U.S. DEPARTMENT OF THE INTERIOR

OFFICE OF OCCUPATIONAL HEALTH AND SAFETY

Fourth Edition

OCCUPATIONAL MEDICINE PROGRAM

HANDBOOK

September 2009

This *Occupational Medicine Program Handbook* was prepared by the U.S. Department of the Interior's Office of Occupational Health and Safety, in consultation with the U.S. Office of Personnel Management and the U.S. Public Health Service's Federal Occupational Health Service. This Fourth Edition of the *Handbook* represents the continuing efforts of the contributing agencies to provide and to improve occupational health services for DOI employees. It reflects the comments and suggestions offered by users over the twelve years since it was first introduced, having been developed to address the findings, concerns, and recommendations summarized in the final report of a program review completed in 1994 by representatives of the Uniformed Services University of the Health Sciences. That report, entitled "*A Review of the Occupational Health Program of the United States Department of the Interior*," was prepared by Margaret A.K. Ryan, M.D., M.P.H., Gail Gullickson, M.D., M.P.H., W. Garry Rudolph, M.D., M.P.H., and Elizabeth Odell. The report led to the establishment of the Department's Occupational Health Reinvention Working Group, composed of representatives from the DOI bureaus and operating divisions. The recommendations from the Reinvention Working Group final report, published in May of 1996, were addressed and are reflected in what became this *Handbook*.

First published in 1997, the *Handbook* underwent major updates in July of 2000, and again in October of 2005. This 2009 edition of the *Handbook* incorporates updates and enhancements that have been made in DOI policies and occupational medicine practice since the last edition.

A listing of the updates that have been made since the 2005 edition of the *Handbook* is provided in Tab 2, and the dates shown in the footers indicate the date the content of each particular section most recently was modified.

Please note that this Handbook does not necessarily represent the views or the authority of the Department of the Interior. With programmatic oversight by the DOI Office of Occupational Health and Safety, it represents only the opinions and recommendations of the authors. Information provided from professional or government sources is cited throughout the document, but users of this Handbook are encouraged to contact their agency's reviewing medical officer, safety officer, or personal health care provider for medical advice and guidance regarding specific medical conditions or questions.

OCCUPATIONAL MEDICINE PROGRAM HANDBOOK

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The Addendums in this Tab are derived from a series of issue papers that have been prepared by the DOI Medical Officer on topics that have been of interest or concern to one or more agencies or programs since the inception of this Handbook. The original issue papers have been modified to reflect the more general audience of this Handbook, rather than the specific program for which they were written originally.

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OCCUPATIONAL MEDICINE PROGRAM HANDBOOK

Introduction and Scope of the Handbook Tab 1

This *Handbook* represents a culmination of efforts to improve occupational health services for the employees of the Department of the Interior (DOI). As a prelude to the *Handbook*'s development, the Department established an Occupational Health Reinvention Work Group, composed of representatives from DOI bureaus and operating divisions. In a series of meetings in 1995 and 1996, the Reinvention Work Group developed and articulated a direction for DOI occupational health programs and services that was then developed as a vision statement. Further guidance was developed in the form of a mission statement and a strategic plan with goals for the DOI Office of Occupational Safety and Health (now the Occupational Safety and Health Group of the Office of Occupational Health and Safety). These important directions for the program are presented here:

VISION STATEMENT
Occupational Health Reinvention

All Department of Interior employees, volunteers, contractors, and visitors are provided a work or recreation environment free of health hazards that may cause injury or illness. Further, occupational health hazards are identified and evaluated using professional industrial hygiene concepts. Measures are then instituted to eliminate or minimize potential adverse effects by means of appropriate training, protective equipment and medical services.

MISSION STATEMENT

The Office of Occupational Safety and Health provides program direction, develops policy, and facilitates the decision-making process to achieve a safe and healthful occupational and recreating environment. In addition, the Office:

- *provides consultative services to facilitate program improvement;*
- *provides information services, in depth studies, and analysis;*
- *conducts evaluations to aid program compliance and continuous improvement; and*
- *represents the Department to assure that interests and needs are addressed in outside venues.*

GOALS

The goals of the Occupational Health Program are to:

- *Create, circulate, and promote effective approaches, processes, and guidance for organizations to achieve safe and healthful work and recreation environments;*
- *Be responsive, reliable, informative, and professional in meeting customer needs;*
- *Develop customer service standards, by listening and responding to their program needs;*
- *Promote and advocate the benefits of embracing the Departmental occupational safety and health (OSH) Program; and*
- *Define the program elements and document how and why we do them.*

With the above direction established, the program guidelines presented in this *Handbook* were prepared by the DOI's Office of Occupational Health and Safety (OHS), in consultation with the U.S. Office of Personnel Management (OPM) and the U.S. Public Health Service, Division of Federal Occupational Health (FOH). The guidelines were developed as part of the Department's efforts to improve and standardize the provision of occupational health services throughout its many bureaus, offices, and agencies, and to meet its articulated vision, mission, and goals for occupational health. The *Handbook* is intended to be specific enough to provide easily understood guidance, procedures, and forms that may be used by managers in establishing a program through which occupational health services meet the needs of the Department, the individual agencies, DOI employees, and the public we serve. The *Handbook* also is intended to be generic enough to allow for local flexibility in utilizing available resources and creativity to meet occupational health program needs.

The guidelines, and the programs they support, should be viewed as an integral part of overall program management, reflecting responsibilities of every DOI supervisor and manager. It is expected that programs and services carried out under these guidelines will demonstrate ongoing coordination and cooperation with local Federal Executive Boards and other interagency committees and organizations, as appropriate.

All occupational health programs established or provided for DOI employees should be consistent with the provisions of this *Handbook*. Assistance with program development and implementation may be requested from OHS staff who, in turn, will consult with the U.S. Public Health Service (PHS) regarding the adequacy and appropriateness of the health program, as specified in 5 U.S.C. 7901. In most cases, the review function is carried out for PHS by FOH, which also can provide comprehensive occupational health services under interagency agreements, when so requested. Additionally, OHS will

provide a central point of contact with the Office of Personnel Management to assure that medical programs instituted under this guide are consistent with 5 U.S.C. 239 and other applicable statutes.

For assistance in the use of this *Handbook*, setting up a local occupational health program, reviewing an existing program, or securing further guidance or consultation on occupational medicine or safety matters, please contact:

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Handbook Administration Tab 2

Distribution

This *Handbook*, and all updates, revisions, and additions, will be distributed by the Office of OHS to DOI bureaus and agencies. As a World Wide Web-available document, primary distribution will be via the Internet (see Tab 1, *Introduction and Scope of the Handbook*).

The Office of Occupational Health and Safety also maintains a copy of the Handbook and the DOI Medical History and Examination Form on DOI's SafetyNet at http://www.doi.gov/safetynet/ .

Maintenance

The Occupational Health Programs Manager (or designee) will have primary responsibility for maintaining this *Handbook*, including an annual review for accuracy, consistency with current DOI policies and organizational structure, appropriateness of content, and completeness. Updates, revisions, and additions that are identified as necessary will be made on the Internet-available version following this review, and a message will be broadcast to DOI managers about the updates as they are posted.

Any DOI employee may submit requests for changes, additions, or corrections to the Handbook by contacting the Occupational Health Programs Manager.

All DOI employees are encouraged to work with their local supervisors and managers to have their occupational health questions and concerns addressed. Issues that require further clarification of occupational health information or existing policy may be directed to the Occupational Health Programs Manager (see Tab 1, *Introduction and Scope of the Handbook*) to initiate appropriate action.

Summary of Updates to this Version

Footer dates reflect the date of the most recent revision of that section of the *Handbook*. The sections in which significant changes or updates have been made between 2005 and this most recent edition (April 2009) are listed in the table on the following pages (sections with only minor editorial changes are not reflected in this table):

Summary of New Sections, or Sections With Significant Updates in this Fourth Version of the Handbook

Section	Title
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Tab 13 Addendum 9	Periodicity of Physical Examinations
Tab 13 Addendum 10	Pulmonary Function Testing
Tab 13 Addendum 11	Pulse Evaluation
Tab 13 Addendum 12	Seizures and Medical Clearance
Tab 13 Addendum 13	Sleep Apnea
Tab 13, Addendum 14	Use of Coumadin (or "blood thinners")

DOI Office of Occupational Health and Safety (OHS)

The Office of OHS provides up-to-date guidance on all aspects of the Occupational Health Program, keeping pace with federal regulations and the advancement of science in occupational medicine and industrial hygiene. The Occupational Health Programs Manager provides much of the professional guidance and support for this occupational health program. The Office of OHS will:

- publish, via this *Handbook* and/or other methods, DOI policy and guidance in the occupational health program area;
- assist the bureaus in establishing their occupational health programs, evaluating these programs, and resolving issues that are of common bureau interest or involve outside agencies;
- serve as the primary DOI occupational health liaison with outside agencies, including the Office of Personnel Management, the Public Health Service, and the Occupational Safety and Health Administration; and
- serve as the lead for maintenance of the *Occupational Medicine Program Handbook* (see Tab 2, *Maintenance*).

More information regarding the Office of OHS occupational health program responsibilities is presented in Tab 4 (*Roles*).

DOI Office of Personnel

As a support function for the occupational health program, the DOI Office of Personnel provides up-to-date guidance on all aspects of the Personnel Management program in keeping pace with federal regulation. Specifically, the DOI Office of Personnel will:

- Provide up to date guidance on the administrative aspects of personnel medical programs.

More specific information regarding occupational health program responsibilities of the various offices of personnel is presented in Tab 4 (*Roles*).

U.S. Public Health Service

The U.S. Public Health Service Federal Occupational Health (FOH) program, under an interagency agreement with the DOI Office of Occupational Health and Safety, provides a physician consultant who serves as the Departmental Medical Officer (MO). As indicated in Tab 4 of the *Handbook*, this DOI MO serves under the administrative

and program guidance of the Office of OHS.

FOH, which has provided occupational health services for Federal agencies and their employees since 1946, is authorized to do so under Public Law 79-658 (5 U.S.C. 7901) and Section 403 of the Government Management Reform Act (P.L. 103-356). FOH provides occupational medical services on a cost reimbursable basis through a national network of clinics and local program offices. These services include:

- Medical surveillance examination and review services;
- Medical clearance examination and review services;
- Other occupational exams and preventive health services;
- Medical reviews and consultation for DOI managers on OWCP and other challenging personnel cases;
- Walk-in occupational health center services;
- Wellness services, including smoking cessation;
- Occupational health consultation;
- Drug and alcohol testing programs and oversight;
- Ergonomics;
- Industrial hygiene and environmental health;
- Employee Assistance Programs;
- Organizational development.

Bureau Senior Management

Executive Order 12196, *Occupational Safety and Health Programs for Federal Employees*, makes each Federal agency head responsible for establishing and maintaining an effective and comprehensive occupational safety and health program. Within DOI, bureau senior management is responsible for the implementation of occupational health programs within their respective bureaus that meet all applicable federal laws and regulations. This *Handbook* provides certain guidance and describes services that are available from the Office of OHS and other DOI and non-DOI agencies, but the individual bureaus and area/regional programs have programmatic and financial responsibility for the services provided to their employees.

Centered on each bureau's Designated Agency Safety and Health Official (DASHO) and involving senior line management throughout the organization, management assures that top priority is given to the "zero-loss" safety and health culture within their organization. This includes a commitment to having all employees in arduous or hazardous occupations medically fit and physically capable of performing their duties without undue risk of harming themselves or others. Bureau senior management will:

- assure that all personnel in arduous and hazardous occupations are medically qualified for their positions; and

- assure that all agency-funded occupational medical service programs meet or exceed the guidelines set out in this *Handbook* and/or applicable federal regulation.

Bureau Area/Regional Management

Bureau senior management at the area or regional level is responsible for the implementation of occupational health programs within their respective bureaus that meet all applicable federal laws and regulations. The guidance and service descriptions covered for Bureau Senior Management, above, apply similarly to area/regional managers, within their own programmatic purview.

Local Offices

Local DOI field offices generally have the "point of application" responsibility for employee health and safety. These local offices must assure that all employees in arduous and/or hazardous occupations are medical fit and physically capable of performing their duties without undue risk to themselves or others. In addition, depending on the financial management arrangements within individual bureaus, local offices may have responsibility for financing and arranging for services for its employees. In general, local offices will:

- coordinate with local Federal Executive Boards and other federal committees and organizations, as appropriate, in arranging for and securing occupational health services for eligible DOI employees;

- assure that all office personnel in arduous and hazardous occupations are medically qualified for their positions; and

- assure that all agency-funded occupational medical programs meet or exceed the guidelines set out in this *Handbook* and/or applicable federal regulation.

Occupational Health Programs Manager

The Occupational Health Programs Manager in the Office of OHS will serve as the focal point for all aspects of the DOI occupational health program. Specifically, the Manager will serve as the central authority for all program and policy determinations; the central point of contact for all external agency occupational health issues; and the central clearinghouse for the occupational health program.

DOI Medical Officer

DOI arranges with the U.S. Public Health Service for a Medical Officer (DOI MO) to serve under the programmatic guidance of the Occupational Health Programs Manager. The DOI MO shall be a licensed doctor of medicine (MD) or osteopathy (DO). At a minimum, the DOI MO should be board certified or board eligible in the field of occupational medicine, or have at least five years experience in the full-time practice of occupational medicine and be board certified or board eligible in another medical specialty. The MO shall be qualified to provide professional expertise in the areas of occupational safety and health as it relates to the programs of the Department and the policies established under this program.

Arrangements for the DOI MO will be made through the Occupational Health Programs Manager. The DOI MO is charged with the oversight responsibility for the Department's entire occupational medicine program. In fulfilling this oversight responsibility, the DOI MO's role insures individual accountability and provides a mechanism for a uniform and consistent application of medical decisions and policies throughout the Department. Specific operational assistance and services from the DOI MO can be arranged individually by a bureau, or regional or local agency management, if such services are beyond the scope of the Office of OHS interagency agreement with FOH.

As a health professional who is <u>not</u> a DOI employee, it is important to note that the DOI MO has no personnel or management decision-making authority within DOI. All input from or by the DOI MO must be considered only as consultative or advisory in nature, and the use of such advice and consultation is solely at the discretion of DOI managers. With this in mind, the DOI MO will provide or oversee the following advisory and consultative services:

- up-to-date and complete medical and technical information regarding specific medical and physical conditions or medical examination procedures relevant to existing or proposed physical requirements or health related personnel management programs for federal employees;

- reviews and recommendations regarding the results and conclusions

derived from medical examinations conducted by non-DOI or DOI contract physicians;

- technical assistance (including advisory opinions in medical and occupational health areas, e.g., worker's compensation, disability retirement, medical standards, civil lawsuits, MSPB challenges, EEOC cases. etc.) to ensure compliance with agency policy;

- expert review and analysis of medical documentation and other materials submitted in support of:

  - medical disqualifications of applicants;

  - an employee's restoration rights under 5 U.S.C. 8151 following full or partial recovery from a compensable on-the-job injury;

  - requests for job accommodations or other special benefits to health conditions;

- written reports on medical standards, medical policy issues, or individual medical documentation reviews, as requested;

- advisory opinions clarifying medical/psychiatric issues on the suitability of federal employees who hold top security clearances;

- guidance regarding new and experimental procedures (i.e., refractive eye surgery, surgical implants, prosthetic devices) as a means of satisfying medical, vision, hearing requirements, etc.;

- research and analysis of complex legal and medical issues through coordination with the Office of the Solicitor;

- research and analysis of technical, scientific and medical data in support of policy development and program management;

- assistance in the development and implementation of occupational medical evaluation and clearance programs for candidates and incumbents, including such services and topics as are covered in this *Handbook*.

Agency and/or Program Medical Officer(s) (AMO(s))

Once the technical and policy issues relating to a specific occupational medical program have been resolved, the services of an Agency/Program MO can be arranged for individually by a bureau, or by regional or local agency management. An AMO

secured in this fashion will function in a similar manner on the local or bureau level as that summarized above for the DOI MO, with the exception of those functions related to national program and policy issues. If an agency or local program obtains the services of a medical officer for a specific occupational medical program, the Occupational Health Programs Manager should be notified.

Whether arranged for locally, or through the National Business Center, the AMO shall be a licensed doctor of medicine (MD) or osteopathy (DO). At a minimum, it is recommended that any AMO be board certified or board eligible in the field of occupational medicine, or have at least five years experience in the full-time practice of occupational medicine and be board certified or board eligible in another medical specialty. The AMO shall be qualified to provide professional expertise in the areas of occupational safety and health as they relate to the specific positions covered under the applicable mandatory medical examination portions of this program. For the purpose of conducting medical evaluations, the AMO shall understand the physiological and psychological demands placed on the bureau's employees and shall understand the stressful, hazardous, and possibly life threatening conditions under which these employees may have to perform their duties.

Information regarding the identification and selection of qualified candidates to serve as an AMO is presented in Tab 5 (*Medical Service Providers*).

Human Resource Officer(s)

The Human Resource Officer (HRO) is charged in many cases with maintaining employee occupational health records, including audiograms, physical examination results, exposure records, and physician reports, recommendations, and summaries as they relate to occupational exposures, injuries, illnesses, return to duty recommendations, and physical qualifications. The day-to-day maintenance or custodianship of these records may be delegated contractually to another appropriate agency or private entity when that organization provides the occupational health services for DOI. Further information on the topic of employee occupational health records may be found in this *Handbook* at Tab 6 (*Medical Records - Employee Medical File System*).

The HRO also has a key role in the management of actions taken under the Department's *Handbook on Charges and Penalty Selection for Disciplinary and Adverse Actions*. This may include requesting and reviewing medical certifications for sick leave or other absences, where consultation with the OHS Occupational Health Programs Manager and the DOI MO may be of assistance.

In the case of work related injuries or illnesses, the Office of Human Resources in many cases is responsible for administering the provisions of law and regulation related to record keeping, and assuring that appropriate workers' compensation forms have been completed and processed in coordination with the safety office. Access to forms

and further information on this topic may be found in this *Handbook* at Tab 12, Attachment E 6 (*Recordable Injuries and Illnesses*).

Safety Officer(s)

The lead safety official for the Department in the medical program area is the Occupational Health Programs Manager, and additional specific information regarding the role of the OHS Programs Manager is provided in Tab 2 (*Handbook Administration*) and Tab 3 (*Responsibilities*). A safety officer also is assigned or designated for each operating division or program within the Department. These safety officers are responsible for advising management regarding matters of occupational safety and health. They are responsible for developing and/or managing the safety program within their jurisdiction, and coordinating safety activities. They keep management informed of findings and recommendations that relate to the safety and health of DOI employees and members of the public who are impacted directly by DOI programs. Studies are conducted, or arranged for, to evaluate the effectiveness of safety and health programs, and safety and health information is forwarded to the safety and health counterparts at more central levels of the DOI.

Health Care Providers

The role of the health care provider in the Department's occupational medicine program ranges from that of the personal, primary provider of clinical care for individual employees (and, therefore, beyond the purview of departmental direction, but frequently the recipient of requests for, and the provider of, medical documentation regarding those employees) to the providers of occupational medical services and the gatherers of occupational medical information that permits the review and consideration of employees' compliance with agency medical standards. Health care providers also may provide important consultation to employees receiving services and to the agency/program medical officer and/or the DOI MO. In addition, the health care provider serves as a "first-line" observer for health effects of work place exposures and the health status of DOI employees. Health care providers may include professionals from a variety of professional backgrounds, including physicians, nurses, nurse practitioners, physician assistants, audiologists, audiometric technicians, laboratory technologists, and others in the health care arena. All health care entities, including individual providers or corporate health care organizations, that provide services for DOI employees are expected to do so in a manner consistent with good medical practice. When work is performed under contracts or agreements with DOI, it is expected to be done in a manner consistent with this *Handbook*, the specified terms of those contracts or agreements, and local standards for health care services. Information regarding securing health care providers for local occupational medicine programs may be found in Tab 3 (*Responsibilities*) and in Tab 5 (*Medical Service Providers*)

Medical Services Providers Tab 5

Acquiring or Accessing Services

The participation of medical service providers in an agency's medical program may be secured on an agency-to-physician or agency-to-clinic basis, if this arrangement is most practical in meeting local circumstances and preserves established service relationships. Arrangements also may be made as part of a multi-agency contract or agreement that may minimize costs and make the overall program more efficient. Please see Tab 7 (*General Medical Program Guidance - Establishing and Providing Services*) for further information regarding organizational aspects of securing services. Ideally, to avoid situations where work-related objectivity may be compromised by established personal relationships between patients and their physicians, contracts for medical service providers should be sought with health professionals who are not the personal health care providers for the employees who are to receive those DOI-sponsored occupational health services. It is recognized, however, that in remote locations or where the availability of health care providers may be limited, contracts with the personal health care providers of at least some employees may not be avoidable.

