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**VIRGINIA POLYTECHNIC INSTITUTE  
AND STATE UNIVERSITY**

# **Occupational Health Assurance Program**



**Environmental Health and Safety  
540-231-5985**



# Occupational Health Assurance Program

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## Revision Status

| Contact(s)   | Implementation Date | Revision Number | Comments  |
|--|---------------------|-----------------|---|
| Deborah Young, Manager, Occupational Health and Lab Safety Programs                    | 1992                | 1.0             | Original document describing the newly restructured medical surveillance program                                  |
| Deborah Young, CIH CSP, CoDirector, EHSS   | May, 2003           | 2.0             | Program re-written to conform to EHSS template and to reflect regulatory changes of past ten years                |
| Sarah P. Owen, MPA, MEd, Industrial Hygienist, Manager of Medical Surveillance Program | Sept, 2005          | 3.0             | EC codes 43-46 added to reflect additional services now offered to qualified VT staff. Update contact information |
| Sarah P. Owen, MPA, MEd, Industrial Hygienist, Manager of Medical Surveillance Program | May, 2006           | 4.0             | Update Annual Schedule  |
| Zack Adams, PE, CSP, CIH, Assistant Director, EHS                                      | October 2008        | 5.0             | Consolidate entrance criteria; add hexavalent chromium; add vaccinations and related services                     |
| Zack Adams, PE, CSP, CIH, Assistant Director, EHS                                      | January 2011        | 6.0             | Annual review and update  |
| Zack Adams, PE, CSP, CIH, Assistant Director EHS                                       | April 2013          | 7.0             | Add expansion of services for select agents; change office name.  |

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## **Introduction**

### **Purpose**

The Occupational Health Assurance Program (OHAP) provides medical monitoring for Virginia Tech employees whose job duties present specific, potential health risks. The monitoring performed helps the university assure that the controls that are being used to reduce employee exposure to these health risks are actually working as intended. This is accomplished by verifying that employees are not showing medical signs or symptoms of exposure. The program also provides necessary vaccinations and titers for individuals who have substantial animal contact or work with infectious agents including bloodborne pathogens. Finally, OHAP supports university compliance with Occupational Safety and Health Administration (OSHA) regulations, Centers for Disease Control standards and other authorities requiring “medical surveillance”.

### **Application**

Employees whose job duties present specific, potential health risks are provided medical examinations, medical tests, and immunizations and titers as required by regulation or standards. These services are provided at no cost to the employee. Employees are allowed to participate during normal work hours, whenever possible.

### **Scope**

Employees that meet one or more of the program’s Entrance Criteria, as outlined in this document, are provided services under this program.

## **Responsibilities**

### **Environmental Health and Safety (EHS)**

- Coordinates the Occupational Health Assurance Program at Virginia Tech;
- Provides or coordinates all medical monitoring and medical services for covered employees;
- Maintains records according to OSHA requirements; and,
- Provides exposure monitoring and evaluations to determine if employees are being exposed above legal limits that would make it necessary for them to participate in this program.

### **University Departments**

- Assure supervisors know to communicate personnel changes such as new hires, terminations, and role changes to EHS by calling 231-3919;
- Implement recommendations of EHS monitoring and corrective action reports;

- Support supervisors with providing employees time away-from-work to attend scheduled appointments for medical tests and physician evaluations;
- Reimburse EHS for missed physician appointments; and,
- Request exposure monitoring services, as needed.

**Supervisors/Principal Investigators**

- Notify EHS before an employee that participated in medical surveillance leaves the position either through retirement, transfer or role change;
- Promptly notify EHS when a new employee is hired into a position that historically participated in medical surveillance, and assures medical services are provided before the employee is exposed to the hazardous condition;
- Implement recommendations of EHS monitoring and corrective action reports.
- Assure employees keep scheduled appointments for medical tests and physician evaluations;
- Assure new employees are provided proper training on work practices and procedures necessary to reduce exposure to hazards requiring medical surveillance; and,
- Request exposure monitoring services, when a suspect overexposure condition exists, by calling 231-3427.

