otherwise found to be defective shall be removed from service, and be discarded or repaired. Any damaged parts must be replaced before re-use and can only be replaced by the same NIOSH-approved manufacturer's replacement part. Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed. Reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

Breathing Air Quality and Use

Employees using atmosphere-supplying respirators (supplied-air and SCBA) will be supplied with breathing gases of high purity.

- Compressed air, compressed oxygen, liquid air, and liquid oxygen use for respiration shall meet the following specifications:
 - The United States Pharmacopoeia requirements for medical or breathing oxygen; and
 - The requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989.
- Compressed oxygen shall not be used in atmosphere-supplying respirators that have previously used compressed air.
- Oxygen concentrations greater than 23.5% are only to be used in equipment designed for oxygen service or distribution.
- Cylinders used to supply breathing air to respirators shall meet the following requirements:
 - Are tested and maintained according to the Shipping Container Specification Regulations of the Department of Transportation (49 CFR 173 and 49 CFR 178);
 - Have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air; and
 - The moisture content in the cylinder does not exceed a dew point of -50 °F at 1 atmosphere pressure.
- Compressors used to supply breathing air to respirators are to constructed and situated so as to:
 - Prevent entry of contaminated air into the air-supply system;
 - Minimize the moisture content so that the dew point at 1 atmosphere is 10 °F below the ambient temperature;
 - Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality; and
 - Have a tag containing the most recent change date and the signature of the person authorized by the employer to perform the change.
- For compressors that are not oil-lubricated, the carbon monoxide levels in the breathing must not exceed 10 parts per million (ppm).
- For oil-lubricated compressors, a high-temperature or carbon monoxide alarm, or both shall be used to monitor carbon monoxide levels. *Note: If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.*
- The supervising department shall ensure that breathing air couplings are incompatible with outlets for nonrespirable worksite air or other gas systems. No asphyxiating substance shall be introduced into breathing air lines.

- The supervising department shall ensure breathing gas containers marked in accordance with the NIOSH respirator certification standard, 42 CFR Part 84 are used.

Identification of Filters, Cartridges, and Canisters

Employees and Department Supervisors shall ensure that all filters, cartridges, and canisters used be labeled and color coded with the NIOSH approval label and the label is not removed and remains legible.

Training

Training will be provided to all employees prior to the donning of a respirator by REM during fit testing procedures. Thereafter, training will be performed on an annual basis during annual fit testing procedures.

Training will require employees to demonstrate knowledge of the following:

- Why respirators are necessary to wear and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- What the limitations and capabilities of the respirator are;
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
- How to inspect, put on and remove, use, and check the seals of the respirator;
- What the procedures are for the maintenance and storage of the respirator; and
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.

Retraining by REM shall be administered annually at a minimum. Training shall be performed immediately if any of the following is observed:

- Changes in the workplace or the type of respirator that render previous training obsolete;
- Inadequacies (noticed by department supervisor or REM) in the employee's knowledge or use of the respirator which 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.

Employees who choose to wear a respirator when not required by the standard are required to read and sign a copy of Information for Employees Using Respirators When not Required Under Standard (see RPP Form 1 in Appendix D).

Program Evaluation

The RPP Administrator shall review the written respirator program and update it as needed. REM shall also perform an overall evaluation of the effectiveness of the program to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.

REM shall periodically consult employees in the RPP to assess the employees' views on program effectiveness and to identify any problems. Factors to be assessed 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; and
- Proper respirator maintenance.

Record-Keeping

The Program Administrator shall see that the following documents are maintained and made available in accordance with 29 CFR 1910.1020:

- Any air monitoring data collected relative to respirator use;
- Manuals containing job classification forms and risk assessment information; (not in standard)
- Records of medical evaluations for a period of thirty years after employment;
- A written record of the employee's fit test that includes the date performed, their name, type of fit test performed, results; manufacture's, model, style, and size of respirator fitted; and
- The written respiratory protection standard.