Examining Health Care Provider Qualification Standards/Credentials

Many of the DOI positions for which employees will receive medical examinations involve some aspect of exposure to chemical substances or arduous and/or hazardous duties. The clinical examination services provided must be performed by or under the supervision of a licensed physician, or by other health care professionals licensed to perform independent medical examinations. Preferably, the examiner will be knowledgeable in occupational medicine. The examining health care providers, whether serving as individual contractors, or through a larger clinic or multi-agency arrangement, should demonstrate that they:

- Possess the necessary credentials, including:
  - Current health care provider licensure in the state where services will be provided; and
  - Current certification, or eligibility for certification, by the national board or specialty organization for an appropriate health care field, e.g., occupational medicine, preventive medicine, internal medicine, family practice; (certification in occupational health is highly preferred, though certification in another specialty, and additional training in occupational health, is acceptable);
- Possess current professional practice liability insurance (minimum coverages of $1 million per occurrence and $3 million in aggregate are recommended) or, if a federal employee, the type of services they plan to provide for DOI must be

covered by their current position description and/or personnel orders (the Federal Tort Claims Act provides liability protection for federal employees while performing official duties, including carrying out health care services);

- Are available to meet the specified examination needs of the covered employees, and are available to respond to urgent consultation or health care needs following exposure incidents (Note: see Tab 7, *General Medical Program Guidance - Emergency Medical Care*; as with any emergency situation, emergency care for injuries or exposures that result in acute symptoms should be provided by the closest available provider of emergency health care services);

- Have access directly, or via contract, to certified laboratory services for blood and urine testing (including testing for agents, or the biological effects of agents, such as heavy metals, pesticides, and polychlorinated bi-phenyls); in turn, these laboratories should be able to demonstrate current certification of program quality, such as by accreditation by the College of American Pathologists, certification as a Medicare provider, or active participation in the Clinical Laboratory Improvement Program of the Centers for Disease Control and Prevention or the American Association for Clinical Chemistry;

- Have access directly, or via contract, to radiology services, including over-reads by board certified radiologists and, for any asbestos or silica exposure, individuals certified to perform "b-readings";

- Use certified, regularly calibrated equipment for pulmonary function testing, audiometry, and electrocardiography;

- Have mechanisms to avoid conflict of interest, such as self referral, in the services they provide (DOI employees requiring follow up care should be referred only to their own physician, or to other specialists with the concurrence of the employee's own physician);

- Offer competitive prices for services;

- Are able to provide local access, or easy access arrangements, to services for the employees; this may involve having physicians visit the DOI work site to provide services (e.g., when a sufficient number examinations are to be conducted), or having employees travel distances that are deemed reasonable by the employees and DOI management;

- Are available on an ongoing, timely basis to provide local clinical and occupational medicine consultation and guidance for DOI management and employees; and

- Have a system of medical records that assures both the physical security and confidentiality of the records, with release of any information from an employee's record, or about an employee's health status or clearances, only upon prior written consent from that employee (see Tab 6, *Medical Records - Employee Medical File System*) or by the direction of the Employee Medical File System Manager or his designee.

Records MUST either be maintained by the physician or his/her clinic for the time periods required by regulation (e.g., the period of employment, plus 30 years, for services related to occupational exposures) and available for access by DOI using normal release of information procedures, or forwarded to DOI for incorporation into the separately stored medical portion of the employees' official personnel folders.

For most established clinical programs that provide occupational health services, such as a Federal Occupational Health clinic, the above requirements either already are in place or can be implemented easily and their existence only needs to be confirmed for the DOI manager who is seeking to enter into a contractual arrangement for such services. In settings where the option of joining another DOI office or agency in an existing program does not exist, the proposed physician or clinic should be willing to supply information that confirms compliance with these basic expectations. Where questions arise about local options for clinical services, consultation may be sought with other nearby federal agencies for their experience in securing services, or the local medical society may be contacted for guidance on options. Also, before arrangements are finalized for local contract services, the Occupational Health Programs Manager or the DOI MO may be consulted to confirm the appropriateness of the proposed clinical arrangements (see Tab 4, *Roles - DOI Medical Officer*).

Certification of Other Clinical Staff

Other clinical staff performing services with or for the examining physician must also be able to demonstrate their qualifications if services are not performed under immediate supervision by the physician. Such services specifically include audiometry and spirometry.

Consistent with 29 CFR 1910.95, audiometry is to be conducted either with a microprocessor audiometer, or by an individual who meets one of the following qualifications: 1) a licensed or certified audiologist, or an otolaryngologist or other licensed physician; or 2) a technician who is certified by the Council of Accreditation in Occupational Hearing Conservation and is responsible to an audiologist, otolaryngologist, or other physician (see also Tab 12 – Attachment E 2, *Hearing Conservation*).

Consistent with applicable sections of 29 CFR 1910 related to pulmonary function testing for occupational exposures to identified agents, persons providing such testing are to have successfully taken a NIOSH-approved course in spirometry.

Certification of Laboratories

As covered above under *Examining Health Care Provider Qualification Standards/Credentials,* any laboratory providing services for DOI should be able to demonstrate current certification of program quality, such as by accreditation by the College of American Pathologists, certification as a Medicare provider, or active participation in the Clinical Laboratory Improvement Program of the Centers for Disease Control and Prevention or the American Association for Clinical Chemistry.

Certification of Clinical Equipment

As covered above under *Examining Health Care Provider Qualification Standards/Credentials*, only certified, regularly calibrated equipment is to be used for pulmonary function testing, audiometry, electrocardiography, or other machine-assisted clinical procedures.

Referrals to Sub-Specialists

As covered above under *Examining Health Care Provider Qualification Standards/Credentials*, mechanisms must be in place so that clinical providers contracted to serve DOI employees avoid conflicts of interest, such as self referral for follow up specialty or ongoing primary care. DOI employees requiring follow up care for personal health problems or preventive health services should be referred only to their own physicians or to other specialists with the concurrence of the employees' own physicians. Consultation regarding referrals for conditions that relate to job performance or safety issues should be sought through the Occupational Health Programs Manager.

Data Systems

As covered above under *Examining Health Care Provider Qualification Standards/Credentials*, any provider of clinical services for DOI employees must have a system of medical records in place that assures security and confidentiality, with release of any information from an employee's record, or about an employee's health status or clearances, only upon prior written consent from that employee (see also Tab 6, *Medical Records - Employee Medical File System*) or by the direction of the Employee Medical File System Manager or his designee. To avoid misunderstandings and later conflicts, consents for the release of information gathered as a result of a DOI-sponsored examination service should be obtained at the time of initial patient appointment (see Tab 12 – Attachment D 3 (b), *Authorization for Disclosure of Information Form*) so that appropriate and necessary DOI access to the information is not restricted.

Medical Records - Employee Medical File System Tab 6

Management and Records Maintenance

Federal regulations (5 CFR 293.502) define the Employee Medical Folder (EMF) as "*a separate file folder (normally SF 66-D) established to contain all of the occupational medical records (both long-term and short-term records) designated for retention, which will be maintained by the employing agency during the employee's Federal service*." Further, "*Occupational Medical Record means an occupation-related, chronological, cumulative record, regardless of the form or process by which it is maintained (e.g., paper document, microfiche, microfilm, or automatic data processing media), of information about health status developed on an employee, including personal and occupational health histories and the opinions and written evaluations generated in the course of diagnosis and/or employment-related treatment/examination by medical health care professionals and technicians. This definition includes … Employee Exposure Records and occupational illness, accident, and injury records*."

These regulations also define the Employee Medical File System (EMFS) in which the EMFs are managed as "*the agency's complete system (automated, microfilmed, and paper records) for employee occupational medical records*."

As specified in 5 CFR 293.506 (Ownership of the Employee Medical Folder), "*The EMF of each employee in a position subject to civil service rules and regulations is part of the records of the Office* [of Personnel Management]." In other words, civil service employee occupational health records belong to the Office of Personnel Management (OPM), even though they are the responsibility of the employing federal agency and may be under the day-to-day custodianship or management of a health services provider under contract with that agency.

In order to manage these EMFs, 5 CFR 293.503 (Implementing instructions) specifies that "*Agencies must issue written internal instructions describing how their* [Employee Medical File System] *EMFS is to be implemented. These instructions must—*

(a) Describe overall operation of the system within the agency including the designation of the agency official who will be responsible for overall system management [i.e., the Employee Medical File System Manager, or EMFSM; the EMFSM for DOI is the Occupational Health Programs Manager]. *When the agency has a medical officer* [who is an agency official, or employee], *that individual must be named the system manager. The system manager may then designate others within the agency to handle the day-to-day management of the records, e.g., the custodian of the records at the site where they are maintained* [or the program manager for an agency medical standards assessment and clearance program]*;*

(b) Be prepared with joint participation by agency medical, health, and safety, and personnel officers;

(c) Describe where and under whose custody employee occupational medical records will be physically maintained;
(d) Designate which agency office(s) will be responsible for deciding when and what occupational medical records are to be disclosed either to other agency officials or outside the agency;
(e) Ensure proper records retention and security, and preserve confidentiality of doctor/patient relationships;
(g) Be consistent with Office regulations relating to personnel actions when medical evidence is a factor (5 CFR parts 339, 432, 630, 752, and 831);
(h) Provide guidance on how an accounting of any record disclosure, as required by the Privacy Act (5 U.S.C. 552a(c)), will be done in a way that ensures that the accounting will be available for the life of the EMF;
(i) When long-term occupational medical records exist, provide for the creation of an EMF for an employee transferring to another agency or leaving Government service, and whether an EMF is to be established at the time an employee is being reassigned within the agency;
(j) Ensure a right of access (consistent with any special Privacy Act handling procedures invoked) to the records, in whatever format they are maintained, by the employee or a designated representative;
(k) Ensure that a knowledgeable official determines that all appropriate long-term occupational medical records are in an EMF prior to its transfer to another agency, to the NPRC, or to another office within the same employing agency;
(l) Ensure that all long-term occupational medical records an agency receives in an EMF are maintained, whether in that same EMF or by some other agency procedure, and forwarded to a subsequent employing agency or to NPRC;
(m) Ensure that, if occupational medical records are to be physically located in the same office as the Official Personnel Folder (OPF), the records are maintained physically apart from each other;
(n) Sets forth a policy that distinguishes, particularly for purposes of records disclosure, records in the nature of physician treatment records (which are generally not appropriate for disclosure to non-medical officials) from other medical reports properly available to officials making management decisions concerning the employee;
(o) Provide guidance that distinguishes records properly subject to this part from those (e.g., Postal Service or Foreign Service employee medical records) subject to different rules, particularly in Privacy Act and Freedom of Information Act matters;
(p) Ensure that guidance regarding the processing of Privacy Act matters is consistent with Office regulations implementing the Privacy Act at 5 CFR parts 293 and 297; and
(q) Ensure that no security classification is assigned to an EMF by including therein any occupational medical record that has such a classification. In this regard, the agency creating the classified medical record is required to retain it separately from the EMF while placing a notice in the EMF of its existence and describing where requests for this record are to be submitted.

All information in the EMF, whether stored in paper, electronic, photographic, or other means, must be considered medically confidential, and must be maintained in a manner that strictly controls access to the information, and assures the safety and physical integrity of those records.

These confidential records may be found in several places, complicating the task of assuring confidentiality and security. Records may be found in medical, personnel, dispensary, safety, or other designated DOI program offices, or in clinics managed by DOI, other federal agencies, or private health care providers where occupational health services have been provided over the period of the employee's federal employment. Regarding personnel files, 5 CFR 293.503 (m) specifies that an agency must "*ensure that, if occupational medical records are to be physically located in the same office as the Official Personnel Folder (OPF), the records are maintained physically apart from each other,*" so these records cannot be commingled in the same folders or files.

The EMF is to be maintained for the period of the employee's services with DOI, and then is to be transferred to the National Personnel Records Center for storage or, if indicated, transferred to the appropriate personnel office or designated occupational health care provider of the next employing federal agency. Some records (e.g., certain medical surveillance or exposure records) must be maintained for extended periods of time (e.g., employment plus 30 years); others must be stored, but for lesser periods.

When medical services are provided by non-DOI personnel in non-DOI facilities, information should be maintained in each of the employees' official personnel folders that identifies the names, addresses, and phone numbers of the health care providers where the occupational medical records are located in order to facilitate retrieving those records at a later date, should they be necessary for any further official purposes.

Confidentiality/Release of Records

This section covers the issue of releasing confidential client/patient information, including conclusions or opinions directly derived from such confidential information, to any person other than the employee covered by those records. Applicable references include the Privacy Act of 1974; 29 CFR 1910.20 (Access To Employee Exposure and Medical Records); and OPM/GOVT-10 Employee Medical File System Records.

Employees must be offered access to their own exposure and occupational medical records. This access must be prompt (generally within 15 working days) and present no unreasonable barriers for the employee. If a physician who is representing the agency or is the custodian of the occupational health record believes that direct employee access to certain sensitive information could be detrimental to the employee, the records requested by an employee are to be released to another licensed health professional who has been identified as being acceptable to the employee.

It is the policy of DOI that all medical confidential information will be handled in accordance with the Privacy Act of 1974 and subsequent amendments. At the time of their first DOI occupational health clinical service, all employees are to receive a Privacy Act Notice Form (an example of which may be found in Tab 12, Attachment D 3(a)) which outlines the purposes for which the medical information may be used, and the specific conditions under which information provided by or on behalf of an employee may be disclosed. Employees who already have received clinical services, but who have not yet had the opportunity to review a Privacy Act form, should be offered the form at the time of their next clinical service. While obtaining the employee's signature is recommended, it is not mandatory that an employee sign this form as an indication that it has been reviewed.

Without a signed consent from the subject employee, no confidential information will be released to or shared with individuals other than: 1) the subject of the records (i.e., the employee himself or herself); 2) authorized OSHA officials; 3) health professionals within the DOI-arranged system of health services who have a justified, programmatic "need to know"; 4) other individuals in the Department with a specific, official "need to know," as summarized in the published Departmental Manual (370 DM 293.4), such as the EMFSM or agency personnel specifically designated by the EMFSM; or 5) as provided for in the System of Records notice for the owner of the confidential records (OPM, as covered in OPM/GOVT-10). The DOI system of occupational health services may include federal employees or contracted health professionals who work as representatives of DOI.

It is important to note that a general consent form to release medical records DOES NOT include the release of records dealing with HIV and/or AIDS, or substance abuse or mental health diagnosis and/or treatment, unless those subject areas are explicitly included in the signed consent by the subject individual.

In order to avoid confusion and allegations of lack of knowledge or consent, and even though both the Privacy Act and OPM/GOVT-10 authorize certain releases of information, all individuals who are to receive medical examinations or other non-emergency services (for which *any* medical or summary information is to be forwarded to recipients other than the employee him/herself) will be required first to sign and date an Authorization for Disclosure of Information form before any services are provided. The nature and scope of the information to be disclosed to the agency must be specifically authorized by the employee on the form before the services are provided or the resulting information is released. No medical information, including summary information derived from medical records, may be disclosed to DOI management, or to others, without this signed form (or one providing similar information), unless expressly authorized by the agency's designated Employee Medical File System Manager. A copy of this form is provided in Tab 12, Attachment D 3(b).

If an employee chooses to exercise his/her right to not sign a disclosure form to release agency-requested medical information, all clinical services (with the exception of

emergency services intended to preserve the individual's life, limb, or health) will be withheld, along with any associated medically-based clearances. Such clearances may be required in order to use a respirator, or to perform specified jobs, such as law enforcement, so the employee's supervisor is to be informed of the lack of such clearance(s) in order for any necessary and appropriate personnel action to be initiated.

For some DOI agencies or job categories, a disclosure to the agency of the entire occupational medical record may have been determined to be necessary. This must be noted on the disclosure form that authorizes the release of this information (signed prior to the provision of clinical services) so the employee understands that this level of disclosure will take place. In most cases, however, disclosures will be more limited. For these limited disclosures, it is suggested that the statement of the intent of the release and the nature of information to be disclosed include language similar to the following:

> "*Summary of the occupational health-related findings from the* [specify type] *exam, including the resulting clearances, restrictions, recommendations, and suggested follow up*."

The Occupational Safety and Health Administration (OSHA) has provided guidance regarding the content of this limited information that may be appropriate to disclose to an employer regarding the results of a medical evaluation. According to OSHA, the physician's written opinion to the employer should include:

- whether [or not] the employee has any medical condition that would place the employee at increased risk from occupational exposure;
- limitations to assigned work or use of protective equipment;
- a statement that the employee has been informed of the results of the medical examination; and,

if exposures warrant,

- a statement that the employee has been informed of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure.

With this type of limited disclosure, the physician's written opinion to the employer should NOT reveal specific findings, test results, or diagnoses unrelated to occupational exposures. For other releases (such as a copy of the entire record, or clinical data regarding a specific diagnosis), the Disclosure form similarly should describe the specific nature of the information to be disclosed, so the employee is able to grant (or withhold) informed consent to the disclosure of the information.

If a request for copies of records is received from the surviving spouse of a deceased employee, the request, and a copy of the requested information, must be sent to a departmental Freedom of Information Act (FOIA) coordinator for review. The FOIA coordinator will determine what information may be released, and will release as appropriate a copy of the records after masking any information that has been determined to be inappropriate for release.

If a request for copies of records is received from any individual who has been granted power of attorney by the employee, the information may be released if the power of attorney is unrestricted (general power of attorney), or if it specifically covers confidential information. A request for information release under this circumstance must be accompanied by a signed copy of the power of attorney, a copy of which must remain in the medical record along with a summary of which documents were released.

Other requests for the release of confidential medical information should be referred to the agency's Employee Medical File System Manager (i.e., the DOI Occupational Health Programs Manager).

General Medical Program Guidance **Tab 7**

Establishing and Providing Services

Executive Order 12196, *Occupational Safety and Health Programs for Federal Employees*, makes each federal agency head responsible for establishing and maintaining an effective and comprehensive occupational safety and health program. Further, as specified in 5 U.S.C. 7901, the U.S. Public Health Service is to be consulted regarding the adequacy and appropriateness of health programs established for federal workers. In determining what occupational health services are to be provided, and how they are to be secured and offered to employees in each area, several factors must be considered, including:

- the nature of the job requirements of employees who are to be covered by the services, including the potential for exposure to hazardous materials or activities;
- the past history or experience with work-related claims for injuries or illnesses, and established "past practices" for employees;
- the number of employees to be provided services within an identified geographic or programmatic area;
- national and local DOI management decisions regarding the provision of only mandatory services, versus mandatory and certain discretionary services;
- the availability of co-located DOI programs or other federal agencies with which services may be coordinated and costs shared;
- the availability of service providers capable of meeting specified occupational health service and program needs, as presented in this *Handbook*;
- the availability of funds and administrative support at the level of the proposed program to support its establishment and ongoing maintenance;
- guidance from the U.S. Public Health Service on the adequacy and appropriateness of the proposed program of services to be provided; and
- concurrence with the proposed program by the Occupational Health Programs Manager.

In geographic settings where existing federal occupational health programs are in operation, it may be possible simply to enroll the agency and its employees as "members" of that health program, and receive the benefits and services offered there. It remains the responsibility of the local DOI manager, however, to assure that services provided in this manner are consistent with the provisions of this *Handbook*. The

manager is encouraged to contact both the prospective health program and the Occupational Health Programs Manager for further guidance.

In settings where there are sufficient DOI employees to justify the action, it may be appropriate to establish an occupational health facility specifically for that employee group. In general, the number of participating employees necessary to make such a facility worthwhile is 300, though this figure may be adjusted higher or lower depending on local factors, as noted in the bulleted items listed above in this section of the *Handbook*. Where space, funding, and personnel ceilings permit, the facility may be staffed and operated as a DOI clinical program with DOI employees or contractors. Alternatively, it may be operated on behalf of DOI by a federal or private organization capable of offering services meeting DOI needs. The DOI manager considering these options is encouraged to contact the Occupational Health Programs Manager for further guidance.

In more isolated settings, arrangements for occupational health services may be arranged through contracts or agreements with local private health care providers. Selection of qualified providers, and determination of appropriate services, poses more of a challenge for the DOI manager under this alternative. This *Handbook* provides an overview of the types of services to be considered (see specific Tabs), as well as how to select a health care provider if local contracts for services are necessary or are considered advantageous to the agency (see Tab 5, *Medical Service Providers*).