**Employees**

- Keep all scheduled appointments for medical testing and physician evaluations;
- Implement recommendations of monitoring reports;
- Use personal protective equipment when required;
- Follow established worksite rules when working with or around hazards covered by this program;
- Request exposure monitoring services, as needed; and,
- Report any changes in personal health that might be related to a work place health hazard:
  - If you are pregnant, seeking to become pregnant, immunocompromised, or have concerns related to your health based on your workplace exposure, discuss your concerns with your primary care physician and/or the occupational physician when an appointment is scheduled;
  - If you develop signs or symptoms that you associate with exposures in your workplace or that are related to respirator use, contact EHS immediately by calling 231-3427 so that a consultation can be arranged with the occupational physician.



## Program Overview

### Controls

If employees are exposed above allowable limits as established by the Occupational Safety and Health Administration (OSHA) or other exposure limits used by EHS, EHS will work with the employees' department to determine if engineering, administrative, or work practice controls can be implemented to reduce employee exposures. Medical surveillance will be provided for affected employees while these controls are being implemented, or if they fail or are not feasible.

### Entrance Methods

EHS is responsible for reviewing all new hires and all current employee exposure conditions to determine entrance eligibility. Departments have the responsibility of notifying EHS whenever changes are made to employees' job duties, and whenever employees, such as graduate student workers, are placed in exposure situations. EHS will determine if employees are or may be exposed above limits by performing workplace and process evaluations and/or by actually monitoring employee exposures.

### Entrance Criteria

Medical surveillance services will be provided if employees are exposed above allowable limits to certain chemicals, dusts or physical agents. Medical surveillance services, including vaccinations and titers, will also be provided if employees are exposed to bloodborne pathogens, are employed as animal handlers or who have significant animal exposure, or if they work with infectious agents, select agents or toxins. The entrance criteria and medical services provided are listed in Tables 1 and 2.

### Frequency of Medical Evaluations

Depending on the Entrance Criterion, the evaluations will be offered by EHS at any combination of the following times:

1. **Time of Assignment.** "Time of Assignment" is the thirty day period following EITHER the first day of employment in a position, OR the first day of assignment to new working conditions where an employee will be exposed to a health hazard covered in Table 1.
2. **Periodic.** "Periodic" evaluation frequency is typically annual; however it may be greater or less. The frequency is specified in the applicable regulation for the hazard to which the employee is exposed and is generally outlined in Table 1.
3. **Emergency Exposure.** "Post Exposure" evaluations are to be given as soon as possible after a known exposure incident has occurred, or after an employee develops signs or symptoms of that may be related to a work-related exposure.
4. **Exit Evaluations** "Exit Evaluations" are required by many regulations (see Table 1) and are to be provided within a sixty day period before the date that the employee leaves the position/work environment that posed the health risk. The supervisor is

responsible for notifying EHS when an employee is planning to leave a position where an Exit Evaluation must be offered.