Appendices

- A. RPP Table 1: Assigned Protection Factors (29 CFR 1910.34, Table 1)
- B. RPP Form 1: Participation Application
- C. RPP Form 2: Training Record
- D. RPP Form 3: Information for Employees Using Respirators When Not Required Under the Standard (29 CFR 1910.134, Appendix D)
- E. RPP Form 4: Respirator Inspection Record

Assigned Protection Factors⁵

Type of Respirator ^{1,2}	Quarter Mask	Half Mask	Full Facepiece	Helmet/Hood	Loose-Fitting Facepiece
1. Air Purifying Respirator	5	³ 10	50	--	--
2. Powered Air-Purifying Respirator (PAPR)	--	50	1,000	⁴ 25/1,000	25
3. Supplied-Air Respirator (SAR) or Airline Respirator					
• Demand Mode	--	10	50	--	--
• Continuous Flow Mode	--	50	1,000	⁴ 25/1,000	25
• Pressure-demand or other Positive-Pressure Mode	--	50	1,000	--	--
4. Self-Contained Breathing Apparatus (SCBA)					
• Demand Mode	--	10	50	50	--
• Pressure-demand or other Positive-Pressure mode	--	--	10,000	10,000	--

¹Employers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration.

²The assigned protection factors in Table 1 are only effective when the employer implements a continuing, effective respirator program as required by this section (29 CFR 1910.134), including training, fit testing, maintenance, and use requirements.

³This APF category includes filtering facepieces, and half masks with elastomeric facepieces.

⁴The employer must have evidence provided by the respirator manufacturer that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be determined by performing a WPF or SWPF study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators, and receive an APF of 25.

⁵These APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29 CFR 1910 subpart Z, employers must refer to the appropriate substance-specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by 29 CFR 1910.134 (d)(2)(ii).

Participation Application

This form below is a sample version. It is possible the current versions of our forms differ slightly from the version you find in our documents. Get the current and useable version of this from the Industrial Hygiene section of the REM website Forms webpage.

RPP Form 1									
<p>PURDUE UNIVERSITY RESPIRATORY PROTECTION PROGRAM</p> <p>PARTICIPATION APPLICATION (Please Print)</p>									
<p>Please complete the unshaded portions and return to Respiratory Protection/REM/HAMP via campus mail.</p>									
Employee Information									
<p>Name: _____ Purdue ID: _____</p> <p>Email Address: _____ Campus Telephone: _____</p> <p>Job Title: _____ Department: _____</p> <p>PI, Supervisor, Professor, or Project Manager: _____ (First and Last Names)</p>									
Respirator use									
<p>Duration of Respirator Use: _____</p> <p>Details of Task, Project, Etc. Related to Respirator Use: <div style="border: 1px solid black; height: 30px; width: 100%;"></div> </p> <p>Do you have direct exposure to animals, animal tissues, or biological agents? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Does the SOP or Hazard Assessment require respiratory protection? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>									
REM Use Only									
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;"><i>PAPR</i></td> <td style="width: 20%;">Type:</td> <td style="width: 20%;"><input type="checkbox"/> Tight Fitting</td> <td style="width: 20%;"><input type="checkbox"/> Hood</td> </tr> <tr> <td>Manufacturer: _____</td> <td>Model: _____</td> <td>Style: _____</td> <td>Size: _____</td> </tr> </table>		<i>PAPR</i>	Type:	<input type="checkbox"/> Tight Fitting	<input type="checkbox"/> Hood	Manufacturer: _____	Model: _____	Style: _____	Size: _____
<i>PAPR</i>	Type:	<input type="checkbox"/> Tight Fitting	<input type="checkbox"/> Hood						
Manufacturer: _____	Model: _____	Style: _____	Size: _____						
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;"><i>Negative Pressure/SCBA</i></td> <td style="width: 20%;">Fit Test:</td> <td style="width: 20%;"><input type="checkbox"/> Qualitative</td> <td style="width: 20%;"><input type="checkbox"/> Quantitative</td> </tr> <tr> <td>Manufacturer: _____</td> <td>Model: _____</td> <td>Style: _____</td> <td>Size: _____</td> </tr> </table>		<i>Negative Pressure/SCBA</i>	Fit Test:	<input type="checkbox"/> Qualitative	<input type="checkbox"/> Quantitative	Manufacturer: _____	Model: _____	Style: _____	Size: _____
<i>Negative Pressure/SCBA</i>	Fit Test:	<input type="checkbox"/> Qualitative	<input type="checkbox"/> Quantitative						
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<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;"><i>Filtering Facepiece</i></td> <td style="width: 20%;">Fit Test:</td> <td style="width: 20%;"><input type="checkbox"/> Qualitative</td> <td style="width: 20%;"><input type="checkbox"/> Quantitative</td> </tr> <tr> <td>Manufacturer: _____</td> <td>Model: _____</td> <td>Style: _____</td> <td>Size: _____</td> </tr> </table>		<i>Filtering Facepiece</i>	Fit Test:	<input type="checkbox"/> Qualitative	<input type="checkbox"/> Quantitative	Manufacturer: _____	Model: _____	Style: _____	Size: _____
<i>Filtering Facepiece</i>	Fit Test:	<input type="checkbox"/> Qualitative	<input type="checkbox"/> Quantitative						
Manufacturer: _____	Model: _____	Style: _____	Size: _____						
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; border-top: 1px solid black; text-align: center;">Employee Signature</td> <td style="width: 40%; border-top: 1px solid black; text-align: center;">Date</td> </tr> <tr> <td style="border-top: 1px solid black; text-align: center;">Trainer Signature</td> <td style="border-top: 1px solid black; text-align: center;">Date</td> </tr> </table>		Employee Signature	Date	Trainer Signature	Date				
Employee Signature	Date								
Trainer Signature	Date								
<p>Revised: April 1, 2013</p>									