Medical Review Program - Overview

Tab 4 (in the section on *Agency Medical Officer(s)*) offers specific information regarding the role of the AMO in providing consultation and programmatic assistance to DOI managers regarding occupational medical issues. Whether arranged for locally, or by accessing the services of the DOI MO by contacting the Occupational Health Programs Manager, the medical review function is an important part of a successful and effective occupational health program. All personnel and program decisions of an occupational health nature are to reflect the input of the Occupational Health Programs Manager and the DOI MO, whether by their direct involvement or through the appropriate use of forms and guidances they have provided.

Basic Requirements for Examination Procedures

The examination components and the standards that are applied for each of the job categories covered in this *Handbook* are based on an expectation that the specified tests and procedures will be conducted in a standard, consistent, and professional manner, regardless of the examined employee's specific bureau, or job title, or geographic location. The specific medical history, physical exam, and laboratory tests to be conducted will vary by job title or other specified requirements. However, the methods used to carry out these activities should be consistent. This requires the services of qualified health care providers and equipment (see the applicable sections within Tab 5, *Medical Service Providers*), as well as appropriate methods and techniques in carrying

out the tests, procedures, and examinations, to assure accuracy and consistency in the assessment of each employee. The following expectations shall apply when these examination components are provided to DOI employees.

Forms -- Where DOI-sponsored or authorized forms are available for recording the results of examinations and procedures (e.g., the DOI Standard Medical History and Examination Form; see Attachment D 3), these are to be used by all health care providers serving within the DOI occupational health program. If, for a specific service, a DOI form is not available, other forms may be used as long as all of the required data elements are obtained and recorded in a clear and complete fashion. Standard Forms 78 (Certificate Of Medical Examination) and 93 (Report Of Medical History) are considered obsolete, and their use by DOI programs is discouraged.

General Physical Examination – Please refer to the section entitled "Periodic Health Exams" within this tab for a discussion of the appropriateness of focused versus comprehensive or general physical exams for healthy individuals. In either case, these exams are for occupational health screening purposes only. They are not conducted for the purpose of diagnosis and treatment, nor are they intended to replace regular periodic physical exams provided for employees by their personal health care providers. The provision of a comprehensive, general physical exam usually will be limited to those employees whose positions require medical clearances, or where potentially harmful workplace exposures may be present. Other factors, such as union contracts, may impact decisions regarding whether to provide examinations and the type of examinations to be provided.

If it is decided that a general physical exam is to be provided, it should address all of the major body systems. Employees will be asked to disrobe for parts of the exam to allow the physician to fully observe and examine them as necessary. The examiner will pay particular attention to specified body systems, organs, or physical signs that must be assessed for clearance purposes, or that may reflect the harmful effects of exposures identified in the occupational history. All findings are to be recorded, including the notation of "normal" findings, as well as written descriptions of all abnormal findings or distinguishing features. In most cases, the general physical examination will address at least the following:

- Vital signs: pulse, respiration, and blood pressure
- Height, weight, body mass index
- Dermatological system
- Ears, eyes, nose, mouth, throat
- Cardiovascular system
- Peripheral vascular system
- Respiratory system
- Gastrointestinal system
- Genitourinary system

- Endocrine and metabolic system
- Musculoskeletal system
- Neurological system, peripheral and central
- Mental status

A brief or limited exam may be carried out in certain circumstances (e.g., when only a hearing test is needed for noise-exposed employees). The tests or procedures described below may be done as part of a brief or comprehensive exam, depending on individual program or employee requirements.

Vision and Eye Tests (Color; Corrected and Uncorrected Near and Far Visual Acuity; Depth Perception; and Peripheral Vision) -- Color vision must indicate the type of test used (e.g., Ishihara, Farnsworth D-15, colored yarn), and the number of screens or items correctly identified compared to the number tested. For many examinations, such as those for Department of Transportation / Commercial Drivers License purposes, the ability to distinguish red, green, and amber (or yellow) must be recorded specifically whenever an employee has less than a perfect score on a panel of color vision tests. In other cases, such as for law enforcement examinations, the Farnsworth Dichotomous Test for Color may be required. Both corrected and uncorrected visual acuity are to be assessed if the employee requires corrective lenses (i.e., glasses, contacts), and if such lenses are used for any part of the employee's job. If contacts are worn, the employee must bring and use his/her own supplies for removing, cleaning, and replacing them, when uncorrected vision is to be tested. Visual acuity is to be recorded in Snellen units (e.g., 20/20). Depth perception is to be recorded in seconds of arc or percentage (Shepard Frye), with the type of test specified. Peripheral vision is to be recorded in degrees on a lateral plane (both nasal and temporal) for each eye (e.g., R nasal = 45°, R temporal = 90°; L nasal = 40°, L nasal = 85°). Tonometry generally is not required for occupational purposes (peripheral vision having more pertinence), though tonometry may be of value for personal health and preventive health purposes when provided by an employee's personal eye care physician.

Audiogram1 -- Baseline and periodic audiograms are to be carried out using equipment and test locations that meet the criteria established by the Occupational Safety and Health Administration (OSHA) in the regulations cited at 29 CFR 1910.95. Audiograms are to be conducted by personnel certified by Council for Accreditation in Occupational Hearing Conservation (CAOHC), or by using a currently-calibrated microprocessor audiometer and persons trained in its use. Audiograms ideally should be performed in an ANSI-approved "soundproof"

1 A much more crude assessment of hearing, the "whisper test," occasionally may be used in lieu of an audiogram, if an audiogram is not required for a 29 CFR 1910.95 compliant hearing conservation program. For example, DOT/CDL medical clearance examinations (if only done for purposes of a CDL) may use a whisper test, as outlined in Tab 12, Attachment-E5. Certain wildland firefighter exams (see Tab 12, Attachment-D5) also allow whisper tests. Please refer to these sites for a discussion of the process used to conduct these tests.

booth (ANSI S3.1-1977) with equipment calibrated to ANSI standards (ANSI S3.6-1973). If a booth is unavailable, the test room sound pressure levels should not exceed those specified in the federal OSHA noise regulations (29 CFR 1910.95), as follows:

> *Rooms used for audiometric testing shall not have background sound pressure levels exceeding those in Table D-1 when measured by equipment conforming at least to the Type 2 requirements of American National Standard Specification for Sound Level Meters, S1.4-1971 (R1976), and to the Class II requirements of American National Standard Specification for Octave, Half-Octave, and Third-Octave Band Filter Sets, S1.11-1971 (R1976).*
>
> *Table D-1--Maximum Allowable Octave-Band Sound Pressure Levels for Audiometric Test Rooms*

Octave-band center frequency (Hz)	*500*	*1000*	*2000*	*4000*	*8000*
Sound pressure level (dB)	*40*	*40*	*47*	*57*	*62*

Employee hearing thresholds for each ear are to be recorded separately at each of the standard frequencies (500, 1000, 2000, 3000, 4000, 6000, and 8000 Hz). The test is to be done <u>without</u> hearing aids (if the employee otherwise wears them), unless the test is being done for medical clearance purposes only (rather than as part of a hearing conservation program) and the use of hearing aids is allowed under the applicable medical standards (e.g., the use of hearing aids generally is not permitted for wildland firefighters, but they may be used by those whose clearance exam is for a commercial drivers license under DOT regulations). The use of hearing aids during an audiogram must be noted on the report form.

Chest Radiograph (or other required radiographs) -- Scheduled (e.g., non-medical emergency) radiographs (X-rays) are to be done only if indicated in this *Handbook*, or requested by the MO, or if required by regulation (e.g., for asbestos exposure, using the schedule established by regulation such as 29 CFR 1910.1001(l)(2)(ii)). When included as part of the exam, radiographs must be obtained by a radiologist or other licensed physician, or a qualified radiographic technician, and must be read by a radiologist. Radiographs taken to evaluate possible effects of exposure to asbestos or silica also must be read by a certified "B-reader." If the radiologist is certified as a "B-reader," the standard reading of the radiograph and the B-reading may be done concurrently. A written interpretation is to be provided and entered into the employee's DOI medical file.

Pulmonary Function Test (or Spirometry) -- A pulmonary function test (PFT) should be conducted when an employee has known (or the potential for) exposures above the action level to regulated agents that may effect the respiratory system (e.g., asbestos, benzene, coke oven emissions, cotton dust, ethylene oxide, or formaldehyde). Some health professionals also use the PFT to evaluate the effects of exposure to agents that can cause asthma and other lung disorders, as well as to evaluate employees' ability to work safely while using a

respirator (see Tab 12, *Medical Clearance for Respirator Use* for guidance on appropriate inclusion/non-inclusion of this test). The test should be administered only by individuals who have successfully completed a NIOSH-approved course in spirometry. Only a spirogram that is technically acceptable and demonstrates the best efforts by an examinee should be used as part of the examination. Automatic spirometers, providing an environmentally-adjusted analysis and printout of results, should be used when available. These will measure Forced Vital Capacity (FVC), Forced Expiratory Volume in 1 sec (FEV_1), FEV_1 as percent of FVC (FEV_1/FVC), Forced Expiratory Flow between 25% and 75% of the Vital Capacity (FEF 25-75), and Peak Expiratory Flow (PEF). These machines also calculate the percent of expected levels (for age, height, gender, and sometimes race), providing important standards for comparison and the tracking of trends for the individual employee. Although the spirometric test results may not provide a specific diagnosis, they can help to demonstrate trends or patterns of respiratory function and distinguish the difference between restrictive and obstructive pulmonary disorders, and allows an interpretation of the severity of the condition.

Electrocardiogram -- Electrocardiograms should be standard 12-lead studies, and may be automated or manual. A written evaluation of the electrocardiogram by a physician trained in their interpretation or, at a minimum, an automated reading must be included in the employee's record. Electrocardiograms are of limited value as a screening tool for asymptomatic individuals, but may be useful as part of an occupational health exam, particularly in establishing an employee's baseline health status.

Exercise Stress Test -- This test should only be done if it is specified as part of an identified examination protocol in this *Handbook* as a mandatory test, or if it has been cleared with the AMO to assure that it is necessary, and that the arrangements for testing and interpretation are appropriate. Because of relatively frequent false positive as well as false negative results found with stress tests, they must be applied cautiously to any personnel action that may be considered in association with an examination. The tests must be conducted by or under the direction of a physician with demonstrated training in carrying out stress tests, and must be interpreted by a cardiologist. Generally, the test to be conducted is a maximal, symptom-limited, graded exercise test using the Bruce protocol.

Laboratory Tests -- Standard blood tests should be obtained following a 12 hour fast by the employee. Special (e.g., post-exposure) testing may be conducted on non-fasting samples. Urine tests may include a standard urinalysis, a spot (or random) urine collection, or a 24-hour collection for purposes of detecting over-exposures to certain toxic materials (e.g., heavy metals). While samples may be obtained from employees by any health care provider meeting the qualifications presented in Tab 5 (*Medical Service Providers*), laboratories utilized must be able to demonstrate their qualifications, such as accreditation by the College of

American Pathologists, certification as a Medicare provider, or active participation in the Clinical Laboratory Improvement Program of the Centers for Disease Control and Prevention or the American Association for Clinical Chemistry. The laboratory tests to be conducted are specified under the individual examination protocols found in Tab 12.

Discretionary Services

Some occupational health services are provided as a result of specific federal regulations, union/management-negotiated contract provisions, or DOI policies and directives. Other services, however, may be provided as a result of local management's discretionary use of available operating funds, reflecting a concern for improved productivity, employee morale, or general program benefit. Discretionary services may include, for example, periodic health exams, routine occupational health center services, and health promotion. When a decision is made to provide discretionary services, they must be in addition to those services that are considered mandatory, according to regulation, contract, or DOI policy. Discretionary services may be provided through any appropriate clinical service arrangements that may exist or be established in a given area (see *Establishing and Providing Services*, Tab 7, page 1).

Further, in order to assure appropriate use of public funds, these discretionary services should be limited to those known to have established, demonstrated health benefits. The *Guide to Clinical Preventive Services* (Second Edition, 1996, which is the complete text) and the *Guide to Clinical Preventive Services* (Third Edition: Periodic Updates, providing individual topic updates), representing the reports of the U.S. Preventive Services Task Force, serve as the best current summaries of preventive services that have been shown through scientific study to have beneficial effects for healthy and apparently-healthy individuals. The two editions of the *Guide to Clinical Preventive Services* will therefore serve as the basis for consideration of discretionary preventive health services within the Department.

Periodic Health Exams

Annual medical examinations for asymptomatic members of the general public are no longer recommended by national health professional organizations. Focused annual or less frequent medical examinations may be appropriate, however, for employees in certain arduous or hazardous jobs (e.g., law enforcement officers), or whose work involves possible exposure to known toxic agents (e.g., lead, or loud noise). Other periodic health exams that focus on services of proven value also may be appropriate, and may be offered as a discretionary service for DOI employees. Such exams are intended to identify those who have occult disease and may benefit from early intervention, and to provide a basis for counseling and referral to the employee's primary care provider for diagnosis and ongoing health care services. See Tab 12, Attachment

C 1 (*Discretionary Medical Services - Periodic Health Exams*) for recommendations for specific services. Especially for services arranged outside of an established occupational health center, care must be taken to assure that the health records resulting from these services are maintained in a confidential and secure manner (see Tab 6, *Medical Records - Employee Medical File System*).

Routine Occupational Health Center Services

If arrangements are made to provide day-to-day occupational health services for employees through an occupational health center, clinic, or program, those services generally should be directed at minimizing employees' time away from work, and assuring that a timely medical response is provided in the case of emergencies. This should be done regardless of whether or not these services are obtained from private sources, a DOI-specific facility, or in collaboration with other local federal agencies. See Tab 12, Attachment C 2 (*Discretionary Medical Services - Routine Occupational Health Center Services*) for recommendations for specific services. Care must be taken to assure that all health records related to these services are maintained in a confidential and secure manner (see Tab 6, *Medical Records - Employee Medical File System*).

Health Promotion

Health promotion services may be provided as part of routine occupational health center services, if such discretionary program services are provided, or the services may be arranged and offered through separate contracts or agreements with other federal or private agencies. These services are intended to address health concerns and interests expressed by employees, or that have been identified by management as being beneficial for employee welfare. Services may consist of regularly scheduled formal educational sessions, informal "brown-bag" lunch programs, or clinical projects directed at specific health issues (e.g., blood pressure screenings, tick removal, back injury prevention). Services should be provided by knowledgeable health professionals (see Tab 5, *Medical Service Providers*), and in a setting that allows for questions and appropriate educational interaction.

Emergency Medical Care

As specified in 29 CFR 1910.151, employers must "ensure the ready availability of medical personnel for advice and consultation on matters of plant [workplace] health." The regulations also require that people trained in first aid be available. This training should include basic life support (e.g., cardiopulmonary resuscitation, or CPR). Also, first aid supplies must readily be available through the agency if there are no public or other federal facilities nearby to provide immediate treatment for acute illnesses or injuries. The first aid supplies to be included should be reviewed for completeness and appropriateness by a consulting physician (such as the DOI local AMO, or the national

MO). Further, eye and body wash facilities must be provided in the work area if employees may be exposed to "injurious corrosive materials." For more specific information on the appropriate content of first aid kits, please see Tab 12 – Attachment E 8, *First Aid Kits*.

Employees requesting treatment for job-related injuries are to be treated as quickly as possible, either by personnel from the agency's occupational health clinic (if available) or the nearest public medical facility or qualified private physician. An employee injured by an accident while in the performance of official duties has the right to select a qualified physician of her or her choice to provide the necessary treatment. Generally, up to 25 miles from the place of injury, employing agency, or the employee's home is considered a reasonable distance to travel for non-emergency medical care (i.e., conditions that are not life- or limb-threatening). However, other pertinent factors must also be considered (e.g., specialty services that may be necessary, or weather and road conditions). Qualified physicians for this purpose may include doctors of medicine or osteopathy, podiatrists, dentists, clinical psychologists, and chiropractors.

In the case of an on-the-job injury or illness, management, the employee, and the health care provider all have important roles to play in providing necessary, timely services, getting the employee back to work, and avoiding future injury incidents. Some of these issues are addressed in Tab 4 (*Roles - Personnel Officer(s)*) and Tab 9 (*Special Emphasis Program Guides - Office of Worker Compensation Programs*).

Specific Medical Program Guidance **Tab 8**

How to Establish or Change Physical Qualification Standards for Hazardous and/or Arduous Positions

The standards presented in this *Handbook* reflect the most current information available for each DOI job function for which standards have been developed. It is anticipated that the content and specific information of the *Handbook* will change as further needs are identified by employees and managers within DOI programs, and as the science and art of occupational health evolve. When a reader or user of the *Handbook* finds discrepancies in the information presented, or becomes aware of important topics that have not been addressed, or has comments and suggestions for improvements that can be made in subsequent editions, he or she is encouraged to convey this information to the Occupational Health Programs Manager either directly, or through the safety officer or manager for the employee's agency, as covered in Tab 2 (*Handbook Administration - Maintenance*). The job-specific standards presented in this Tab, and in Tab 12 (*Specific Program Criteria, Attachments and References*), were developed wherever possible using current regulations or on-site assessments of work tasks and job requirements. When site visits were not possible prior to this edition of the *Handbook*, and specific regulations were not in place, other sources of occupational health guidance and consultation were used, as referenced within the individual sets of standards. As covered in Tab 2, and unless proscribed by regulation or DOI policy, these standards may be modified as experience is gained in their use.

Under existing OPM regulations and guidance (5 CFR 339.202), DOI under its own authority can establish medical standards for a job series when the Department has 50% or more of the positions in that series. OPM is responsible for establishing and approving medical standards for positions that are government-wide or for which no individual department has the majority of incumbents.

DOI has established a formal protocol for establishing new medical standards for positions that are not currently covered under existing OPM-approved medical qualification standards, or for evaluating existing OPM-approved medical standards for potential improvement. This protocol involves assembling a team of subject matter experts representing the Department and the bureau or bureaus with an interest in the position to be evaluated. The team is then provided in-depth, first-hand experience and knowledge of the conditions under which essential elements of the position are performed. While the process is flexible, the minimum team usually includes departmental medical, safety, and personnel representatives along with bureau(s) management, safety, personnel, field-level supervisory, and field-level employee representatives. Additional team members are added as needed or appropriate. Bureaus or offices interested in establishing or modifying medical standards are encouraged to contact both their own bureau safety office and the Occupational Health Program Manger (see Tab 2) for further information.

Required Services - General

DOI is committed to ensuring that candidates or incumbents for DOI positions are not discriminated against because of a medical or physical condition that with reasonable accommodation would not prevent their successful performance of essential functions. This commitment extends to the privacy and confidentiality of medical and personnel records. Certain job categories within DOI have minimal physical qualifications that have been determined to be required for these jobs to be performed safely and efficiently. These physical qualifications are measured using standard medical examination criteria, and/or with a series of physical fitness tests. These job categories and the applicable examination requirements, including the periodicity of those exams, are covered below, and in Tab 12 (*Specific Program Criteria, Attachments and References*). The medical clearance process used by the DOI to arrive at a medical clearance determination ensures a comprehensive and objective assessment of an individual's ability to perform the full range of duties required for the position.

DOI medical exams differ from what most people regard as a "check up or "physical." The information collected during a DOI exam takes into account the specific medical standards, the essential functions of the position, and the unique needs of the employee and the agency, as well as the employee's health status. The objectives of occupational medical exams are, after all, intended for very specific occupational purposes.

The basis for this portion of the *Handbook* is to ensure that employees and applicants for positions covered by specific physical qualification standards meet those medical standards and physical requirements, are physically and medically fit, and are able to perform the hazardous, complex, varied and demanding duties of the position. The program is designed to do the following:

- determine whether an individual is physically and mentally able to perform essential DOI job duties without undue risk of harm to him/herself or others;

- monitor and determine evidence of exposure to specific physical, environmental, or other occupational hazards;

- detect changes in an individual's health status that may be caused by harmful working conditions;

- detect any patterns of disease or injury in the DOI that might indicate an underlying work-related problem;

- provide the individual with information about his/her occupational hazards and present health status;

- comply with the provisions of the Rehabilitation Act of 1973 and subsequent Amendments, the Equal Employment Opportunity Commission's (EEOC's) implementing regulations, and 5 CFR 339, Medical Qualification Determinations.

It should be noted that the objectives listed above do not include providing routine preventive medical services. Preventive medicine services are important and worthwhile for personal health purposes but should be considered complementary to, rather than a substitute for, job-related medical examinations.