**Table 1 - Entrance Criteria for Chemicals, Dusts and Physical Agents**

| Exposure of Concern is:                           | Acrylonitrile  | Arsenic (Inorganic)  | Asbestos  | Benzene   |
|---|--|--|---|---|
| <b>Employees are enrolled if:</b>                 | They are exposed $\geq$ the Action Level without regard for the use of respirators   | They are exposed above the Action Level, without regard for the use of respirators, at least 30 days per year <sup>(a)</sup>                                 | They are exposed above Permissible Exposure Limits  | They are exposed $\geq$ the Action Level for 30 days per year or above the Permissible Exposure Limit for 10 days per year <sup>(a)</sup> |
| <b>Occupations Where Exposures May Occur:</b>     | Manufacture of acrylic and modiacrylic fibers, acrylic plastics and resins, specialty polymers, nitrile rubbers, and other organic chemicals. Application as a fumigant. | Use/manufacture of pesticides, rodenticides, or wood preservatives. Certain soldering operations. Can be formed by roasting or smelting of sulfide minerals. | Remove or repair of asbestos materials including: cement, plaster, fire proofing, insulation, floor tile, floor tile glue, pipe, pipe insulation, brake and clutch linings, pipe and boiler insulation materials. | Laboratory operations. Use or application of gasoline or certain lacquer solvents and paint removers.                                     |
| <b>Pre-placement exam</b>                         | Yes  | Yes  | Yes   | Yes   |
| <b>Periodic exam</b>                              | Yes  | Yes  | Yes   | Yes   |
| <b>Emergency/exposure examination and tests</b>   | Yes  | Yes  | No  | Yes   |
| <b>Termination exam</b>                           | Yes -- if no exam within 6 months of termination   | Yes -- if no exam within 6 months of termination   | Yes -- within $\pm$ 30 days of termination  | No  |
| <b>Work and medical history</b>                   | Yes  | Yes  | Yes   | Yes   |
| <b>Chest x-ray</b>                                | Yes  | Yes  | Yes <sup>b</sup>  | No  |
| <b>Pulmonary function test</b>                    | No – unless needed for use of respirators  | No – unless needed for use of respirators  | Yes   | Yes   |
| <b>Evaluation of ability to wear a respirator</b> | Yes  | Yes  | Yes   | Yes – if respirators are used   |
| <b>Employee counseling</b>                        | Yes – by physician   | Yes – by physician   | Yes – by physician  | Yes – by physician  |
| <b>Medical removal plan</b>                       | No   | No   | No  | Yes   |

<sup>(a)</sup> Other requirements may apply. Please contact EHS for further information.

<sup>(b)</sup> Frequency varies

Table 1 - Entrance Criteria for Chemicals, Dusts and Physical Agents (cont.)

| Exposure of Concern is:                    | 1, 3-Butadiene   | Cadmium  | Carcinogens <sup>(a)</sup>  | Chromium (VI)   |
|--|--|--|---|---|
| Employees are enrolled if:                 | They are exposed $\geq$ the Action Level for 30 days per year or above the Permissible Exposure Limit for 10 days per year                                     | They are exposed $\geq$ the Action Level for 30 days per year  | They work in a location where covered materials (see footnote a, below) are handled, used or stored | They are exposed $\geq$ the Action Level for 30 days per year, or are experiencing signs or symptoms of exposure                          |
| Occupations Where Exposures May Occur:     | Production of styrene-butadiene rubber and polybutadiene rubber, copolymer latexes, resins and polymers, and in the production of such chemicals as fungicides | Ore smelting operations, mist from cadmium-containing electroplating baths, drying of cadmium pigments, machining of cadmium coated or containing materials. | Any operation using the materials listed in footnote (a), below.                                    | Chromate production, use of chromate pigment and chrome electroplating. Welding of stainless steel. Tanning of hides using Chromium (VI). |
| Pre-placement exam                         | Yes  | Yes  | Yes   | Within 30 days of initial assignment  |
| Periodic exam                              | Yes  | Yes  | Yes   | Yes   |
| Emergency/exposure examination and tests   | Yes -- within 48 hours of exposure   | Yes  | Yes -- special medical surveillance begins within 24 hours  | Yes   |
| Termination exam                           | Yes -- if 12 months have elapsed since last exam   | Yes  | No  | Yes, unless last exam was within 6 months   |
| Work and medical history                   | Yes  | Yes  | Yes   | Yes   |
| Chest x-ray                                | No   | Yes  | No  | No  |
| Pulmonary function test                    | No -- unless needed for use of respirators   | Yes  | No -- unless needed for use of respirators  | As determined by the physician  |
| Evaluation of ability to wear a respirator | Yes -- if respirators are used   | Yes  | Yes -- if respirators are used  | Yes -- if respirators are used  |
| Employee counseling                        | Yes -- -- contact EHS for details  | Yes -- contact EHS for details   | No  | Yes   |
| Medical removal plan                       | No   | Yes  | No  | No  |

<sup>(a)</sup> Covered carcinogens include: 4-Nitrobiphenyl, alpha-Naphthylamine, methyl chloromethyl ether, 3,3'-Dichlorobenzidine (and its salts), bis-Chloromethyl ether, beta-Naphthylamine, Benzidine, 4-Aminodiphenyl, Ethyleneimine, beta-Propiolactone, 2-Acetylaminofluorene, 4-Dimethylaminoazobenzene, and N-Nitrosodimethylamine. Certain exemptions apply. Please contact EHS for further information.