Training Record

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RPP Form 2					
<p>PURDUE UNIVERSITY RESPIRATORY PROTECTION PROGRAM</p> <p>TRAINING RECORD (Please Print)</p>					
Date: _____					
Employee Name: _____	PUID #: _____				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <input type="checkbox"/> Negative Pressure Respirator <input type="checkbox"/> Powered Air Purifying Respirator <input type="checkbox"/> Supplied Air Respirator </td> <td style="width: 50%; padding: 5px;"> <input type="checkbox"/> Filtering Face Piece <input type="checkbox"/> Self Contained Breathing Apparatus </td> </tr> <tr> <td style="padding: 5px;"> Manufacturer: _____ Model: _____ Size: _____ </td> <td style="padding: 5px;"> <input type="checkbox"/> Full-Face <input type="checkbox"/> Half-Mask <input type="checkbox"/> Hood <input type="checkbox"/> Qualitative Fit Test <input type="checkbox"/> Quantitative Fit Test </td> </tr> </table>		<input type="checkbox"/> Negative Pressure Respirator <input type="checkbox"/> Powered Air Purifying Respirator <input type="checkbox"/> Supplied Air Respirator	<input type="checkbox"/> Filtering Face Piece <input type="checkbox"/> Self Contained Breathing Apparatus	Manufacturer: _____ Model: _____ Size: _____	<input type="checkbox"/> Full-Face <input type="checkbox"/> Half-Mask <input type="checkbox"/> Hood <input type="checkbox"/> Qualitative Fit Test <input type="checkbox"/> Quantitative Fit Test
<input type="checkbox"/> Negative Pressure Respirator <input type="checkbox"/> Powered Air Purifying Respirator <input type="checkbox"/> Supplied Air Respirator	<input type="checkbox"/> Filtering Face Piece <input type="checkbox"/> Self Contained Breathing Apparatus				
Manufacturer: _____ Model: _____ Size: _____	<input type="checkbox"/> Full-Face <input type="checkbox"/> Half-Mask <input type="checkbox"/> Hood <input type="checkbox"/> Qualitative Fit Test <input type="checkbox"/> Quantitative Fit Test				
<p>I have been fitted with a respiratory protection device and have received respiratory protection training which included the following elements:</p> <ul style="list-style-type: none"> • The reasons respiratory protection is needed • The nature, extent, and effects of respiratory hazards I may be exposed to • An explanation of why engineering controls are not being applied or not adequate and what effort is being made to reduce or eliminate the need for respirators • An explanation of why a particular type of respirator has been selected for a specific respiratory hazard • An explanation of the operation, capabilities, and limitations of the respirator I will be using • Instruction in inspecting, donning, checking the fit of, and wearing the respirator • An opportunity to handle the respirator, learn how to don and wear it properly, and complete positive and negative fit check for negative-pressure respirators • An explanation of how respirator maintenance and storage is done • Instructions in how to recognize and cope with emergency situations • Regulations concerning respirator use and reference to Purdue's written Respiratory Protection Program 					
<p>I understand that my responsibilities in wearing a respirator include:</p> <ul style="list-style-type: none"> • Using the respirator in accordance with instructions and training received • Guarding against damage to the respirator • Reporting any malfunction to my immediate supervisor 					
<p>I understand that I may leave work areas where the respirator is required and seek relief, when necessary, in cases of:</p> <ul style="list-style-type: none"> • Equipment malfunction • Undue physical or psychological distress • Procedural or communication failures • Significant deterioration of operational conditions • Any other condition which might require such relief 					
<p>Employees Signature: _____</p> <p>Trainer's Signature: _____</p>					
<p>Revised: January 17, 2013</p>					