The DOI medical examination program for mandatory medical services, such as periodic qualification exams for law enforcement officers or fire fighters, uses a two tiered approach to the medical process. The first tier is the medical examination, where an incumbent or applicant for a position receives a DOI-sponsored medical examination by a qualified medical provider according to a specific preset examination protocol. The *DOI Standard Medical History and Examination Form*, or a similar form approved by DOI, is to be used for this purpose. The SF-78 (*Certificate of Medical Examination*, revised 10/69) and SF-88 (*Report of Medical Examination*, revised 3/89) are considered obsolete and are not recommended for use in DOI medical examination programs. In the second tier, the results of this medical examination are forwarded to an *Agency Medical Officer* (AMO) who renders recommendations relating to the findings of the exam and the medical fitness of the applicant or incumbent for the position. Sufficient information is to be provided to the AMO to allow meaningful recommendations to be made, such as the medical history, a description of critical job duties, potential exposures, and any information about known exposures. In addition, the physician is to be told of any occupational illnesses known to DOI which could affect the screening of individual workers.

The most important characteristic of the two tiered medical approach is that the examining physician concentrates on the patient examination, and the AMO concentrates on the relationship between the medical data provided by the examining physician and the known characteristics of the job. While the examining physician may see one or a few candidates or incumbents for a specific position, the AMO will see and render consistent medical recommendations on the agency's large pool of applicants or incumbents for a specific position who are covered by a medical standards program.

DOI policies and procedures require a case-by-case higher level of review when an applicant or current employee requests a reconsideration or disagrees with the results or recommendations derived from a medical examination. DOI procedures also provide for a medical "second opinion" when the AMO is uncertain about the limitations or prognosis of the individual's condition, or if there are discrepancies in any of the interpretations or findings. If after a second opinion there remains a disagreement about the findings or appropriate placement or restriction recommendation, a third physician (acceptable to both the DOI and the applicant or employee) will be consulted.

Employee/Applicant Responsibilities

The DOI medical evaluation program includes pre-placement and baseline medical evaluations, interim or periodic evaluations, and exit medical evaluations, as well as return to duty medical evaluations. Each applicant or current employee is expected to cooperate, participate, and comply fully with the medical evaluation program as it applies to the employee's position or known exposures, providing complete and accurate information to the DOI reviewing physician.

Using the *DOI Standard Medical History and Examination Form*, or a similar form approved by DOI, each applicant or current employee shall report to the AMO information regarding any significant exposures (e.g., chemical, infectious, biological, etc.) or medical conditions that may interfere with the individual's ability to perform safely and efficiently the full range of duties required for the position. If the applicant or current employee develops an acute medical problem or newly acquired chronic medical condition that precludes a meaningful assessment of his or her overall abilities, the scheduled medical evaluation (or selected portions) may be postponed until that person has recovered sufficiently from the condition and can be rescheduled for an exam or further testing and/or procedures, but any necessary clearances also may have to be withheld until the full evaluation can be completed.

Pre-placement

After an offer of employment has been made to a new applicant, a pre-placement examination may be necessary to assure that the applicant is medically qualified for certain positions. The Rehabilitation Act of 1973 prohibits employment discrimination against any individual in hiring, compensation, and firing actions. The Act requires employers to hire workers with disabilities if the worker is otherwise the best qualified individual for the job. A qualified individual is considered to be one who can perform the essential functions of a job either without any special accommodation, or with "reasonable accommodation," as defined in the Act. Employers must modify the job or the physical work environment to allow the disabled employee to perform the essential functions of a job, as long at these accommodations do not present an undue hardship for the employer (e.g., they are not excessively expensive or create a significant difficulty for the employer) and the essential job functions can be accomplished with safety and efficiency.

Pre-placement examinations also are to be conducted for all applicants prior to entering into a training program or performing in an emergency or operational environment (i.e., inspections, investigation, rescue duties, etc.) for which medical standards have been established, and applicants must be certified by the AMO as meeting those applicable medical standards before they begin work in a position for which medical standards have been developed. Each applicant will be evaluated to assess the effect of any medical conditions on the applicant's ability to perform in the necessary work capacity.

An applicant will not be certified as meeting the medical requirements if the AMO determines that the applicant has a medical condition that is incompatible with the established standards for the position. The AMO also may be asked by management to offer opinions on accommodations that may be proposed by the applicant or his/her physician. See *General Pre-Placement Medical Evaluations* in Tab 12 for specific guidance on these examinations.

Union-Mandated

Specific health services related to provisions of local or national employee union contracts must be adhered to by managers at the organizational levels indicated in those contracts. Periodicity of exams and other services, employee groups covered, work place hazard exposure considerations, and other factors may need to be addressed in setting up and providing services. In general, all the required services under such contracts may be provided successfully with the assistance of this *Handbook*. Please see the applicable portions (e.g., Tab 7, *General Medical Program Guidance*) for further information.

Medical Surveillance

In a single individual, a physical examination may be conducted for purposes of both medical *surveillance* (looking for possible health effects of occupational exposures) and medical *clearance* (determining if an individual meets job-specific medical requirements). It must be understood that these purposes are quite different, and the actions taken in response to an exam that is done for both purposes must keep this distinction clear. An individual may not meet the medical requirements for his position, but demonstrate no ill effects of current job exposures. That individual also may meet all medical requirements to be cleared for a given job, but have evidence of harmful effects of job exposures. The responses to these two situations are quite different.

For example, an individual's exam may demonstrate a standard threshold shift (a hearing loss due to noise exposure), but still meet the minimum hearing requirements for a position. Or, the individual may not meet the requirements for a medical clearance as a result of diabetes that requires insulin for control, but not show any adverse effects or elevated blood test results from exposure to environmental lead. For a more complete discussion of a medical surveillance program and its components, please see *General Medical Surveillance Guidance*, in Tab 12.

Determination of Need for Employee Enrollment

Enrollment of an employee, or a group of employees, in a medical surveillance program ultimately is a management decision. There are regulations that specify factors that direct inclusion in a program, but the specific activities taken to determine an individual's actual or presumed exposures to harmful agents and, as

a result, which regulations apply, may vary from agency to agency. As steps are taken within DOI to standardize the assessment and determination of exposures and work place hazards, decisions regarding the inclusion of employees within medical surveillance programs will become more standardized. This is consistent with the stated goals of the DOI Office of Occupational Health and Safety.

Until DOI positions and work places are studied and work place hazards characterized by actual measurements and environmental sampling, it is necessary to consider employees for inclusion in a medical surveillance program based on the limited data that may be known, and the exposures that are believed to be present and posing potential threats to the employee's health and well-being. This may be done by management and safety officer reviews of position descriptions, or with interviews (see Tab 12, Attachment D 2 (b)) or employee questionnaires (see Tab 12, Attachment D 2 (c)). Once a decision has been made to enroll an employee in the medical surveillance program, the services to be provided are based on the specified exposures and work hazards (see specific topics within this Tab, and within Tab 12 -- *Specific Program Criteria, Attachments and References*).

OSHA-Mandated Medical Surveillance

The Occupational Safety and Health Administration (OSHA) has established specific exposure-related requirements for several occupational hazards. Employees exposed to these hazards (with or without personal protective equipment) above the Permissible Exposure Level (PEL) may need to be provided medical surveillance examination or other services to determine if the employee has suffered any adverse effects from the exposure. The reader is encouraged to review the provisions of the specific federal regulation for any actual or potential exposures to these substances above the PEL. These hazards, summarized in 29 CFR 1910 Subpart Z - Toxic and Hazardous Substances, along with their locations in the CFR, include:

- 1910.1000 Air contaminants
- 1910.1001 Asbestos
- 1910.1002 Coat tar pitch volatiles
- 1910.1003 13 Carcinogens (4-Nitrobiphenyl, etc.)
- 1910.1004 alpha-Naphthylamine
- 1910.1006 Methyl chloromethyl ether
- 1910.1007 3,3'-Dichlorobenzidine (and its salts)
- 1910.1008 bis-Chloromethyl ether
- 1910.1009 beta-Naphthylamine
- 1910.1010 Benzidine
- 1910.1011 4-Aminodiphenyl
- 1910.1012 Ethyleneimine
- 1910.1013 beta-Propiolactone

- o 1910.1014 2-Acetylaminofluorene
- o 1910.1015 4-Dimethylaminoazobenzene
- o 1910.1016 N-Nitrosodimethylamine
- o 1910.1017 Vinyl chloride
- o 1910.1018 Inorganic arsenic
- o 1910.1025 Lead
- o 1910.1026 Chromium (VI)
- o 1910.1027 Cadmium
- o 1910.1028 Benzene
- o 1910.1029 Coke oven emissions
- o 1910.1030 Bloodborne pathogens
- o 1910.1043 Cotton dust
- o 1910.1044 1,2-dibromo-3-chloropropane
- o 1910.1045 Acrylonitrile
- o 1910.1047 Ethylene Oxide
- o 1910.1048 Formaldehyde
- o 1910.1050 Methylenedianiline
- o 1910.1051 1,3-Butadiene
- o 1910.1052 Methylene chloride
- o 1910.1096 Ionizing radiation

Other Medical Surveillance

Other exposures or work task requirements (e.g., heat, lifting) also may place the employee at increased risk of harm. This *Handbook* provides guidance regarding an appropriate focus for medical examinations related to these work conditions. These may be found below in this Tab, and in Tab 12 (*Specific Program Criteria, Attachments and References*). Because of difficulty in assessing actual work requirements and levels of exposure under individual work situations, the examining physician and the AMO must use individual judgement in evaluating cases.

Fitness for Duty (Medical Employability Determinations)

The *Medical Employability Determinations Guide*, found in Tab 12, Attachment B-2, provides specific guidance and step-by-step actions for the manager in this often difficult area.

Law Enforcement Officers

The job requirements for law enforcement employees of the DOI are by their nature arduous and hazardous. These job requirements are performed under variable and unpredictable working conditions. Due to these job requirements and working conditions, the DOI has developed an occupational safety and health program that includes a model set of medical standards for law enforcement positions. The specific

examination topics, the periodicity of evaluations and medical examinations, and the required results for considering an individual medically and physically qualified under this model program, are presented in Tab 12, Attachment D 4. Individual agencies may develop their own specific medical standards, subject to the review and approval provisions of 5 CFR 339.202 and departmental policy (DM446).

Wildland Firefighters

The Wildland Firefighter Medical Standards Team, as chartered by the Federal Fire and Aviation Leadership Council, has developed specific, validated medical standards for wildland firefighters. The specific examination topics, the periodicity of evaluations and medical examinations, and the expected results when considering whether an individual is medically and physically qualified for wildland firefighting, are available from the National Interagency Fire Center (NIFC) at http://www.nifc.gov/medical_standards/ or by contacting the Occupational Health Programs Manager. Because of the wealth of information available through these Departmental sources, and to avoid redundancy or inconsistencies, the standards are no longer duplicated within this *Handbook*.

Divers

Diving carried out by DOI divers primarily is for purposes of investigation or observation. Such diving is referred to as "scientific" diving, as opposed to "commercial" diving, the latter which includes construction, demolition, cutting or welding, or the use of explosives, though both types of diving may be performed in certain situations. As such, the regulations contained in both 29 CFR 1910 Subpart T (Commercial Diving) and 29 CFR 1910 Subpart T Appendix B (Scientific Diving) may be found to be applicable in some bureaus of the department. With the assistance of a Public Health Service (Federal Occupational Health) physician with specialty training in hyperbaric medicine, the FWS in 2003 updated their diver medical program. The FWS Scuba Diving Medical Examination Form may be found on the FWS Internet forms page at http://forms.fws.gov/3-2224.pdf . In addition, the information presented in Tab 12, Attachment D 6 presents a model diving medical standard that was developed with the help of the NPS. As was discussed for law enforcement officers, above, individual agencies may develop their own specific medical standards, subject to the review and approval provisions of 5 CFR 339.202 and departmental policy (DM446).

Inspectors

The specific jobs included in the inspector category cover both off-shore as well as land-based employees. Common factors in this category include the physical demands of inspection work, but the respective jobs have unique hazards and environmental and specific functional requirements that impact the medical requirements for applicants and incumbents in order to help to assure they can carry out their jobs safely and

efficiently. Specific requirements for both types of inspectors are presented in Tab 12, Attachment D 7.

Hazardous Waste Workers

The regulations presented in 29 CFR 1910.120(f) specify that medical examinations for members of a HAZMAT team "*shall include a medical and work history (or updated history if one is in the employee's file) with special emphasis on symptoms related to the handling of hazardous substances and health hazards, and to fitness for duty including the ability to wear any required PPE under conditions (i.e., temperature extremes) that may be expected at the work site*." Attachment D 8 in Tab 12 provides more specific information regarding the recommended content and scheduling of examinations for hazardous waste workers. In general, examinations are required on a pre-placement and a periodic basis, as well as at other times depending on exposures and possible exposure-related illnesses.

Pilots / Aviators

Individuals whose essential job functions include piloting aircraft for the Department must meet the Medical Standards and Certification requirements of the Federal Aviation Administration (FAA) regulations, as presented in 14 CFR 67. These regulations, with amendments effective through January 1, 2008, are contained in this *Handbook* in Tab 12, Attachment D 9. Arranging for clinical services to address the requirements contained in these regulations is addressed in other sections of the *Handbook*.

Tower Climbers

Draft medical standards have been developed for individuals whose jobs include climbing and working on telecommunications towers. Such towers often are located in remote locations, and may be of variable heights and configurations. While most climbs may be carried out in a scheduled and unhurried manner, climbers are expected to be able to climb towers quickly in an emergency, such as when the rescue of a fellow climber is necessary. The standards, as currently drafted, are contained in this *Handbook* in Tab 12, Attachment D 10. For further information or assistance with these standards or their application within a bureau or for specified groups of employees, please contact the Occupational Health Programs Manager (see Tab 2).

Crane Operators

Draft medical standards have been developed for individuals whose jobs include operation of cranes for lifting or moving supplies and personnel. At this time, no DOI-based field validation has been done for these standards, which have been based on standards used by the U.S. Navy, and the State of Washington. The standards, as currently drafted, are contained in this *Handbook* in Tab 12, Attachment D 11.

Laboratory Workers

Medical examination and program guidelines have been developed for a group of DOI employees whose jobs include a focus on forensic laboratory work related to wildlife. Those guidelines are not considered by DOI to constitute mandatory standards or program requirements. Based on work that was done to develop those guidelines, however, generic guidelines are provided in this *Handbook* and may be used as a basis for an agency wishing to develop and provide examination services for laboratory workers in other fields. As currently drafted, the guidelines are contained in this *Handbook* in Tab 12, Attachment D 12.

Other Guidance, Based on Position Requirements or Work Place Stressors

Respiratory Protection

A respirator medical clearance is necessary (as specified in 29 CFR 1910.134(b)(10)) prior to use, and then on a periodic basis, for all employees whose job duties require them to use a respirator. This clearance may be provided as a distinct examination and clearance process, or as part of an examination and review carried out for other purposes (e.g., a comprehensive medical surveillance or other clearance program). *Medical Clearance for Respirator Use*, contained as part of Tab 12, Attachment E 1, presents a detailed summary of types of respirators, clinical considerations, and a listing of suggested services to be provided as part of a respirator medical clearance examination. The actual services provided depend on the judgement of the examining physician and the regulations applicable to certain known or anticipated exposures (e.g., significant asbestos and formaldehyde exposures require the regular performance of pulmonary function testing). The determination of appropriate services also involves a consideration of a current medical history, known medical conditions, the type of respirator to be used, and the circumstances of its intended use. As a follow up to the medical clearance to use a respirator, fit testing is necessary in order to assure that a proper seal of the respirator can be obtained, and that the respirator can be worn effectively by the employee.

Fit testing of respirators for those employees who must wear them is addressed in Appendix C of 29 CFR 1910.1001, "Qualitative and Quantitative Fit Testing Procedures - Mandatory" but is not further described in this *Handbook*.

Hearing Conservation

Occupational Noise Exposure is addressed in 29 CFR 1910.95, emphasizing the requirements for employers to implement feasible administrative or engineering controls if employees would otherwise be exposed to noise that exceeds the

permissible levels specified in the regulation (e.g., 90 dB for 8 hours, or 92 dB for 6 hours). If exposure to lower levels cannot be assured, employees are to receive and use personal protective equipment to reduce below those levels their workplace exposure to sound. For employees exposed to an 8-hour time weighted average (TWA) sound level of 85 dB or greater, a hearing conservation program must be implemented. Further, employees who serve in certain law enforcement positions or otherwise use firearms regularly in their work should automatically be placed in a hearing conservation program due the risk of harmful exposures to impact noise. Under these programs, employers must monitor workplace noise exposures, notify employees of the results of the monitoring, allow employees or their representatives to monitor the monitoring, and provide an audiometric testing program. The testing program must be at no cost to the employee, performed by an appropriately licensed or certified health professional (or a technician using an audiometric microprocessor), and include baseline and annual audiograms, with evaluation and follow up of the results, as specified in the regulations. Other provisions of the hearing conservation program, including re-testing, employee notification, response to a standard threshold shift, hearing protectors, and other points are addressed in the regulations, and should be referenced for more details. Hearing conservation programs should be reviewed regularly to assure that they are complete, meet the requirements of the regulations, and are reasonable for the employees and work place managers.

Chemical Stressors

Chemicals and other agents identified by OSHA as requiring specific medical evaluation when exposures exceed the PEL are listed on page 7 in this Tab. The regulation citation for each chemical also is listed, and may be referenced for specific guidance on testing or other services that must be offered to the exposed employee. For medical surveillance on chemical stressors not covered by these specific OSHA standards, please call your AMO, the DOI MO, or the Occupational Health Programs Manager (see Tab 2).

Physical Stressors

Examining physicians, the AMO, and the DOI MO may make recommendations for individual employees regarding their safe exposure to such physical stressors as exertion and heat stress. These recommendations are based on the known effects of such stressors and the information gathered in the medical history, the physical examination, and other tests that may suggest an increased risk for health problems when engaging in certain physically stressful activities. It should be noted that, because of variations in individual responses to medical conditions and work tasks, the reviewing physician intentionally may err on the side of caution in evaluating and making recommendations in these situations.

Some factors that need to be considered regarding the effects of exertion and heat

stress include: 1) physical demands of the job or tasks (both maximal exertion and endurance); 2) the total length of time an employee is engaged in the activity; 3) the temperature and humidity of the work environment; 4) type of personal protective equipment and clothing that commonly is or must be used (e.g., cartridge respirators, SCBA, Tyvek suits, etc.); 5) other hazards associated with the task (besides exertion and heat stress); 6) the ergonomics of the task (e.g., how much reaching or bending is necessary); 7) other tasks that are being conducted concurrently with the listed task; 8) the skill and training of the employee in carrying out the task in an energy-efficient manner; 9) the physical and aerobic conditioning of the employee; and 10) the availability of assistance from co-workers or mechanical devices to reduce the effort necessary to carry out the tasks, or if reserve capacity or other assistance may be needed in emergencies.

Finally, the employee's own perception of how much strain or effort is necessary to carry out a task is also very important. If an employee feels that a task requires too much of a physical strain, or causes symptoms such as shortness of breath, rapid pulse, light-headedness, or pain or discomfort in the chest, that work activity (or the conditions under which the work is carried out) likely is excessive for that employee. In these situations, the employee may need work restrictions or job modifications related to these tasks.

Physical Exertion and Heat Stress

Following a medical evaluation, employees with certain medical conditions may be given a recommendation to limit their level of physical exertion and heat stress to reduce the risk of serious health problems. The employees' level of physical fitness also impacts their ability to perform safely at various levels of exertion. Physical fitness may be measured in terms of oxygen consumed, or tasks that may be accomplished in a specified period of time. The examples presented in Tab 12, Attachment E 3 (a), are intended to provide a general overview of the types of work activities that would be expected to fall within the listed levels of exertion. It is necessary to use reasonable judgement in interpreting or applying examples such as these to specific work settings.

It is important to remember when considering the affects of heat that humidity has a major impact on the ability of the body to cool itself. In periods of high humidity, or in work settings in which humidity cannot be lowered below approximately 60%, the length of time spent at given levels of exertion, or the level of exertion required, must be reduced to avoid potentially dangerous heat stress. This is particularly important for workers who have medical conditions that tend to reduce their ability to tolerate heat and exertion safely. Other important factors that will affect safe working times include the amount of occlusive or protective clothing that is worn (e.g., Tyvek, rubber, or other chemical-protective clothing),

air movement over and around the worker, and the availability of assistance from co-workers or mechanical devices to reduce the effort necessary to carry out the tasks. These factors may increase or decrease the amount of time that can be worked safely, depending on their presence or absence and the relative impact of each factor. Please see Tab 12, Attachment E 3 (a) for further guidance on this topic.