Table 1 - Entrance Criteria for Chemicals, Dusts and Physical Agents (cont.)

| Exposure of Concern is:                    | 1,2-Dibromo-3-chloropropane  | Ethylene Oxide  | Formaldehyde  | Hazardous Waste Operations  |
|--|--|---|---|---|
| Employees are enrolled if:                 | They are exposed above the Permissible Exposure Limit                    | They are exposed $\geq$ the Action Level for 30 days per year   | They are exposed $\geq$ the Action Level or Short Term Exposure Limit, or develop sign or symptoms of exposure <sup>(a)</sup> | Hazardous materials emergency response or waste management personnel; covered employees who develop signs of symptoms of exposure or who have a known exposure to a covered hazard <sup>(a)</sup> |
| Occupations Where Exposures May Occur:     | Application as a soil fumigant or use outside of a laboratory fume hood. | Manufacture of ethylene glycol, surfactants, ethanolamines, glycol ethers, and other organic chemicals outside of a laboratory fume hood. Used as a sterilant and fumigant. | Embalming or preserving of biological specimens. Used in certain manufacturing operations. Used in textile manufacturing.     | Non-laboratory scale chemical spill response. Employees involved in chemical bulking operations outside of a chemical fume hood.  |
| Pre-placement exam                         | Yes  | Yes   | Yes   | Yes   |
| Periodic exam                              | Yes  | Yes -- annual   | Yes -- annual   | Yes -- annually or at physician's discretion <sup>1</sup>   |
| Emergency/exposure examination and tests   | Yes -- male reproductive; repeat in 3 months                             | Yes   | Yes   | Yes   |
| Termination exam                           | No   | Yes   | Yes   | Yes -- if no exam within 6 months of termination  |
| Work and medical history                   | Yes  | Yes   | Yes   | Yes   |
| Chest x-ray                                | No   | No  | No  | No -- unless determined by physician  |
| Pulmonary function test                    | No -- unless needed for use of respirators                               | No -- unless needed for use of respirators  | No -- unless needed for use of respirators  | No -- unless determined by physician  |
| Evaluation of ability to wear a respirator | Yes  | Yes   | Yes   | Yes   |
| Employee counseling                        | Yes -- by physician  | Yes -- by physician   | Yes -- by physician   | Yes -- by physician   |
| Medical removal plan                       | No   | No  | No  | No  |

<sup>(a)</sup> Other requirements may apply. Please contact EHS for further information.

Table 1 - Entrance Criteria for Chemicals, Dusts and Physical Agents (cont.)

| Exposure of Concern is:                           | Laboratory Exposure to Chemicals  | Lasers (Non-Ionizing Radiation)                   | Lead  | Methylenedianiline (MDA)   |
|---|---|---|---|--|
| <b>Employees are enrolled if:</b>                 | An employee develops signs or symptoms associated with a chemical used in a laboratory, or exposure is above permissible limits for a chemical where surveillance is required | They routinely use Class 3b, 3r or Class 4 lasers | They are exposed $\geq$ the Action Level for 30 days per year                                     | They are exposed $\geq$ the Action Level for 30 days per year or have dermal contact $\geq$ 15 days per year |
| <b>Occupations Where Exposures May Occur:</b>     | Operations where chemicals found on this table are used outside of a fume hood or other control.  | Research operations using covered laser systems.  | Metal smelting, casting, refining. Soldering and welding. Remove or apply lead paint or products. | See footnote (b) below.  |
| <b>Pre-placement exam</b>                         | No  | Yes   | Yes   | Yes  |
| <b>Periodic exam</b>                              | No – unless directed by the physician   | No  | Yes -- annually or at physician's discretion  | Yes -- annual  |
| <b>Emergency/exposure examination and tests</b>   | Yes, at physician's discretion unless employee reports signs/symptoms of exposure   | Yes   | Yes   | Yes  |
| <b>Termination exam</b>                           | No  | No  | Yes -- if no exam within 6 months of termination  | No   |
| <b>Work and medical history</b>                   | Yes, if directed by the physician   | Medical History <sup>(a)</sup>                    | Yes   | Yes  |
| <b>Chest x-ray</b>                                | Yes, if directed by the physician   | No  | No -- unless directed by the physician  | No   |
| <b>Pulmonary function test</b>                    | Yes, if directed by the physician   | No – unless needed for use of respirators         | Yes, if directed by the physician   | No – unless needed for use of respirators  |
| <b>Evaluation of ability to wear a respirator</b> | No  | No  | Yes   | Yes  |
| <b>Employee counseling</b>                        | Yes, if employee reports signs or symptoms  | No  | Yes -- by physician   | Yes -- by physician  |
| <b>Medical removal plan</b>                       | No  | No  | No  | Yes  |