Information for Employees Using Respirators When Not Required Under the Standard

This form below is a sample version. It is possible the current versions of our forms differ slightly from the version you find in our documents. Get the current and useable version of this from the Industrial Hygiene section of the REM website Forms webpage.

RPP Form 3						
<p>Purdue University Respiratory Protection Program</p> <p>Information for Employees Using Respirators When Not Required Under the Standard</p> <p>29 CFR 1910.134 Appendix D</p> <p>Please read and complete the bottom portion of this form and do the following:</p> <ol style="list-style-type: none"> 1. Return a copy to Respiratory Protection/REM/HAMP via campus mail. 2. Retain a copy for your records. <p>Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your respirator use is voluntary, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.</p> <p>You should do the following:</p> <ol style="list-style-type: none"> 1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations. 2. Choose respirators certified for use to protect against the contaminant of concern. The National Institute for Occupational Safety and Health (NIOSH) of the U. S. Department of Health and Human Services certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you. 3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke. 4. Keep track of your respirator so that you do not mistakenly use someone else's equipment. <p>I have read and understand the information listed above and will use the equipment in accordance with the provisions listed above.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 30%; padding: 5px;">Name (Please Print):</td> <td style="width: 70%;"></td> </tr> <tr> <td style="padding: 5px;">Department:</td> <td></td> </tr> <tr> <td style="padding: 5px;">Supervisor:</td> <td></td> </tr> </table> <p style="margin-top: 20px;">Employee Signature: _____ Date: _____</p> <p style="font-size: small; margin-top: 10px;">Revised: January 9, 2014</p>	Name (Please Print):		Department:		Supervisor:	
Name (Please Print):						
Department:						
Supervisor:						

Respirator Inspection Record

This form below is a sample version. It is possible the current versions of our forms differ slightly from the version you find in our documents. Get the current and useable version of this from the Industrial Hygiene section of the REM website Forms webpage.

RPP Form 4		
PURDUE UNIVERSITY RESPIRATORY PROTECTION PROGRAM		
RESPIRATOR INSPECTION RECORD		
Department: _____		Date: _____
Respirator Type	Manufacturer	Model
<input type="checkbox"/> Negative Pressure		
<input type="checkbox"/> PAPR		
<input type="checkbox"/> Supplied Air		
Equipment Approved by REM? <input type="checkbox"/> YES <input type="checkbox"/> No		
Respirator Storage	Adequate	Inadequate
Ability to prevent facepiece distortion.	<input type="checkbox"/>	<input type="checkbox"/>
Prevention of environmental (e.g. extreme temperatures, moisture) damage and deterioration.	<input type="checkbox"/>	<input type="checkbox"/>
Respirator Maintenance	Adequate	Inadequate
Cleaning and Decontamination	<input type="checkbox"/>	<input type="checkbox"/>
Condition of facepiece, straps, valves, cartridges, and filters or supplied air hoses and connections.	<input type="checkbox"/>	<input type="checkbox"/>
<i>If deficiencies are noted in any of the above areas, the user(s) and their supervisors shall be notified.</i>		
Respirator User: _____		
Supervisor: _____ <small>(Please Print)</small>		Date Notified: _____
The above conditions were noted during a routine Personal Protective Equipment (PPE) inspection. Please correct deficiencies as soon as possible. A follow-up will document corrective action.		
Inspector's Name: _____ <small>(Please Print)</small>		Signature: _____
Follow-up Inspection Date: _____		
Inspector's Name: _____ <small>(Please Print)</small>		Signature: _____
The follow-up inspection revealed inadequate conditions <input type="checkbox"/> Have <input type="checkbox"/> Have Not been corrected.		
Any further action needed is noted below:		
Revised: January 17, 2013		