Ultraviolet Light

Many DOI jobs require extensive periods out of doors, with the potential for significant exposure to sunlight. Because of the ultraviolet radiation in sunlight, this exposure poses the potential for complications, such as skin cancer, cataracts, immune suppression, and premature aging of the skin, unless appropriate protection is used on a regular and effective basis. The wavelengths of light considered here are referred to as UV-A (315-400 nm), UV-B (280-315 nm), and UV-C (below 280 nm), with UV-A and UV-B having the greatest health effects. While UV-C essentially is blocked by the atmospheric ozone layer, UV-A and UV-B can penetrate the ozone layer and clouds, so protection is important even on cloudy days. UV-A is associated with both skin cancer and premature aging of the skin. UV-B also is associated with skin cancer, particularly the more serious form, melanoma. Comprehensive occupational sun protection includes: 1) wearing sunglasses that provide at least 99% UV-A and UV-B protection; 2) wearing a hat with a wide brim; 3) wearing tightly woven, loose-fitting clothing, including long sleeves and pants; 4) use of a sunscreen with a Sun Protection Factor (SPF) rating of at least 30, reapplying the sunscreen every two hours if the exposure continues; and 5) limiting exposure or being especially vigilant about the use of barrier methods during the middle of the day (i.e., 10 AM until 4 PM). Please see Tab 12, Attachment E 3 (b) for further guidance on this topic.

Vermiculite

As summarized by the Agency for Toxic Substances and Disease Registry on its website,[2] "*vermiculite is a naturally occurring mineral compound composed of shiny flakes, resembling mica. When heated to a high temperature, flakes of vermiculite expand as much as 8-30 times their original size. Historically, much of the world's supply of vermiculite came from a mine near Libby, Montana. The Libby mine also had a natural deposit of asbestos, and the vermiculite from Libby is contaminated with asbestos… . Asbestos can cause health problems when it is breathed into the lungs. If products containing asbestos are disturbed, thin, lightweight asbestos fibers are released into the air. Persons breathing the air may breathe in asbestos fibers. Continued exposure increases the amount of*

[2] ATSDR, Vermiculite Consumer Products, http://www.atsdr.cdc.gov/NEWS/vermiculite051603.html

fibers that remain in the lung. Fibers embedded in lung tissue over time may result in lung diseases such as asbestosis, lung cancer, or mesothelioma…. Much of the Libby vermiculite was used to produce attic insulation products, often sold under the brand name Zonolite. Vermiculite was commonly sold in gardening and hardware stores. It was used as a soil amendment (conditioner to improve soil quality), fertilizer carrier, and it was an ingredient in many potting soil mixes. Vermiculite was also used in fireproofing materials, gypsum wallboard, and as a lightweight aggregate in construction materials." Please see Tab 12, Attachment E 3 (c) for agency guidance on this topic.

Exposure to Cold

Many DOI employees work in geographic locations, or under particular environmental conditions, that increase their risk of exposure to extremely cold temperatures. Those exposures may involve either dry or wet (damp) conditions, and with or without exposure to the additional cooling and drying effects of wind. Tab 12, Attachment (E 3 (d) provides a formula for estimating the risk of cold injury, and a discussion of the various health effects of exposure to prolonged or extreme cold.

Biological Stressors

Lyme Disease

Lyme Disease is diagnosed in over 11,000 people per year, mostly in the summer months when outdoor work and recreational activities are more common. Preventing Lyme Disease is possible through mechanical, chemical, and administrative (scheduling) measures that the employee can use. Unfortunately, the vaccine that had been available for Lyme Disease prevention was taken off the market in 2002. Because the effectiveness of the vaccine wanes over time, individuals who were vaccinated previously should not consider themselves now to have sufficient immunity for protection. See Tab 12, Attachment E 4 (b) (*Lyme Disease*) for more information.

Vaccine-Preventable Diseases

Because DOI employees may on occasion find themselves exposed to vaccine-preventable diseases as a result of their official duties, the *Handbook* provides background information and current recommendations on the subject. The topics covered include: 1) tetanus; 2) hepatitis A; 3) hepatitis B; 4) polio; 5) typhoid; 6) cholera; 7) yellow fever; 8) pneumococcal pneumonia; and 9) rubella. See Tab 12, Attachment E 4 (a) (*Vaccine-Preventable Diseases*) for further information.

Bloodborne Pathogens

The full topic of bloodborne pathogens is beyond the scope of the *Handbook*. For further information, the reader is referred to other publications, such as those of the U.S. Public Health Service Centers for Disease Control and Prevention. Current Internet sites that are particularly valuable on this subject include:
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5011a1.htm (*Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis*), and

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10051 (*Bloodborne pathogens. – 29 CFR 1910.1030*).

Also, a rough draft of a DOI model for an agency bloodborne pathogen plan is available by contacting the Office of Occupational Health and Safety.

Tuberculosis

A full discussion of this topic is beyond the scope of the *Handbook*. A general discussion of the prevention of transmission of tuberculosis may be found in Tab 12, Attachment E 9 (*Tuberculosis*). The reader also is referred to other publications, such as those of the U.S. Public Health Service Centers for Disease Control and Prevention. A very good Internet web site with questions and answers on this subject is:

http://www.cdc.gov/nchstp/tb/faqs/qa.htm, which is provided by the Division of Tuberculosis Elimination in the CDC National Center for HIV, STD and TB Prevention.

Rabies

In the course of their work, some DOI employees may risk exposure to rabid animals. To help avoid such exposures, and to provide information to employees who may be exposed, the *Handbook* has a section that addresses pertinent facts about the virus, the disease, and preventive measures that may be taken. Please refer to Tab 12, Attachment E 4 (c) (*Rabies*).

Hantavirus

Hantavirus has emerged as a potentially-significant occupational health threat only over approximately the last decade. In recognition of the risk that some DOI employees may have to exposure to this disease, the

Handbook provides information to employees that will help them avoid exposure to rodents and their potentially-infectious waste. Please refer to Tab 12, Attachment E 4 (d) (*Hantavirus*).

Poisonous Plants

Due to the requirement to perform many work activities in natural settings, DOI employees commonly find themselves in situations where there is an increased risk of exposure to poisonous plants. For most people, these exposures are mostly an uncomfortable nuisance to be avoided if possible. For others, exposures may result in serious allergic or chemical reactions. As with most health threats, preventive measures are more effective in avoiding serious problems than treating the condition after it has emerged. Please see Tab 12, Attachment E 4 (e) for agency guidance on this topic.

West Nile Virus

West Nile Virus is another infectious occupational health threat that has emerged relatively recently. Because of the risk that some DOI employees may have as a result of exposure to mosquitoes in the course of their duties, further information about this virus has been gathered by OHS to help them avoid exposure and to reduce the risk of infection. The information is provided in Tab 12, Attachment E 4 (f) (*West Nile Virus*).

Indoor Air Quality – Mold

The *Handbook* provides managers and employees guidance on dealing with indoor air quality and mold complaints, which have become frequent concerns as the physical infrastructure ages and when new construction does not meet building codes. Managers at facilities where molds are a concern should review the guidelines provided, and not rush to hire a contractor to perform air or surface sampling. In most cases in areas where mold contamination has been identified, the resources should be spent on the underlying moisture intrusion problem and the clean-up can be handled in-house, taking appropriate precautions. The information is provided in Tab 12, Attachment E 4 (g) (*Indoor Air Quality - Mold*).

DOT Vehicle Operators (Medical Clearance for Commercial Driver's License)

The Department of Transportation has established regulations (49 CFR 391.41 (b)(1) through (b)(13)) governing the medical examination requirements for individuals who need a Commercial Driver's License to operate trucks, buses, or other heavy equipment on public highways. In order to drive such a vehicle, a driver must: 1) have the technical skills to operate the equipment (this subject is not covered further in this *Handbook*); 2) meet the requirements of the physical examination; and 3) comply with drug and alcohol testing requirements. Drug and alcohol testing is covered in Tab 9 (*Special Emphasis Program Guides*). The physical examination requirements are presented in Tab 12, Attachment E 5.

Driving for Work Purposes (Where a CDL is not required)

Many DOI employees are in positions which require them to drive government vehicles to carry out their duties. As representatives of the federal government, and in the interest of the public safety, these drivers are expected to be able to drive safely and to carry out their duties with a minimum of risk to themselves and to others. The provisions of the Department of Transportation (DOT) regarding medical standards for a Commercial Driver's License may be used at agency discretion in clearing employees to drive non-commercial vehicles (i.e., vehicles used on public roads, but which are not governed otherwise by the DOT regulatory provisions for a CDL).

Automatic External Defibrillators

With the advent of lightweight portable automatic external defibrillating machines, there has been an increased interest in this technology to help prevent deaths due to cardiac arrest. The *Handbook* provides further information on cardiac arrest and the possible role of automatic external defibrillators in DOI work settings. Please refer to Tab 12, Attachment E 7.

Mandatory Health Education / Training

Certain health education and training activities are mandated by federal regulation for some topics, due to their seriousness and potential for having an impact on federal employees. Included at this time are bloodborne pathogens and tuberculosis. Specific OSHA regulations govern who is to receive this training, what the training must cover, how frequently it must be held, and the documents or records that must be available and maintained relative to the training and the health threats covered. All DOI managers must assure that employees for whom they are responsible receive and are current in the required training, and that the necessary manuals and training records are in place for use and inspection. Further discussion of these topics is beyond the scope of the *Handbook*. For further information, the reader is referred to other publications, such as those of the U.S. Public Health Service Centers for Disease Control and Prevention, and draft DOI models for agency plans, which are available from the OHS.

Reasonable Accommodation

The Rehabilitation Act of 1973 (codified at 29 CFR 1614.203) and the Americans with Disabilities Act prohibits employment discrimination against people with disabilities, and requires employers to hire (and retain) individuals who can successfully perform the essential functions of the job, despite their disability, even if this requires the employer to offer "reasonable accommodation." This means that the employer must modify the job's requirements, or the work place, to allow the employee to perform the essential functions of the job, unless this accommodation requires excessive expense or difficulty for the employer. How much is "excessive," or too much "difficulty," is not fully described, requiring considerable care and attention on the part of the employer to assure that the employee is being dealt with fairly, and the law is adhered to.

In cases where an employee has physical limitations or medical findings that indicate he or she may be unable to fulfill all of the assigned duties in a safe and efficient manner, the supervisor must evaluate the job requirements and determine whether adjustments in duties, or the way duties are accomplished, can be arranged. When an employee, even with reasonable accommodation, is unable to perform essential functions of a position due to a disability, Federal civil rights laws require employers to offer the employee reassignment to a vacant position for which the employee is qualified (with or without accommodation) at the same grade or level, in the same commuting area, and serviced by the same appointing authority, unless it is demonstrated that the reassignment would result in an undue hardship on the program. The supervisor is encouraged to consult with the local personnel office for assistance in this regard. Before any adverse personnel action is taken with an employee for medical or physical reasons, the supervisor also should consult the AMO (local or national). An ad hoc Reasonable Accommodation Committee may be assembled, involving the supervisor, local management, the local personnel office, the local Office for Civil

Rights, and persons with disabilities and, if deemed appropriate, representatives from the Office of Occupational Health and Safety, the AMO or the DOI MO, and the U.S. Office of Personnel Management to review the case and consider alternatives to termination or other adverse action. Additional guidance is available by contacting the Departmental Committee on Accessibility or the Occupational Health Programs Manager.

Time and Attendance / Conduct / Performance

It is an employee's responsibility to carry out the functional requirements of his or her job in a professional, efficient, and timely manner. Failure to do so may result in adverse action, up to and including termination. If an employee contends that time and attendance, conduct, or performance failures are due to medical causes, it is the responsibility of that employee to offer sufficient information from valid and reputable medical sources to substantiate the medical claim that is presented. The *Medical Employability Determinations Guide*, found in Tab 12, Attachment B 2, provides further, specific guidance and step-by-step actions that may assist the manager in this often difficult area. Please also see the sections on Psychological Fitness-for-Duty/Removals, Employee Assistance Program Services, and Recordable Injuries and Illnesses, below.

Psychological Fitness-for-Duty / Removals

Under the authority of 5CFR339.301 & 302, an agency may order a psychiatric examination or psychological assessment of an employee when:

> (1) the results of a current general medical examination which the agency has the authority to order under the regulations shows no physical basis to explain actions or behavior which may affect the safe and efficient performance of the individual or others, or
>
> (2) a psychiatric examination is specifically required by medical standards or a medical evaluation program established under the specified regulations.

The psychiatric examination (or psychological assessment) must be carried out in accordance with accepted professional standards, by a physician or licensed practitioner authorized to conduct such examinations. Agencies must ensure that a psychiatric evaluation is used only to make legitimate inquiries into a person's mental status where that status has a direct bearing on the individual's ability to perform successfully the duties of his or her position without undue hazard to the individual or others.

At its option, an agency also may offer an employee a psychiatric evaluation, or it may ask the employee to submit medical documentation, in any situation where it is in the interest of the Government to obtain medical information relevant to an individual's ability to perform safely and efficiently, or where the employee has requested, for

medical reasons, a change in duty status, working conditions, or any other benefit or special treatment (including reasonable accommodation or re-employment on the basis of full or partial recovery from a medical condition). If the individual refuses to be examined or to submit medical documentation, the agency should act on the basis of the information it has available. For example, the agency may refuse a benefit requested by the employee that is not supported by adequate medical documentation, or the agency may take action based on the employee's performance or conduct in the light of currently available information or medical knowledge.

Assistance with the documentation and procedures in support of these assessments and personnel actions may be found in Tab 12 Attachment B 2 (*Medical Employability Determinations Guide*).

For information on reasonable accommodation for employees with emotional and psychiatric disorders, please see Reasonable Accommodation, above in this Tab, and Attachment B 1 in Tab 12 of this *Handbook*.

Drug and Alcohol Testing

The Department of Transportation has established in 49 CFR 382 (Controlled Substances & Alcohol Use and Testing) the rules that apply to the use of controlled substances and alcohol by workers engaged in certain jobs that may pose a particular risk to the public's health. The workers included under this law are those who perform sensitive safety-related functions (e.g., driving large trucks) on U.S. public inter- or intra-state highways. Employers of such workers are required to establish a testing program to assure that those workers do not carry out the sensitive functions while impaired. The testing program must include pre-employment, post-accident, random, and reasonable suspicion testing. More specific information about testing program requirements is beyond the scope of this *Handbook*, and the reader is referred to the regulations at the citation noted above.

Employee Assistance Program Services

The Rehabilitation Act of 1973, as amended in 1992 to incorporate provisions of the Americans with Disabilities Act (ADA), prohibits discrimination against an employee on the basis of disability or handicap. Substance abuse and mental health problems may be considered disabilities under the ADA, and responding to employee needs in these areas is not only required by law, it is appropriate and reasonable in the interest of maximizing productivity and protecting the government's primary assets-- its employees. Within the DOI, the Office of the Secretary Human Resources program is the lead agency for EAP services. In turn, every DOI office/program is to make available to its employees an employee assistance program (EAP) oriented towards assisting troubled employees to address personal problems, including substance abuse and mental health problems that have an impact on their ability to carry out the functions of their jobs. Possible indicators that an employee may be having such difficulties include excessive absences, poor work decisions, and high or unexplained

accident rates. Extensive guidance on this subject is provided in Tab 12, Attachments B 1 and B 2.

The nature of the individual EAP, and the services that should be available to employees within a given office/program, depend on the identified needs of that office/program's employees, managers, and mission. The in-house program may vary from simply establishing a referral mechanism for employees with substance abuse problems to the formation of a full in-house and federally-staffed unit providing comprehensive employee assistance services. Whether provided directly as an in-house program, or indirectly as a contract program, the EAP at a minimum should provide counseling to address short term problem solving, crisis counseling, critical incident stress debriefing, and substance abuse counseling or referral. Within this *Handbook*, Tab 5 and Tab 7 provide guidance for an office/program that wishes to secure services through outside sources.

Regardless of the source of EAP services, there must be policies in place that govern the nature and function of the program, including a confidentiality statement guaranteeing that employees participating in the EAP will not jeopardize their jobs or promotion potential by doing so. There must be provision for full confidentiality of the records established and maintained for all employees, following the principles for confidentiality covered in Tab 6 of this *Handbook*. There also must be a clearly established mission statement for the EAP, along with goals, objectives, and procedures for providing services. It must be understood, however, that participation in an EAP does not exempt an employee from complying with the requirements of his/her job, as noted in the sections on Reasonable Accommodation, Time and Attendance/Conduct of Performance, and Psychological Fitness-for-Duty/Removals, as presented above.

Recordable Injuries and Illnesses

As specified by the Occupational Safety and Health Administration for its **Log of Work-Related Injuries and Illnesses** (OSHA's Form 300), the following definitions apply:

> *Work-related injury*-- "An injury is any wound or damage to the body resulting from an event in the work environment" and may include a "cut, puncture, laceration, abrasion, fracture, bruise, contusion, chipped tooth, amputation, insect bite, electrocution, or a thermal, chemical, electrical, or radiation burn." Also, "sprain and strain injuries to muscles, joints, and connective tissues are classified as injuries when they result from a slip, trip, fall or other similar accidents."
>
> *Work-related illness*—These may include skin diseases or disorders ("involving the worker's skin that are caused by work exposures to chemicals, plants, or other substances"), respiratory conditions ("associated with breathing hazardous biological agents, chemicals, dust, gases, vapors, or fumes at work"), poisoning ("evidenced by abnormal concentrations of toxic substances in blood, other tissues, other bodily fluids, or the breath that are caused by the ingestion or

absorption of toxic substances into the body"), hearing loss, and other illnesses (including "heatstroke, sunstroke, heat exhaustion, heat stress and other effects of environmental heat; freezing, frostbite, and other effects of exposure to low temperatures; decompression sickness; effects of ionizing radiation (isotopes, x-rays, radium); effects of nonionizing radiation (welding flash, ultra-violet rays, lasers); anthrax; bloodborne pathogenic diseases, such as AIDS, HIV, hepatitis B or hepatitis C; brucellosis; malignant or benign tumors; histoplasmosis; coccidioidomycosis").

A recordable illness or injury is one that results from an accident or exposure in the work environment and results in death, an illness, or an injury that involves the requirement for medical treatment (beyond first aid), loss of consciousness, restriction of work or body motion, or transfer to another job. The guidelines for recording injuries and illnesses, and some of the pertinent regulations that govern the rights and responsibilities of employees and employers in the case of work-related illness or injury are presented on the Department of Labor forms CA-1 (for injuries) and CA-2 (for illnesses), accessible at http://www.dol.gov/esa/owcp/regs/compliance/ca-1.pdf and http://www.dol.gov/esa/owcp/regs/compliance/ca-2.pdf , respectively.

Agency Continuous Quality Improvement Program for Medical Services — Tab 10

In order to assure that an agency's occupational health program actually covers the services intended, and in a manner that meets management and employee requirements and expectations, a continuous quality improvement program (CQIP) is to be implemented. The CQIP will include all aspects of the occupational health program, from the Office of Occupational Health and Safety to the local office/program level where referrals and basic services are provided.

On a national level, and as covered in Tab 2 of this *Handbook*, the Occupational Health Programs Manager (or designee) will have primary responsibility for maintaining the quality of the occupational health program. This *Handbook* will undergo at least a bi-annual review for accuracy, consistency with current DOI policies and organizational structure, appropriateness of content, and completeness. The Occupational Health Programs Manager (or designee) also will be available to assist local programs/offices in setting up a CQIP and maintaining it as a positive influence on the DOI mission. DOI data systems (see Tab 11) will be used by the OHS to assess program services and trends, and present findings and recommendations to managers, as part of this CQIP activity.

Locally, CQIP activities should be oriented towards the actual delivery of services that address local employee and management needs. Whether as a separate committee and meeting function, or as part of previously-established meetings and conferences, employees and managers need to meet on a regular, periodic basis to review their occupational health programs, identify weaknesses and program needs, develop plans to adjust the CQIP and or the occupational health program, carry out needed changes, and re-evaluate those changes to assure that the health program is meeting agency needs. Some CQIP activities are to be conducted by DOI personnel; other activities are to be conducted by the provider of occupational health services. In the latter case, DOI management personnel must assure that a quality assurance program is being carried out by the health service provider(s) and is incorporated into appropriate contracts.