<sup>(a)</sup> Those working with UV lasers or who have a history of photo-sensitivity will be provided with a skin examination. Current/past medication will be reviewed, particularly use of photo-sensitizing drugs. Tests may include ocular history, visual acuity, Amsler Grid test, and color vision test.

<sup>(b)</sup> Manufacture of 4,4' Methylene-diphenyl diisocyanate; as a precursor in the manufacture of plastic fibers, antioxidants, dyestuff intermediates, corrosion preventatives, special polymers. Purified MDA: manufacturing epoxy resin curing agents, wire coating applications, polyurethane co-reactants, pigments/dyes, and defense applications.

**Table 1 - Entrance Criteria for Chemicals, Dusts and Physical Agents (cont.)**

| <b>Exposure of Concern is:</b>                    | <b>Methylene Chloride</b>   | <b>Noise</b>  | <b>Respiratory Protection</b>   | <b>Silica</b>  | <b>Vinyl Chloride</b>   |
|---|---|---|---|--|---|
| <b>Employees are enrolled if:</b>                 | See footnote (a), below.  | The exceed an 8-hour time weighted average of 85 decibels                                     | They wear a respirator of any type except disposable dust masks                     | They are exposed above Permissible Limits                                    | Exposed $\geq$ the action level without regard for the use of respirators |
| <b>Occupations Where Exposures May Occur:</b>     | Paint strip-ping, poly-urethane foam manufac-turing, cleaning/ degreasing | Construction, shops, vehicle work areas, maintenance operations, mechanical shops or research | Any situation where employee exposures are not adequately controlled by other means | Grinding, cutting or sanding of concrete, masonry, stone; abrasive blasting. | Manufacture of poly vinyl chloride.                                       |
| <b>Pre-placement exam</b>                         | Yes   | Audiometric testing required within 6 months of first exposure                                | Yes – prior to use of respirator  | Yes  | Yes   |
| <b>Periodic exam</b>                              | Yes   | No physical exam but audiometric testing required   | Yes – annual  | Yes  | Yes   |
| <b>Emergency/ exposure examination and tests</b>  | Yes   | No  | Yes <sup>(b)</sup>  | No   | Yes   |
| <b>Termination exam</b>                           | Yes -- if no exam within 6 months of termination                          | Only audiometric testing required   | No  | No   | No  |
| <b>Work and medical history</b>                   | Yes   | No  | Yes   | Yes  | Yes   |
| <b>Chest x-ray</b>                                | No  | No  | As determined by physician  | Yes  | No  |
| <b>Pulmonary function test</b>                    | As determined by physician  | No  | As determined by physician  | Yes  | No – unless needed for use of respirators                                 |
| <b>Evaluation of ability to wear a respirator</b> | Yes -- by physician   | No  | Yes   | Yes  | Yes   |
| <b>Employee counseling</b>                        | Yes   | Yes <sup>(c)</sup>  | Yes -- by physician   | Yes -- by physician  | No  |
| <b>Medical removal plan</b>                       |   | No <sup>(d)</sup>   | No  | No   | Yes   |

<sup>(a)</sup> Exposed  $\geq$  the action level for 30 days/year,  $\geq$  Permissible Exposure Limit or Short Term Exposure Limit for 10 days/year. Above the 8-TWA PEL or STEL for any time period where an employee has been identified by a physician or other licensed health care professional as being at risk from cardiac disease or from some other serious MC-related health condition and such employee requests inclusion in the medical surveillance program;

<sup>(b)</sup> If the employee reports medical signs or symptoms related to respirator use.