A list of components* for consideration by the CQIP at the local program level is presented below, along with some suggested indicators for the actual measurement of compliance. Additional review components should be established as needs are identified and as programs develop. The notation of "*X%*" or "*X cases*" refers to a local CQIP-determined level of compliance that is expected for specific indicators, with the "*X*" to be determined according to local, individual agency or program factors. As a starting point, a level of 90% should be considered for those currently-undesignated indicators for which a high level of compliance is desired, with the figure adjusted up or down as deemed realistic and appropriate for the indicator. The components should be measured at least annually, with follow up and reassessment more frequent than that, depending on the nature of problems found and the complexity of the program being evaluated. The list should not be considered mandatory or complete, serving only as a

starting point for consideration by the CQIP members in assessing the effectiveness of the occupational health program.

*The Process and Outcome Components and Indicators are adapted from an editorial by Linda Rudolph, M.D., M.P.H.; Journal of Occupational and Environmental Medicine, volume 38, number 4, April 1996; pp. 343-4; used by permission of the publisher

STRUCTURAL COMPONENTS AND INDICATORS

On an annual basis, all health care providers should demonstrate that they:

1. Possess necessary credentials, including
   a. Current, active professional license in the state where services will be provided: *100%*
   b. Current certification, or eligibility for certification, by the national board for the appropriate health care field, e.g., occupational medicine, preventive medicine, internal medicine, family practice; occupational health nursing, nursing; counseling; (Note: for occupational health medical consultants, current certification in occupational medicine is highly preferred, though certification in another specialty, and additional training in occupational medicine, is acceptable): *100%*
2. Possess current medical practice liability insurance (minimum coverages of $1 million per occurrence and $3 million in aggregate are recommended for physicians): *100%*
3. Are available to meet the specified examination and counseling needs of employees, and are available to respond to urgent consultation or health care needs following exposure incidents: *X%* of requests for services provided within agency-acceptable time frames
4. For medical services providers:
   a. Have access directly, or via contract, to certified laboratory services for blood and urine testing (including testing for agents, or the biological effects of agents, such as heavy metals, pesticides, and polychlorinated bi-phenyls); laboratories should be able to demonstrate certification of quality, such as by accreditation by the College of American Pathologists, certification as a Medicare provider, or active participation in the Clinical Laboratory Improvement Program of the Centers for Disease Control and Prevention or the American Association for Clinical Chemistry: *100%*
   b. Have access directly, or via contract, to radiology services, including over-reads by board certified radiologists and, for any asbestos exposure, individuals certified to do “b-readings”: *100%*
   c. Use certified, regularly calibrated equipment for pulmonary function testing, audiometry, and electrocardiography: *100%*
5. Have mechanisms in place to avoid conflict of interest, such as self referral, in the services they provide: *100%*

6. Have a system of health care records that assures security and confidentiality, with release of any information from an employee's record, or about an employee's health status or clearances, only upon prior written consent from that employee: *100%*
7. Offer competitive prices for services: *100%*

PROCESS AND OUTCOME COMPONENTS AND INDICATORS

1. ACCESS TO CARE:
   a. Initial (non-emergency) treatment of employees within 24 hours after an injury is reported, as determined by review of charts or the administrative data base: *X%* of all reported cases
   b. Workers with occupational illness obtain care within the workers' compensation system; data to be available in agency health data base: *X%* of all reported cases
2. PRIMARY PREVENTION:
   a. Employer notified of occupational sentinel health events: chart documentation of notice to employer in *X%* of all cases with specified occupational sentinel health events (so measures can be taken to avoid further cases)
   b. Work site risk assessment conducted by appropriately trained individuals in work sites: record of work site risk assessment in *X%* of work sites for which the local CQIP is responsible
   c. At risk employees receive hepatitis B and other immunizations: hepatitis B immunization given or offered to *X%* of workers at risk
   d. Incidence of occupational injury/illness decreasing: trend of injuries per 100 workers, by occupational category, is lower in succeeding years
3. RECOGNITION AND DIAGNOSIS OF WORK-RELATED ILLNESS
   a. Blood lead level measurements in lead-exposed workers: documentation of blood lead level in *X%* of lead exposed workers
   b. Occupational history taken as part of medical evaluation: documented in *X%* of charts of all cases with occupational injury
   c. Diagnosis techniques appropriate: *X* cases with any diagnosis of low back pain in which thermography is performed (*X* should be a low figure)
   d. Number of cases of sentinel occupational illness (e.g., an illness that provides an indication of a lapse of preventive efforts, such as a standard threshold shift in hearing, or an uncommon event) per 1000 people obtaining care (sentinel cases may be defined at the local or national level)
4. CLINICAL QUALITY OF CARE
   a. Patients receive education about low back symptom control: chart documentation of patient education in *X%* of patients with any diagnosis of low back pain

b. Appropriate utilization of surgical procedures: delayed median nerve conduction velocity documented in *X%* of all patients receiving carpal tunnel release surgery

c. Clinical follow up is appropriate: follow up blood lead level is documented within 1 month in *X%* of patients with reports of blood lead levels >60ug/dL

5. PATIENT SATISFACTION

a. Complaint response: documented response within 14 days to *X%* of all complaints logged

b. Patient satisfaction survey: response rate of >*X%* of those surveyed; *X%* of respondents report high satisfaction with care received

6. OUTCOMES

a. Re-injury rates: *X%* of patients with lost work time >3 days who experience additional lost work time after initial release to return to work

b. Sustained return-to-work: *X%* of patients with lost work time >3 days who are at pre-injury job or modified job at 90 days after release to return to work

Data Systems and Analysis — Tab 11

The data systems in support of the DOI occupational health program are evolving rapidly, and efforts are being made to accommodate currently-available technology in distributing program information, gathering pertinent program data, and conducting reviews of program statistics and progress with addressing the DOI mission. The data elements for the occupational health program are specified, or indicated, throughout this *Handbook*.

One data system is the Safety Management Information System (SMIS), an Internet accessible accident reporting system of the Office of OHS. This system allows the local manager immediate access to accident reports that are stored in an electronic data base. Information in the reports can be changed or corrected, as appropriate, and then entered into the permanent accident report data base for tracking and report generation. This system will be coordinated with other on-line data bases under development by Office of OHS, and will contribute to the program management and quality assurance functions of the national and local occupational health programs, as presented in other sections of this *Handbook*.

The content of this Tab will be developed further as the specific data systems are implemented.

SUMMARY OF ATTACHMENTS

OWCP and Employee Relations **Attachment - A**

Reasonable Accommodation for Emotional and Psychiatric Disorders **Attachment - B 1**

Medical Employability Determinations **Attachment - B 2**

Discretionary Medical Services

- **Periodic Health Exams** **Attachment - C 1**
- **Routine Occupational Health Center Services** **Attachment - C 2**

Medical Examination Program Guide

- **General Pre-Placement Medical Evaluations** **Attachment - D 1**
- **General Medical Surveillance Guidance** **Attachment - D 2**
  - **Example – Medical Surveillance Introductory Letter** **D 2 (a)**
  - **Example – Industrial Hygienist Interview Form** **D 2 (b)**
  - **Example – Occupational / Work History Form** **D 2 (c)**
- **DOI Medical History and Examination Form** **Attachment - D 3**
  - **Privacy Act Notification Form** **D 3 (a)**
  - **Authorization for Disclosure of Information** **D 3 (b)**
- **Law Enforcement Officers** **Attachment - D 4**
- **Wildland Firefighters** **Attachment - D 5**
- **Divers** **Attachment - D 6**
- **Inspectors** **Attachment - D 7**
  - **Land-Based Inspectors** **D 7 (a)**
  - **Off-Shore Inspectors** **D 7 (b)**
- **Hazardous Waste Workers** **Attachment - D 8**
- **Summary of Attachments (continued)**
- **Pilots / Aviators** **Attachment - D 9**

Tower Climbers **Attachment – D 10**

Crane Operators **Attachment – D 11**

Laboratory Workers **Attachment – D 12**

Other Guidance (Based on Position Requirements or Work Place Stressors)

Medical Clearance for Respirator Use **Attachment - E 1**

Hearing Conservation **Attachment - E 2**

Physical Stressors **Attachment - E 3**
- **Physical Exertion and Heat Stress** **E 3 (a)**
- **Ultraviolet Light** **E 3 (b)**
- **Vermiculite** **E 3 (c)**
- **Exposure to Cold** **E 3 (d)**

Biological Stressors **Attachment - E 4**
- **Lyme Disease** **E 4 (a)**
- **Vaccine-Preventable Diseases** **E 4 (b)**
- **Rabies** **E 4 (c)**
- **Hantavirus** **E 4 (d)**
- **Poisonous Plants** **E 4 (e)**
- **West Nile Virus** **E 4 (f)**
- **Indoor Air Quality - Mold** **E 4 (g)**

DOT Vehicle Operators (Medical Clearance for a Commercial Driver's License) **Attachment - E 5**

Recordable Injuries and Illnesses **Attachment - E 6**

Automatic External Defibrillators **Attachment – E 7**

First Aid Kits **Attachment – E 8**

Tuberculosis **Attachment – E 9**

Questions and Answers on Employee Relations Issues Involving OWCP

Prepared by
Office of Labor Relations and Workforce Performance
U.S. Office of Personnel Management
and
Office of Workers' Compensation Programs
U.S. Department of Labor

Medical Documentation and Leave

1. *May an agency establish a policy requiring that employees who have been approved to receive OWCP benefits submit periodic medical status reports to the agency, in addition to whatever reporting requirements are implemented by OWCP?*

Yes. An agency may establish reporting requirements, including medical status reports, for an employee who is in a leave status; the fact that the employee is receiving OWCP benefits does not affect an agency's rights in this area. These requirements will probably be more important in cases of long absence where the agency must assess the likelihood of the employee's recovery and return to duty. Further, the agency must review medical documentation in order to make appropriate job offers to partially recovered employees. (FPM Chapter 810, section 8-3)

2. *If the agency does not possess sufficient medical information to make determinations regarding the employee's requests for accommodation or to evaluate possible job restructuring, the agency has the authority to require further medical documentation. What recourse does the agency have if it does not receive this information from the employee?*

The agency may order the employee to undergo a medical examination under the provisions of 5 CFR 339.301(c). Should the employee refuse to undergo this examination or provide appropriate documentation, the agency must make determinations regarding possible accommodations without benefit of a medical assessment of the employee's condition. This may result in the employee being removed from Federal service for inability to perform his/her duties. Agencies must notify OWCP of the employee's refusal to submit to an examination directed by the agency.

3. *Can an agency request medical documentation regarding the injury from OWCP?*

Yes. The agency may contact the OWCP claims examiner responsible for the

employee's case and request copies of the medical documentation, as well as any other data pertinent to the agency's decision regarding the employee's status. Agency representatives may want to speed up receipt of these documents by offering to review the file and copy the appropriate documents themselves.

4. *If an employee is receiving OWCP compensation, may an agency charge the employee with Absence Without Leave (AWOL) for failure to comply with agency leave requirements?*

No. An employee who is receiving OWCP compensation may not be charged with AWOL for same days he/she received compensation (*Stith v. HUD*, 21 MSPR 328 (1984)). However, an agency may take disciplinary action against an employee who fails to follow proper leave procedures. (See Question #12)

5. *While an employee is receiving OWCP benefits, does an agency have an obligation to maintain the employee in a Leave Without Pay (LWOP) status indefinitely?*

No. An agency may determine that it is appropriate to terminate LWOP and separate an injured employee. In making this determination, agencies should consider that injured employees have a mandatory right to restoration if they recover within one year from the time compensation begins. Many agencies routinely keep employees on the rolls during this period in order to facilitate the recovered employee's return to duty. During periods of LWOP, agencies should monitor the employee's condition to determine if the employee is able to return to his/her former job on a part-time basis or to a position that is structured to accommodate any partial recovery form the on-the-job injury.

Restoration Obligations

6. *What are an agency's restoration obligations regarding an employee's complete recovery from his or her injury?*

The agency is obligated to restore an injured employee to his/her former position, or an equivalent position, if the employee is fully recovered within one year from the date compensation payments begin. This does not include periods of COP, annual leave, or sick leave. For example, if an employee is injured on January 9th, receives 45 days of COP, and begins receiving compensation on February 24th, the one year period begins on February 24th. The employee's right to restoration is the same whether or not he/she is on the agency rolls at the time of full recovery. An agency's restoration obligations are triggered by OWCP's determination that compensation should end because the employee is fully recovered and able to resume regular employment.

In situations where the employee recovers after one year and the agency has separated the employee because of a physical or mental inability to perform, the agency is required to provide priority consideration for the former position, or an equivalent position. To be eligible for this consideration, the employee must apply for restoration to his/her position

within 30 days of the date OWCP compensation stops. Priority consideration is given by entering the individual on the agency's reemployment priority list. Note: If the agency has elected to keep the employee on the rolls, the employee would simply return to duty once he/she had fully recovered from the injury.

If an individual is determined to be physically disqualified to perform the duties of his/her former positions, or an equivalent position, he/she is entitled within one year of the date compensation begins to be placed in a position for which he/she qualifies. The position should be one that most closely approximates the seniority, status, and pay to which the employee would have been entitled.

See FPM Chapter 353 section 2-4 for further information on restoration of fully recovered employees.

7. *What are an agency's restoration obligations regarding an employee's partial recovery from his or her injury?*

A partially recovered employee does not have a right to restoration. However, an agency must make every effort to restore the employee, according to the circumstances of each case. This means agencies must make a good faith effort to place the employee in some position within the local commuting area for which he/she qualifies. Adopting a pro-active approach to this placement program is crucial to the agency's efforts to reduce compensation costs since the agency must absorb these costs while the employee remains out of work. One other benefit of part-time or partial work assignments is that they will keep the employee's skills up-to-date and allow a smoother transition back to this/her previous position if he/she fully recovers. (Note: The employee is entitled to consideration for placement in the position held at the time of injury once he/she has recovered fully.) Additionally, the employee may never recover sufficiently to return to his/her previous position and the agency can use the placement program to develop the employee's skills in related areas of work.

When making job offers to a partially recovered individual, agencies must notify both the employee and the OWCP in writing. If OWCP determines that the agency has made a reasonable job offer, OWCP will notify the agency and the individual that failure to accept the position may result in termination of compensation benefits unless the individual can demonstrate acceptable reasons for refusal.

Again, FPM Chapter 353 section 2-4 has additional information on placement of partially recovered employees.

Reasonable Accommodation

8. *Does the Rehabilitation Act of 1973 apply to situations where an employee partially recovers from an on-the-job injury?*

Yes. Both the agency and the employee have the same responsibilities regarding reasonable accommodation in this situation that they would have in any case where an employee cannot perform the full range of his or her duties because of a handicapping condition.

Actions Pending at Time of Injury

9. *May an agency affect an adverse action if an employee suffers an on-the-job injury after the proposal notice has been issued but before a decision has been made?*

Yes. If an agency has proposed an action based upon an employee's misconduct or deficient performance which occurred prior to the injury, there is no prohibition against proceeding with the action. Similarly, an agency may propose an adverse action based upon events occurring before the injury. Agencies should be aware of their continuing obligation to provide appropriate due process in these actions and should adopt a flexible approach to handling arrangements for employee access to the information relied on in the proposal notice and in providing for the employee's response to the proposed action. Separation under these circumstances results in the employee's loss of restoration rights under 5 CFR 353.

10. *If an employee (who is receiving compensation or COP under OWCP) is removed for reasons unrelated to the injury, does compensation or COP continue after the effective date of the removal?*

Once an individual has been approved to receive compensation under OWCP, those payments will continue, regardless of employment status, until the Department of Labor determines that benefits should be terminated. Therefore, a removal will have no impact on an individual's receipt of compensation benefits. COP benefits differ in one respect. If an agency has already issued a decision notice of removal before the injury occurs, COP will terminate when the removal action is effected.

11. *If an agency takes a suspension action and the employee is receiving COP or compensation during the effective dates of the suspension, do the OWCP benefits continue during that time?*

Yes. If an employee is receiving COP at the time the agency effects a suspension action, the agency must continue COP unless OWCP indicates that it should be terminated for some reason unrelated to the agency's action. Similarly, an employee receiving compensation benefits continues to receive compensation during the period of suspension. Agencies should be aware of their authority to amend decision notices to change the effective dates of a suspension action. In cases of short-term disability, changing the effective date of the action may prevent any conflict between COP or OWCP compensation payments and the suspension of salary.

Disciplinary Actions Involving Employees Receiving OWCP Benefits

12. May an agency take disciplinary action against an employee (who is receiving OWCP compensation) for misconduct arising out of the OWCP situation (i.e., for failure to follow leave procedures or fraudulent OWCP claims)?

Yes. The receipt of OWCP benefits does not alter the employee's obligations to adhere to rules or procedures established by his/her agency. The Merit Systems Protection Board has ruled that an agency's action against an employee for fraudulent claims was proper regardless of the Department of Labor's determination concerning continuation of compensation benefits (*Wheeler v. Army*, 47 MSPR 240 (1991)). Agencies are reminded of their obligation to provide appropriate due process in proposing and deciding these actions, regardless of the employee's leave status.

Adverse Action Based Upon Inability to Perform

13. At what point may the agency assume that the employee is likely to require long-term treatment and, therefore, proceed with a proposal to remove based on the employee's physical or mental inability to perform?

There is no one answer to when it is appropriate for an agency to take action to remove an employee who is unable to perform his/her duties due to an on-the-job injury. The primary decision in cases of long-term disabling conditions is whether or not the agency can accommodate the employee's absence from the previously held position. If not, the agency should explore alternative methods of accommodating the employee's condition in other positions for which he/she qualifies. If placement in another position is not possible and the agency can no longer accommodate the employee's absence, the agency may proceed to remove the employee for physical or mental inability to perform. As in all instances where an agency states that accommodation will be an undue hardship, the agency must be able to prove this statement on appeal. This action must be based upon a recent medical determination that the employee cannot perform the duties of the position.

14. Must a removal action proposed for medical reasons be taken under Part 752?

Yes. Agencies that take an action based upon the employee's physical or mental inability to perform duties should proceed under the authority in Part 752. By its very nature, this situation would prevent the agency from providing the employee with an opportunity to improve, as required under Part 432 procedures.

Temporary/Probationary Appointments

15. If an employee serving under a temporary appointment suffers an on-the-job injury near the end of his/her appointment, must the employee's appointment be extended to cover a full 45-day contribution of pay?

No. There is no obligation to extend the length of a temporary appointment due to an employee's on-the-job injury. See question 16 for an explanation of COP after the termination of a temporary appointment.

16. If an employee's temporary appointment expires while the employee is on COP or is receiving compensation, do these payments stop?

Compensation approved by OWCP will continue even if an employee's temporary appointment expires. However, if the employee's scheduled period of employment expires while he/she is receiving Continuation of Pay, these payments (COP) will terminate since agencies may not pay COP after a termination date that was established prior to the injury. Note: Agencies can demonstrate the establishment of a termination date either by the not-to-exceed date on the appointment or by a written notice of termination issued to the employee prior to the injury.

17. If an agency has made a determination that a probationary employee should not be continued in Federal service, may it terminate employment during the probationary period while the employee is on COP or is receiving compensation through OWCP?

If an agency determines that an employee should be terminated during probation, the agency may proceed with the probationary termination. These actions must be taken within the one-year limitation provided for in 5 CFR 315. Therefore, agencies should be aware that although periods of LWOP will extend the probationary period, this is not true of the time spent in COP status.

18. If an employee's employment is terminated during probation, and the employee is receiving COP or compensation, do these payments stop?

Generally, the answer is that neither COP nor compensation stops under these circumstances. The exception is that COP will terminate upon the effective date of a probationary discharge if the notice of termination was given to the employee prior to the injury.

REASONABLE ACCOMMODATION FOR EMOTIONAL AND PSYCHIATRIC DISORDERS

[The following information is based on material prepared by John Rogers, Department of the Interior Coordinator for Employee Assistance Programs, November, 1996.]

This guide is intended to provide information and ideas regarding psychiatric and emotional disorders that might be encountered in the workplace, methods of evaluating information about an employee and ways of providing accommodation for these types of disabilities. It is not all-inclusive in terms of the range of conditions that might show up so other resources should be included. This guide should not be interpreted as government wide policy, it is intended only as guidance for human resource and employee assistance personnel in dealing with reasonable accommodation issues. Agencies or individuals should feel free to use or copy anything in this guide. Attribution would be appreciated.

Cases requiring a review of medical information relating to emotional or psychiatric disorders can be a difficult situation for an agency. Quite often, the information submitted is incomplete or bears little relationship to the job itself. In addition, agencies are often given information which does not rise to the level of true diagnostic information (e.g. "Employee is suffering from stress").

Reviewing information relating to psychiatric and emotional disorders is much the same as reviewing any other medical information. There should be a diagnosis, a prognosis, a description of how the particular condition affects the employee's ability to the work, and recommendations for how the particular condition can be accommodated. This information might come from the employee's physician, or other mental health practitioner such as a psychiatrist, psychologist, social worker, or counselor.

Agencies will need to have appropriate personnel review the psychiatric information. In addition to a review and general case coordination or consultation by the DOI MO or agency medical officer or contract physician, agencies might also consider utilizing their EAP or other psychological services. Even if the final review is done by the medical officer, the EAP can be very helpful in helping managers and human resources personnel understand the practical implications of the various conditions and assist in designing appropriate accommodations.

ACCOMMODATING SPECIFIC CONDITIONS

There are hundreds of diagnosable conditions that fall under the category of psychiatric and emotional disorders. Some are quite common while others are quite unusual. The definitions and criteria for conditions are spelled out in the *Diagnostic and Statistical*

Manual of Mental Disorders (DSM-IV), American Psychiatric Association. This guide is used as the official diagnostic criteria universally by practitioners, insurance companies, the courts, and anyone else dealing with the treatment, diagnosis, classification, and evaluation of mental disorders and programs.

An agency's obligation to accommodate a medical or psychiatric condition rests on the premise that there is indeed a disabling condition which requires accommodation and that there is a connection between the disabling condition and a workplace situation that needs addressing such as a performance or conduct problem. It is important that an agency have information which establishes the existence of a condition. For example, an employee might come in with information and a request for reasonable accommodation because s/he reports feeling stressed because of his/her particular relationship with a supervisor. Given this, an agency would not be required to provide this accommodation because there is not an identified disabling condition. An agency might choose to accommodate the employee for other management reasons, however it would not be reasonable accommodation for a disability. This distinction is important, not just from a legal obligation but also because it is difficult to accommodate a condition that is not easily defined.

The following is a list of some mental disorders that might be encountered in the workplace. Included in the list are specific information on the disorder, how it may be manifested in the workplace, and suggestions for possible accommodations. These suggestions are merely a guidepost, not a required list. Accommodations ought to be specific to the situation so trying to use anything in this guide as legal basis or as evidence in a third party hearing should be avoided like the plague.

DEPRESSIVE DISORDERS

Overview

This category includes all the various types of disorders labeled depression. They are also called mood disorders. As a group, they include symptoms such as sad or depressed mood for possibly extended periods, diminished interest in many pleasurable activities, sleep disturbances including both insomnia or too much sleep, fatigue and energy loss, feelings of worthlessness, diminished ability to concentrate, possible suicidal thoughts, feelings of hopelessness, and weight and appetite changes. Depression may be severe or mild and may be long-term or cyclical. Some depression may be due to substance abuse or other medical conditions. Depression may also coexist with other disorders such as personality disorders or adjustment disorders.

Some depressions occur only once or may only be connected with certain life-changing events such as loss of a loved one or job loss. Other depressions can be recurrent or may be chronic. The causes of depression are not always clear, however there is some evidence that the illness runs in families.

Workplace Implications
Depression is a relatively common disorder. Nearly 18 million people are estimated to be affected by depression in the U.S. The impact at work can show up in many ways including:

- decreased productivity
- safety issues due to the employee being distracted
- absenteeism
- employee may feel tired frequently
- lack of concentration, memory, and inability to make decisions
- motivation may be lacking
- substance abuse
- feeling overwhelmed
- unexplained aches and pains
- decreased energy
- moodiness or irritably
- feelings of hopelessness, guilt, or worthlessness

At times the employee suffering from depression may just appear to be performing poorly, not much different from an employee you might think is malingering.

Treatment
Treatment for depression includes psychotherapy, medication such as anti-depressants, or both. Some individuals need long-term treatment and medication, others can benefit from shorter-term and one-time treatment. In some cases, electroconvulsive therapy is used. While severe depression may require hospitalization, most people can be treated in an outpatient basis. People don't just "snap out of it", they usually need treatment. Treatment is often successful, allowing individuals to resume normal functioning.

Workplace Accommodations
The types of accommodations required vary greatly with the particular symptoms, job requirements, availability of health care, and type of depression. However, because of the all-consuming nature of depression, a simple accommodation of one aspect of an employee's job is not likely to have a great impact on the course of the disease. It is more likely that the accommodation is a way for the employee to deal with some stressors at work while they are in treatment for the disease. These might include:

- temporary change to less demanding or deadline-sensitive duties
- closer review to help employee catch errors
- changes in travel requirements
- work schedule changes to allow for medical appointments
- temporary assignment away from safety-sensitive duties

In addition, there could be some other specific accommodations such as:

- assisting an employee with medication regimen by involving health unit personnel
- giving an employee a better lighted office, especially effective for an individual whose depression is related to seasonal changes
- allowing frequent visits to the EAP

Areas of Concern

As with many other emotional and mental conditions, the employer needs to be careful to make sure that the accommodations given are truly related to a documented condition and will have an effect on alleviating situations caused, or exacerbated, by the condition. Depression affects how an employee views his/her life situation and moods. It is not likely that a mere reassignment will alleviate the situation such that an employee's symptoms go away. Changing an employee's supervisor is an accommodation that you need to be very careful about making. While an employee may benefit from moving to a different supervisor in the case of a particular bad relationship, it is more likely that an employee suffering from depression is going to have problems in most work situations. The overwhelming nature of the disease is such that any accommodations made should be seen as supporting other efforts by the employee to get treatment.

BIPOLAR DISORDER

Overview

Bipolar disorder, otherwise known as manic depressive disorder, is considered a form of depression. It does, however, have a different component in that the person suffers from manic phases in addition to depressive phases. These manic phases involve times when the person may feel elated, euphoric, omnipotent, and may likely engage in habits that could be destructive such over-spending, engaging in risk-taking activities, displaying excessive energy, sleeping very little, and becoming extremely involved in an activity. They may appear to be able to take on incredible amounts of work. However, at some point the individual will slip, or crash, back into a depressive phase. There will also be phases where the person feels relatively normal and stable. A major problem with the manic phases is that the individual may do a fair amount of damage to him/herself, either physically and emotionally, or to his/her career, reputation, or finances.

Workplace Implications

Individuals suffering from this disease may eventually have many problems at work. During the depressive states, the symptoms may look like any other depression. However, manic states will likely be very noticeable to others at work. There may be complaints about the individual's behavior and intensity of communications. The individual may have very grand plans for projects that will not be realized or may end up alienating or angering coworkers or other supervisors with their behavior. The individual may have racing thoughts and speech and may have difficulty following instructions. Distractibility and irritability are also likely.

Treatment
The treatment for bipolar disorder usually involves medication (a combination of mood-stabilizers and anti-depressants) and psychotherapy. Many individuals will need to take medication for their entire lives. With proper case management, it can be treated and managed.

Workplace Accommodations
Accommodations for depressive symptoms will be similar to those for any other kind of depression. The challenge here is dealing with the manic phases. While a person is in a manic phase, there are not a great deal of interventions available. It would be best to avoid assigning new projects during this time. The best course for the employee is to try to manage the disease by regular medication and therapy. In some cases, it might be possible to enlist health unit personnel if there is a problem with compliance with medication.

Some individuals have reported that it has been helpful for them to have a friend or relative let them know when they are exhibiting manic symptoms. This might allow them a chance to seek treatment and have their physician adjust medication levels. Something to keep in mind in dealing with an employee with bipolar disorder is that, once it is known that the employee suffers from this disorder, it could be very useful to work on the issues as a team with the employee, the EAP, ER, health unit personnel, and the family to help the employee manage his/her symptoms and get treatment early.

Areas of Concern
It is important to keep in mind that the accommodations made need to be related to the disorder and be reasonable. As with other disorders, simply reassigning the employee will not likely have much impact as an accommodation.

ANXIETY AND PANIC DISORDERS

Overview
Anxiety disorders are marked by tension and apprehension which may have both physiological or psychological components. They may be precipitated by a fear of actual events or situations or may be rather generalized. An element of this type of disorder may include panic attacks which might include rather intense symptoms such as shortness of breath, heart palpitations, excessive sweating, feeling very hot or cold, nausea, feeling dizzy, chest pains or discomfort, and feelings of unreality or being detached from oneself. Sometimes these disorders involve phobias which can be very disabling and may range from slight discomfort and impairment to severe symptoms which can keep someone from being able to leave the home, drive a car, fly in an airplane, speak in public, be in a high place or any number of other situations.

Workplace Implications
An employee suffering from such a disorder may only find mildly disabling conditions such as feeling tense and nervous in situations such as public speaking which may limit

their effectiveness. An individual who is feeling this tension and apprehension will likely have problems in performance which will inhibit their ability to start a project or perform effectively simply due to the anxiety. More likely than not, this individual will not be able to clearly state what the problem is because they don't always know themselves the source of the anxiety or what to do about it.

An individual suffering from panic attacks may face quite severe problems at work. The intense fear of public speaking may be very problematic for certain individuals whose jobs require speaking before groups, although such individuals will often seek out jobs without such a requirement. In addition, travel could be a problem for individuals with specific phobias about things such as flying or driving.

Treatment
Depending on the severity and type of the disorder, many people can receive successful treatment. The treatment may consist of various types of individual and group psychotherapy and may include medication. It would normally be done on outpatient basis.

Workplace Accommodations
Accommodating specific phobias may prove to be either relatively easy and straight forward or could be quite difficult to do. For example, an employee with a phobia about flying could find other ways to travel. An employee with a fear of public speaking might be in a more difficult situation in that the job may simply require a great deal of public speaking and might not be prone to restructuring. Accommodating more generalized anxiety may prove more difficult to do, especially if it is not clear what particulars stressors exist or if they are related to the worksite.

Areas of Concern
The more specific the information is as to the particular type of anxiety or phobia, it will be easier for the agency to determine if accommodation is possible. Again, a request for no supervision or removal from a particular supervisor is not likely to be a reasonable alternative.

ATTENTION DEFICIT /HYPERACTIVITY DISORDER (AD/HD)

Overview
These types of disorders normally are diagnosed in childhood or adolescence. There is some controversy over how often it is diagnosed and how the diagnosis may be used by some to excuse what might otherwise be considered as either bad behavior, lack of ambition, or inability to perform certain functions. The attention deficit symptoms include many of the following:

- inattention to detail
- inability to follow through
- lack of concentration
- avoidance of certain activities

- appearance of daydreaming
- lack of production
- frequent distraction by outside stimuli
- forgetfulness
- general sloppiness of work materials

The types of symptoms one might see relating to hyperactivity might include:

- inability to stay seated
- apparent wandering
- speaking out of turn or interrupting others
- impulsivity and impatience
- excessive talking
- restlessness
- squirming and fidgeting

Certainly any number of the above symptoms might be present in many people, the issue of whether a disorder exists has a great deal to do with whether or not the collection of symptoms cause a fair amount of occupational, personal, or educational impairment. There are an increasing number of adults who were not diagnosed as children who now have a diagnosis of AD/HD. For many people, this diagnosis has been a blessing in that it can help explain many problems they have encountered in work that may have been attributed to laziness or lack of ability or intelligence. The symptoms may appear different in adults or be hidden in that people have had to find ways to compensate.

Workplace Implications

For some individuals with AD/HD, there may not be much in the way of noticeable impairment at work, however, it is likely that they are not performing to peak and may not even be aware of how the disorder affects them, only knowing that work is rather hard for them. For others, you might see any number of the following types of problems:

- missed deadlines
- incomplete assignments
- failure to completely follow instructions
- need for closer review and supervision
- not being at the desk
- excessive time being spent on certain assignments
- interruptions and intrusions that appear rude
- forgetfulness
- lack of concentration and many mistakes
- problems with planning large tasks
- apparent anxiety over assignments
- inability to just get started on assignments

Someone with this disorder, but undiagnosed, may be fairly miserable at work as they are aware of their failings and their supervisor is simply frustrated with an employee who

appears to either not be very able or may border on malingering. Others may indeed have the disorder to some extent but, in a minority of case, be misusing the diagnosis to explain other unrelated problems.

Treatment
Individuals with this type of disorder are usually treated with medication which may also be accompanied by behavioral therapy. It is invariably treated in an outpatient setting.

Reasonable Accommodation
Many of the methods of treating this disorder were developed for children in a school setting and many can be adapted to adult occupational needs. Basically, the task is to help the individual find adaptations to the work or the workplace that will enable him/her to function well. The following are some examples:

- providing closer supervision and instruction
- breaking down assignments into smaller, more manageable segments
- altering the mix of work to give more short-term assignments, within classification guidelines
- setting up office space to eliminate, or reduce disruptions, visitors, etc.
- giving instructions both orally and in writing
- flexiplace work options

An option for finding ways to accommodate this disorder is to utilize professionals who deal with it a great deal, such as child psychologists, as consultants.

Areas of Concern
This can be a controversial area. For adults who have recently been diagnosed with AD/HD, there is almost a feeling of "finally, I know that I'm not just lazy". Some people are suspicious of the diagnosis, feeling that it is just an excuse. However, it is a legitimate diagnosis and the real test is to get back to the basics of accommodation, i.e. there is a disability that is causing or contributing to a work deficiency and there are reasonable accommodations that can be made. Again, merely changing supervisors is probably not the answer nor is a reduction in workload or in difficulty the answer, unless that is accompanied by the appropriate job classification, i.e. a change in duties may result in a lower grade. It is important to try to delineate which problems are due to AD/HD and which may be due to other factors such the employee's personality structure.

OTHER DISORDERS

There are many other types of psychiatric and emotional disorders that my not be quite as common as those described above. The following are some brief descriptions of such conditions along with considerations for accommodation or potential areas of concern.

Schizophrenia and Psychotic Disorders
These disorders are marked by delusions, paranoia, hallucinations, grossly disorganized

behavior, and other manifestations. People suffering from these conditions usually need combinations of inpatient or outpatient psychotherapy and medication. Workplace accommodations may be very difficult to do in that there may be rather unpredictable aspects of the disorder and the difficulty in making a connection between the delusional behavior and specific accommodations. The documentation submitted in the employee's behalf would need to show what specific accommodations could be made and how they might alleviate the particular workplace and behavioral problems, something agencies have probably not had a great deal of success with. This doesn't mean that a person who suffers from such a disorder is unable to work, only that the behaviors arising out of psychotic episodes can be extremely difficult to work with. The problems arise more when the person displays behavior that is very disturbing to coworkers. Medication management is very important and the assistance of the health unit may be essential. Additionally, enlisting the support of family members and treating professionals can be helpful in finding ways to cope with symptoms that show up at work. An example would be to have a family member come to work to pick up worker who is displaying bizarre behavior so that they could be able to leave the building with some dignity and little fanfare.

Personality Disorders

Personality disorders are patterns of behavior and experience that are noticeably different than the cultural norm which will end up being very problematic for the individual. Imagine a personality trait that is very exaggerated to the point that the individual suffers in his/her social interactions, work situation, and family life. Treatment may consist of rather long-term psychotherapy, along with medication which might be prescribed for other symptoms that may develop such as depression. There doesn't seem to be a great deal that can be done in the way of accommodation for these disorders themselves. There may be other symptoms, such as depression, that could be accommodated, however the basic personality structure issues do not lend themselves to easy accommodations. Examples of these disorders are Borderline Personality Disorder, Dependent Personality Disorder, Histrionic Personality Disorder, and Obsessive-Compulsive Personality Disorder. See the DSM-IV for further information.

COMMON TERMS - NOT DISORDERS

The following are categories of kinds of coping or behaviors, or generally adopted terms that are really not disorders and would probably not rise to the level that they need to be accommodated. This list is not meant to downplay the feelings or suffering individuals who use them to describe their situations, it is only meant to indicate that more clinical information is probably needed. When presented with these types of terms, a clinician would probe further to determine what actual symptoms are so that a proper diagnosis can be made. People often use terms such as the following in day to day conversation as a way to describe how they feel or what they think is not working in their lives.

Co-dependent

This is not a diagnosis. It is a term used to describe ways of behaving and relating to

others which involve the individual taking responsibility for others, to an excessive extent. Family members often describe themselves in this way.

Enabler
This term is often used to describe the family members, co-workers, and friends of a substance abuser who seem to allow them, or enable them, to continue using. An example is a supervisor who covers up for an employee.

Addictive Personality
There is no diagnostic category for this. While someone's personality structure may involve substance abuse, it is not a diagnosis.

Food Addict
There are eating disorders, however, this is not a recognized category.

Sex Addict
There are disorders involving sexual dysfunction and compulsive behaviors, however, this particular term is not one of them. Also workplace accommodation may be somewhat problematic.

Low self-esteem
Many individuals have, as a symptom, low self-esteem, however this is not a disorder in and of itself.

Stress
Many employees will say they are stressed out or under stress. While this may be true, it is not a diagnosis and, in fact, is a rather vague description of symptoms.

Dysfunctional Family
Sometimes individuals may describe themselves as being part of a dysfunctional family. Again, this is not a diagnosis but rather a term often used (and overused) to describes less than satisfactory family dynamics.

Adult Child of an Alcoholic (ACOA)
This is a term used to describe a situation where and individual has developed certain ways of adapting and behaving after growing up with an alcoholic parent(s).

Nervous Breakdown
This term is often used when describing a situation where relatively severe symptoms, such as a major depression or psychotic episode, take place. Quite often, it is used when an individual is hospitalized.

GENERAL RECOMMENDATIONS

Regardless of the particular diagnosis, there are some general recommendations that may be helpful in evaluating psychiatric information. These are not meant to be all-inclusive.

Even if you are using outside physicians to review information, using your EAP to help with evaluating information, designing accommodations, and educating managers about disorders (within boundaries of confidentiality) can be very effective.

It is not necessary to have information come only from a physician. Other credentialed professionals such as Licensed Clinical Social Workers, Clinical Psychologists, Licensed Professional Counselors, and Clinical Nurse Specialists or Psychiatric Nurse Clinicians can provide the necessary diagnostic information for an employee.

It is perfectly fine to ask for clarification on information submitted to you. In fact, it is often necessary and, when doing so, it may be beneficial to use your agency physician or EAP counselor to do so. This doesn't mean that you don't believe the employee, it is simply a fact that employee's physicians don't necessarily speak the same language as human resources people and additional information is often needed.

Many attempts at accommodation, especially for relatively severe disorders, will probably be more effective if they are done collaboratively. For example, an employee with Bipolar Disorder may have problems managing their medication. Having the employee, their representative, the EAP, Their physician, and the health unit nursing staff work together to come up with a plan for helping the employee take medication on a consistent basis.

Education, especially for managers, can be very helpful. Once an employee has been granted accommodation, it can be very useful to educate the supervisor about the situation, within the employee's rights to confidentiality. The EAP can be very helpful in this situation.

Medical Employability Determinations **Attachment - B 2**

I. OVERVIEW

When an employee raises a medical condition as a defense against alleged performance, conduct, or time and attendance deficiencies, the burden is on the employee to provide the agency with medical documentation (within time limits set by agency) which establishes that:

a) the employee has a medical condition/handicap which needs to be taken into account; and
b) the medical condition/handicap is causally related to the performance, conduct, or time and attendance deficiency; and
c) (where appropriate) accommodation is necessary.

Documentation Acceptable

If the employee provides documented evidence acceptable to the agency (including the Agency Medical Officer, if necessary) which demonstrates that:

a) a medical condition exists; and
b) the condition is causing or exacerbating the performance, conduct, or time and attendance deficiency,

THEN

The agency is responsible for determining:

a) whether any accommodation is necessary and, if so,
b) whether any "reasonable accommodation" can be made (this is a management rather than a medical determination).

If reasonable accommodation can be made either within the position, or by reassigning the employee, the agency must do so.

If the agency determines that no accommodation can be made or is reasonable, then the agency proceeds with appropriate corrective personnel action. (The employee must also be counseled regarding disability retirement if appropriate.)

Documentation Not Acceptable

If the employee provides medical documentation, but the Agency Medical Officer considers it to be "unacceptable" (e.g., incomplete, not pertinent), the agency may either:

a) require the employee to provide additional documentation, or
b) offer the employee a medical exam by an agency-selected physician, at agency expense in order to obtain the necessary information.

If the individual refuses to be examined or to submit medical documentation, the agency should act on the basis of the information it has available. For example, the agency may refuse a benefit requested by the employee but not supported by adequate medical documentation, or the agency may take action based on the employee's performance or conduct in the light of current medical knowledge.

Please refer to your Human Resources personnel for further information on this subject.