<sup>(c)</sup> Retest, retraining and refitting may be offered if a standard threshold shift has occurred.

<sup>(d)</sup> Employees in 'hearing critical' jobs may require special consideration. Please contact EHS.

Table 2 - Entrance Criteria for Other Agents

| Exposure of Concern is:                   | Animal Handlers  | Bloodborne Pathogens  | Infectious Agents, Select Agents and Toxins  | Tier 1 Select Agents and Toxins  |
|---|--|---|--|--|
| Employees are enrolled if:                | They work with animals that may carry zoonotic diseases, that have been intentionally infected with zoonotic organisms, or that represent a serious risk for animal-related allergies. | They work with or are potentially exposed to unfixed blood, tissue or bodily fluids of human origin | They work with organisms or agents that are capable of causing disease in humans including all non-Tier 1 Select Agents and Toxins as defined by HHS and USDA.   | They work with organisms or agents that are classified as Tier 1 Select Agents or Toxins by HHS or USDA.   |
| Pre-placement exam                        | A medical survey is used to determine the hazards of risk exposure. Medical services are determined based on this review.  | No physical exam  | A medical survey is used to determine the hazards of risk exposure. Medical services are determined based on this review. Immunizations and/or titers are offered to at-risk employees if available for the exposure.                                | Pre-exposure titer, medical history, respirator fit testing. Exam to include chest/ abdomen auscultation, palpate abdomen, head and neck exam, mini neurological exam, blood pressure, pulse and fitness for duty. |
| Periodic exam                             | The medical survey is updated annually. Medical services are determined based on this review.  | No  | The medical survey is updated annually. Medical services are determined based on this review. The schedule for certain services, such as vaccinations and titers, varies.  | Services as above plus annual titer.   |
| Emergency/ exposure examination and tests | Yes, if exposure to a zoonotic organism occurs, or employee develops animal-related allergies or signs or symptoms of potential disease exposure.                                      | Yes – contact EHS for guidance if an exposure of concern occurs                                     | Yes, if exposure to an infectious agent occurs, or if the employee develops signs or symptoms of potential disease exposure. As determined by the physician. Contact EHS for guidance.   | Yes, as for Infectious Agents, Select Agents and Toxins.   |
| Termination exam                          | If applicable, employees should receive an appropriate titer prior to leaving employment.  | No  | If applicable, employees should receive an appropriate titer prior to leaving employment.  | Yes, as for Infectious Agents, Select Agents and Toxins.   |
| Work and medical history                  | Yes  | No  | Yes  | Yes  |
| Chest x-ray                               | As determined by physician   | No  | As determined by physician   | As determined by physician   |
| Pulmonary function test                   | As determined by physician   | No  | As determined by physician   | As determined by physician   |
| Employee counseling                       | Yes -- if an exposure of concern occurs, the employee develops animal-related allergies, or develops signs or symptoms of a potential work-related illness.                            | Yes -- if an exposure of concern occurs   | Yes -- if an exposure of concern occurs, employee develops signs/symptoms of a potential work-related illness, employee becomes immunocompromised or employee is considering conception and the exposure represents a risk to the fetus <sup>a</sup> | Yes, as for Infectious Agents, Select Agents and Toxins.   |
| Medical removal plan                      | No, however, see Medical Reassignment section.   | No  | No, however, see Medical Reassignment section of this document   | As determined by physician   |

<sup>(a)</sup> Please contact EHS for guidance if this is an issue of concern.

## Medical Services

EHS maintains all medical records and scheduling information for program participants. EHS will contact employees to schedule appointments. The EHS Medical Services Coordinator can be reached at 231-3919.

All required medical services will be provided for you at a reasonable time and place and at no cost. For both off and on-campus participants, laboratory and physician services will be arranged by EHS. EHS will coordinate services with a local physician for off-campus participants.

EHS will coordinate any medical testing and physician reviews required by OSHA regulations or other authorities. The physician may perform additional tests as deemed necessary. Within 30 days of receiving the results of medical services, EHS will send a confidential copy to your work address. It is your responsibility to send results to any third parties such as your Primary Care Physician. Records will be provided to representatives of OSHA and Worker's Compensation upon request.

Each participant's medical records will be kept for a period of 30 years beyond the employee's date of termination with the university. These records are stored in an area of restricted access, in a confidential manner.

## Corrective Actions

If your medical evaluation indicates that an over-exposure has occurred, or if you report signs or symptoms that you attribute to a workplace exposure, the following actions will occur:

- EHS personnel will review the worksite, if deemed necessary, to determine if appropriate engineering, administrative or work practice controls, or personal protective equipment are being used to reduce employee exposure. Exposure monitoring may be performed to determine actual or predicted exposure levels.
- If you have experienced a Standard Threshold Shift in hearing level you will be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.
- You may be medically removed or reassigned if that action is recommended by the Occupational Physician and is required by OSHA regulations.

Based on EHS' review, a corrective action report will be issued if changes must be made to the worksite, processes or work practices to reduce your work-related exposure. Corrective action may consist of any combination of the following measures:

- **Engineering Controls** seek to physically alter the work environment in order to reduce exposure levels. Examples of engineering controls include the installation



of sound-proofing materials to reduce noise levels, ventilation improvements to reduce fume concentrations, enclosing laser beams, and replacing a toxic chemical with one that is less harmful.

- **Administrative Controls** are workplace policy, procedures, and practices that minimize the exposure of workers to risk conditions. Two common examples of administrative controls are: the rotation of employees to minimize the length of time each person is exposed to a certain chemical; and, the development of Standard Operating Procedures.
- **Personal Protective Equipment (PPE)** is equipment worn by employees to reduce the exposure to a workplace hazard. Examples of PPE include: respirators worn to prevent inhalation of fumes or dusts; earplugs or muffs worn to protect hearing in noisy environments; and, laser goggles used to protect against specific wavelengths and power.

## **Medical Removal**

Medical removal will be implemented upon the physician's determination that continued exposure to a worksite hazard presents a significant risk to an employee's health. Medical removal would be mandated if:

- You have been referred to a hematologist/internist due to abnormalities from Benzene exposure in excess of 0.5 ppm;
- You have a blood-lead level in excess of 50 micrograms per 100g;
- You have a condition that will increase the risk of material health impairment from continued exposure to lead concentrations exceeding 30 micrograms per m<sup>3</sup>; or if
- Your health would be materially impaired by continued exposure to vinyl chloride.

The physician may recommend Medical Removal for reasons other than those listed above. Medical Removal Protection Benefits will apply to all covered employees.

## **Medical Reassignment**

Medical reassignment may be recommended based on the physician's determination that continued exposure to a worksite hazard presents a significant risk to an employee's health. In all cases, the potentially exposed employee should consult with his or her health care provider or the occupational physician to determine what, if any, additional precautions are needed based on the individual situation. It is the responsibility of the worker to communicate his or her needs to the supervisor as soon as possible in order for risk reduction to begin when it can be most effective, and also to

determine if additional reasonable accommodations are necessary and if they can be made.

Examples where medical reassignment should be investigated:

- An employee is immunocompromised and potential exposure to a zoonotic organism, select agent or toxin presents an unacceptable risk to health that cannot be effectively minimized using available vaccinations or prophylaxis, engineering and/or work practice controls;
- An employee is pregnant, seeking to become pregnant , or is seeking to conceive a child, and potential exposure to dye lasers, anesthetic gases, chemotherapeutic agents or certain other carcinogens or teratogens cannot be effectively minimized using engineering, work practice controls or PPE;
- An employees develop severe work-related animal allergies and where exposures cannot be effectively minimized using engineering, work practice controls or PPE; or,
- An employee develops metal-related allergies or dermatitis (for example, from exposure to metal cutting fluids) and where exposures cannot be effectively minimized using engineering, work practice controls or PPE.

Any actions taken will be determined in consultation with the employee, the Occupational Physician, EHS, Human Resources, and other responsible university departments.