Standard for Review of Medical Documentation

Review of medical documentation is an assessment by, or in coordination with, a physician to ensure that the following criteria are met:

1. The diagnosis or clinical impression is justified in accordance with established diagnostic criteria, and

2. The conclusions and recommendations are consistent with generally accepted medical principles and practice.

The following kinds of information are taken into account, as appropriate, when medical records are reviewed:

1. The history of the specific medical condition(s), including reference to the circumstances of onset, findings from previous evaluations, treatment, and responses to treatment;

2. Clinical findings from the most recent medical evaluation, including any of the following that have been obtained: results of physical examination, laboratory tests, x-rays, EKG's and other special evaluations or diagnostic procedures; and, in the case of psychiatric disease, the results of mental status evaluation and psychological testing;

3. Assessment of the current clinical status and plans for future treatment;

4. Diagnosis;

5. The expected date of full or partial recovery;

6. Impact of the medical condition on life activities both on and off the job;

The following is the analysis methodology of the medical documentation:

1. A medical basis to support a conclusion that the medical condition has, or has not, become static or well stabilized;

2. A medical basis to support a conclusion that indicates the likelihood that the individual is, or is not, expected to experience sudden or subtle incapacitation as a result of the medical condition;

3. A medical basis to support a conclusion that duty restrictions or accommodations are, or are not, warranted, and if they are, an explanation of their risk-avoiding or therapeutic value and the nature of any similar restrictions or accommodations recommended for non-work related activities; and

4. A medical basis to support a conclusion that indicates the likelihood that the individual is, or is not, expected to suffer injury or harm by carrying out, with or without accommodation, any of the tasks or duties of a position to which the individual is assigned or for which the individual is qualified.

Discretionary Medical Services - Periodic Health Exams **Attachment - C 1**

PERIODIC HEALTH EXAMS

When determined by management to be appropriate, periodic health exam (PHE) may be provided to those employees who wish to take advantage of this type of preventive health service. The exam is based on preventive health practices of proven value in detecting medical conditions at a time when intervention is most likely to be beneficial. It should be considered strictly voluntary, and the results of the examination are to remain confidential (i.e., no results or summary information are forwarded to the employer for review). The recommended frequency of the PHE is once every three to five years, though this may be adjusted depending on age or local management decisions.

Forms used in support of a PHE will depend on the provider of services. Most established, organizational medical service providers (e.g., a private or federal occupational health clinic) have standard forms for this purpose. These may be specific to that program, or generic forms, such as the DOI Standard Medical History and Examination Form (see Tab 12, Attachment D 3). If PHE services are obtained from private providers, it is suggested that the DOI form be used.

As noted in Tab 7 of this *Handbook*, the *Guide to Clinical Preventive Services* (2008 Edition) serves as the best current summary of preventive services that have been shown through rigorous evaluation and scientific study to be beneficial when used as screening tools by the general public (rather than for diagnostic purposes for specific individuals with symptoms or other justifications for more extensive testing). While services may be provided that go beyond those recommended by the *Guide*, this should be done with the knowledge that such extra services may not be based on solid evidence of benefit and may even be detrimental, though the tests and this list are revisited on a regular basis by the Preventive Services Task Force and updated as additional information becomes available. For the most current version of the *Guide* and updated findings and recommendations for specific tests, please visit the *Guide*'s Internet site: http://www.ahrq.gov/clinic/pocketgd08/ .

Because there is well supported evidence of benefit for individuals aged 25 to 64 (the prime working years), the *Guide* only recommends the following clinical tests or services: blood pressure, height and weight, total blood cholesterol (men ages 35-65, women ages 45-65), Papanicolaou (Pap) test (women), fecal occult blood test and/or sigmoidoscopy, mammogram and/or clinical breast exam (women ages 50-69), assessment for problem drinking, and rubella serology or vaccination history (women of childbearing age). Counseling is recommended in the areas of substance use, tobacco cessation, avoiding alcohol/drug use while driving, swimming, boating, etc., limiting fat and cholesterol, maintaining caloric balance, emphasizing grains, fruits, vegetables, maintaining an adequate calcium intake (women), regular physical activity, and other life-style recommendations. Regular visits to a dental care provider and flossing and brushing with fluoride toothpaste daily are also recommended. Medications

recommended include tetanus-diphtheria (Td) boosters and, for women of childbearing age, rubella. Multivitamins with folic acid (for women planning or capable of pregnancy) also are recommended.

However, some of the basic PHE elements that many physicians and other health care providers may offer include the following services:

- Medical History and Review of Systems
- Vital Signs (Height, Weight, Blood Pressure)
- Vision Screening
  - (Near and Far Vision, corrected and uncorrected; Peripheral Vision; Depth Perception; Color Vision)
- Tetanus-diphtheria vaccination (once every ten years)
- Cardiac Risk Blood Profile
  - (Total Cholesterol, HDL and LDL Cholesterol, and Triglycerides)
- Health Risk Appraisal (HRA)
  - (One of several standardized assessments of health risk behaviors
- Physical Examination
  - (Targeted to the age of the individual, and based on the Medical History, Review of Systems, the Cardiac Risk Blood Profile, and the HRA)
- Age-specific Counseling, Instruction, and Referral, as Indicated
- Plus other tests that may be recommended, or appear to be indicated at the time of the exam

The most recent (April 2009) scientific studies continue to show a lack of consistent and significant benefit for men in the general population for screening for prostate cancer with the PSA test, so the test is not recommended at this time.

The PHE frequently is conducted as a two step process. In the initial visit, the individual is given the medical history to complete; vital signs are obtained; vision screening is conducted; blood is drawn, centrifuged, separated, and sent for analysis; vaccination is done (if needed); and the HRA is completed. On a subsequent visit, the physical examination is done, and appropriate counseling and guidance for follow up are provided.

Medical records usually are maintained for the individual at the site of the examination, and a copy is made available to the individual to share with his/her personal physician. No further medical reports or summaries are prepared or distributed to agency representatives. Records indicating that services were provided are to be maintained in order to support billing statements and reports of utilization of the service.

ROUTINE OCCUPATIONAL HEALTH CENTER SERVICES

If the decision is made to provide routine occupational health center services for local DOI employees as an established, organized discretionary program, those services should be oriented towards efficiency both for the agency and for the employees, minimizing time that an employee must spend away from work because of minor health care problems, and responding in a timely and appropriate manner to more urgent medical conditions. These routine services generally are in addition to other specified services that may be chosen (e.g., see Attachment C 1) or required (e.g., see Attachment D 1 through D 12) for inclusion in the occupational health program, and serve to provide a more immediate benefit when they are utilized.

Services recommended for inclusion as routine occupational health center services include:

- **Walk-in and first response care**
  This service allows employees to seek and receive treatment or referral for medical problems that occur or become worse during working hours. Most facilities or arrangements for occupational health services will not be able to provide the full range of emergency medical care that would be available in a hospital emergency room. The intent of a walk-in or first response service is not to provide emergency diagnosis and treatment, but rather to provide an initial assessment and either treatment or referral to a higher level emergency facility, as appropriate. **An employee's supervisor must always be notified if the employee visits the health center for such services.**

  Generally provided by an occupational health nurse, walk-in and first response care may include follow-up evaluations for certain findings from medical surveillance or clearance examinations (e.g., blood pressure checks, repeat blood tests), treatment for minor injuries or illnesses (e.g., cuts, scrapes, or headaches), short term bed rest when it becomes necessary (e.g., for an employee recovering from an illness or injury), and assessment and referral employees with true emergency conditions (e.g., chest pain, major injury). Preventive health services also may be provided, including basic disease screenings (e.g., blood pressure checks) and health education services to encourage the adoption or maintenance of a health lifestyle.

- **Interventions Prescribed by an Employee's Physician**
  In order to save time for an employee, the occupational health center nurse often is able to provide medications or minor treatments under orders provided by the employee's personal physician. This may include periodic bed rest, blood

pressure monitoring, blood sugar monitoring, administration of medications (e.g., allergy shots, hormones, special vaccines or antibiotics), and dressing changes (e.g., for healing wounds that are under the physician's care).

- **Immunizations**
  Certain immunizations are particularly valuable in preventing disease for individuals or among groups of employees. Administration of immunizations in the occupational health center minimizes time away from work for the employee, and facilitates the provision of services that benefit the work force in general. Such immunizations often include those for the prevention of influenza and tetanus.

- **Health Counseling**
  In order to maximize the opportunity for a healthy work force, individualized health counseling may be provided to offer guidance regarding smoking cessation, diet, physical exercise, alcohol and other drug use, and other health-related behavioral topics. See also *Employee Assistance Program Services* in Tab 7.

- **Occupational Health Site Visits**
  The on-site or near-by availability of an occupational health professional makes possible visits to the employees' work sites to assist the safety officer in assessing the site for potential occupational hazards. This on-site familiarity also assists the health center professional in being prepared for injuries or illnesses that may be more likely to occur, and in preparing appropriately tailored educational sessions for employees.

General Pre-Placement Medical Evaluations **Attachment - D 1**

Pre-placement evaluations are governed by 5 CFR 339 (Medical Qualification Determinations). Section 339.202 (Medical Standards) specifies that

> "*An agency may establish medical standards for positions that predominate in that agency… . Such standards must be justified on the basis that the duties of the position are arduous or hazardous, or require a certain level of health status or fitness because the nature of the positions involve a high degree of responsibility toward the public or sensitive national security concerns. The rationale for establishing the standard must be documented. Standards established by … an agency must be:*
>
> *(a) Established by written directive and uniformly applied,*
> *(b) Directly related to the actual requirements of the position, and*
> (c) *Consistent with OPM instructions….*"

Pre-placement medical evaluations assess an individual's health status after a job offer has been made but before they have been assigned to a position that involves arduous or hazardous conditions (i.e., job placement is contingent upon meeting any established medical or physical standards). The purpose of the evaluation is to ascertain whether the individual has any health condition(s) that may prevent him or her from performing the job safely and efficiently, including the ability to wear any protective equipment (e.g., a respirator) required for the job. The evaluation also should identify any health problems that could be aggravated and/or accelerated by the anticipated physical demands and working conditions of the job. Further, it serves as a baseline for those employees whose job duties include the need for medical surveillance (see Tab 12, Attachment D 2, *General Medical Surveillance Guidance*).

Because of the public safety risks involved, examinations also generally are required for applicants or incumbents for positions involving:

- operation of motor vehicles (e.g., truck drivers, crane operators);
- law enforcement functions;
- food handling;
- exceptional physical or mental stress;
- direct physical contact with people (e.g., nurses); and
- hazardous work above ground level, or around power-driven machinery.

In addition to medical standards, an agency is authorized by Section 339.203 (Physical requirements) to:

> "*establish physical requirements for individual positions without OPM approval when such requirements are considered essential for successful job performance. The requirements must be clearly supported by the actual duties of the position and documented in the position description*."

Such physical requirements may include fitness requirements, such as the "Pack Test"

used by wildland firefighters. They also may be applicable to positions that, due to their physical location (e.g., an office at the lower levels of a hydroelectric dam) or geographic remoteness (e.g., on a small, sea-going research vessel), impose practical health and safety-related requirements and restrictions on the physical conditions of employees.

Two types of information are essential for a pre-placement medical evaluation for those in positions that have qualification standards. First, the physician reviewing the results of the examination (the Agency Medical Officer, or AMO) must understand the hazardous working conditions and physical demands of the position. Additionally, the AMO must be furnished additional information such as specific job duties or task lists if the DOI has conducted a validation study or job hazard analysis. The AMO also should be familiar with the organizational structure of the DOI and how the position in question contributes to meeting the agency's mission. For the evaluation of some medical conditions, the physician will need to obtain further information about specific job duties in order to make a determination. This may require on-site inspections and consultation with the DOI Office of Occupational Health and Safety.

Secondly, the AMO needs to have accurate information about the applicant's health status, the functional limitations associated with any medical conditions, and an understanding of how physical demands and working conditions would impact on that condition. Accurate diagnoses often are key factors in determining an applicant's capabilities. The physician must also recognize that individual variability may exist between persons with the same specified clinical condition. Upon completion of the examination, the AMO will inform the employing office whether the applicant is considered to be medically qualified to perform the full range of duties required for the position. The AMO also may offer recommendations regarding the physical requirements of the job and any restrictions that may be indicated for the applicant.

Having defined the goals of the pre-placement exam, and carefully identified and validated the essential job functions, the next step for the agency is the formulation of the components of the core physical examination, laboratory tests, and general occupational and medical history that will be required for each DOI applicant.

CONTENT OF THE PRE-PLACEMENT MEDICAL EXAMINATION

Because the pre-placement medical examination must be tailored to the identified requirements of specified positions, there are no uniform, general recommendations for the scope and content of every physical examination, lab test, or history. The following recommendations are considered to be a valid starting point and guide to appropriate services. Specific medical exams requirements, where available, are presented elsewhere within this *Handbook* (see Tab 12 Attachment D 4 through D 12).

A comprehensive medical history is essential. The medical history should cover the applicant's known health status and problems, such as major illnesses, surgeries, medication use, allergies, etc. Symptom review also is important for detecting early signs of illness or possibly-limiting conditions. In addition, a comprehensive medical

history should include a personal health history, a family health history, a health habits history, an immunization history, and a reproductive history. An occupational history also should be obtained to collect information about the applicant's past occupational and environmental exposures (see Attachment D 2 (c) for an example of a form that may be used for this purpose).

The examination consists of a general medical and physical evaluation of the individual. The DOI Medical History and Examination Form may be used to record the results of the examination (see Tab 12, Attachment D 3). The general examination includes consideration of the following:

(a) Vital signs: pulse, respiration, and blood pressure
(b) Visual acuity, color vision, depth perception and peripheral vision testing
(c) Dermatological system
(d) Ears, eyes, nose, mouth, throat
(e) Cardiovascular system
(f) Respiratory system
(g) Gastrointestinal system
(h) Endocrine and metabolic system
(i) Musculoskeletal system
(j) Neurological system
(k) Mental status

and, if indicated,

(l) Audiometry
(m) Electrocardiography (ECG)
(n) Pulmonary function testing (PFT)
(o) Laboratory testing (see below)
(p) Tonometry (for glaucoma)
(o) Other procedures that may be necessary, based on the position

If they are to be done, these last procedures and tests (items l through o) must be carried out using standard methods and properly recorded so that the results may be used for the intended purposes (please see Tab 7 for specific guidance on these procedures):

<u>Audiometry (Hearing Test)</u>: Audiograms ideally should be performed in an ANSI-approved "soundproof" booth (ANSI S3.1-1977) with equipment calibrated to ANSI standards (ANSI S3.6-1973). If a booth is unavailable, the test room sound pressure levels should not exceed those specified in the federal OSHA noise regulations (29 CFR 1910.95) for specified frequencies, as follows:

> *Rooms used for audiometric testing shall not have background sound pressure levels exceeding those in Table D-1 when measured by equipment conforming at least to the Type 2 requirements of American National Standard Specification for Sound Level Meters, S1.4-1971 (R1976), and to the Class II requirements of American National Standard Specification for Octave, Half-Octave, and Third-Octave Band Filter Sets, S1.11-1971 (R1976).*

Table D-1--Maximum Allowable Octave-Band Sound Pressure Levels for Audiometric Test Rooms

Octave-band center frequency (Hz)	*500*	*1000*	*2000*	*4000*	*8000*
Sound pressure level (dB)	*40*	*40*	*47*	*57*	*62*

Electrocardiography: A standard 12-lead electrocardiogram should be recorded and interpreted by, or with the ability to consult with, a cardiologist.

Pulmonary Function Testing: Pulmonary function testing is helpful as part of the documentation of current pulmonary health status, and as a baseline for later comparison to determine if workplace exposures have had a detrimental effect on the lungs. The test should be administered only by certified or thoroughly experienced individuals. The result of the test is called a spirogram, and only spirograms that are technically acceptable and demonstrate the best efforts by an applicant should be used.

Note: Electronic spirometers are available and may be used to measure Vital Capacity (VC), Forced Expiratory Volume in 1 sec (FEV_1), Forced Expiratory Volume in 1 sec as a portion of FVC (FEV_1/FVC), and Peak Expiratory Flow in L/min (PEF). These machines also will calculate the percent of expected levels (corrected for age and height), providing useful standards for comparison. Although the spirometric test results may not allow a specific diagnosis, they can distinguish the difference between restrictive and obstructive pulmonary disorders and allow an interpretation of the severity of the process or condition.

Laboratory testing: Baseline laboratory tests for the Pre-Placement examination may include: complete blood count (CBC), a routine urinalysis, and selected serum chemistries, as follows:

(a) Glucose
(b) Bilirubin - total
(c) Cholesterol
(d) HDL-Cholesterol
(e) LDL-Cholesterol
(f) Triglycerides
(g) GGTP
(h) LDH
(i) SGOT/AST
(j) SGPT/ALT

Special tests may be appropriate, depending upon the age of the applicant, the proposed job duties, or local medical problems (e.g., tuberculosis, hepatitis). If exposure to asbestos or silica is anticipated, a chest X-ray also may be indicated.

Note: The following special tests, while often appropriate and very valuable for general preventive health examinations or diagnostic purposes, are NOT indicated routinely for occupationally-related pre-placement medical examination purposes:

* Exercise stress test (ETT, or cardiac stress test; this test may be appropriate in some situations for assessment of aerobic capacity)
* VDRL (Venereal Disease Research Laboratory, a test for syphilis)
* Proctosigmoidoscopy (flexible sigmoidoscopy) or colonoscopy
* Digital rectal examination (DRE)
* Fecal Occult Blood Test (FOBT)
* HIV testing
* Body fat composition
* Papanicolaou (PAP) smear
* Mammogram
* Pelvic examination
* PSA (prostate specific antigen)

All applicants receiving a Pre-Placement medical evaluation are to be informed ahead of time about the purpose of the medical evaluation and the content of the exam. The results of any medical examination are considered to be confidential medical information and are subject to customary medical confidentiality restrictions regarding their use and release (see Tab 6). Under most circumstances, results and recommendations arising from these evaluations will be expressed in general terms, without specific diagnostic information. The DOI employing office generally will be informed simply that:

* The candidate is medically qualified for the job; or
* The candidate is medically NOT qualified for the job; or
* The results of the examination are inconclusive, and follow-up information is required.

DOI management will be told only on a need to know basis the specific diagnoses or laboratory test results, and identifiable medical information will be released only with the explicit written permission of the applicant. In most cases a simple statement will suffice, for example:

> "*Based on the results of the pre-placement medical evaluation of* [date]*, Jane Jones is* [or is NOT] *medically qualified for the position of* [specify]."

In cases where more specific information is needed in order to make a medical clearance decision on the status of an applicant, a specific consent form releasing that information should be obtained from the applicant. The results of the examination and tests will be reviewed with the applicant, and the medical/occupational significance of any abnormal results explained. Copies of the medical examination findings and laboratory test results can be provided to the applicant and, with the proper written authorization from the applicant, to the applicant's personal physician.

General Medical Surveillance Guidance **Attachment - D 2**

Background

As a result of their job duties, federal employees may be exposed to chemicals, dust, noise, and other workplace hazards that may be covered by specific federal regulations regarding medical surveillance for the possible effects of those exposures. In those instances where workers are exposed to a potentially hazardous work environment, engineering safeguards often can be instituted to eliminate, or at least minimize, the possibility that a worker actually comes in direct contact with a dangerous substance or work process. Where such work hazards cannot be eliminated totally through engineering controls, administrative controls can be established (e.g., required breaks, mandatory training, time limitations at a given task) to minimize exposures. As a final measure, the worker can be outfitted with proper personal protective devices (such as hearing protection, respirators, eye protection, gloves, aprons, boots, chemical protective suits, etc.) to further minimize the likelihood of harmful exposures. Periodic safety and industrial hygiene surveys provide the means to identify, evaluate, and control potential worksite hazards.

A further assurance that employees are not receiving deleterious exposures is provided through a medical surveillance program. Such a program provides information about the actual effectiveness of the engineering, administrative, and personal protective measures, and an early warning to employees and managers if harmful effects are occurring. A comprehensive program also will provide standardized data for computer-based tracking of occupational health data. Computerization more easily can provide individual and unit costs for the program, tracking of individual employees, evaluation of patterns and trends, cost projections for future evaluation, etc.

An effective medical surveillance and screening program also is necessary to protect workers from adverse effects due to occupational stressors or tasks. Because work-related diseases generally do not have an acute onset, but rather develop over time, medical surveillance requires periodic medical monitoring of the workers at risk.

Screening and medical surveillance, although closely related, are not the same thing. *Screening* refers to detecting injury/illness in individuals before symptoms ordinarily would lead a person to seek medical care. As such, medical screening is a form of secondary prevention, i.e., the opportunity to find and treat or otherwise affect the outcome of disease that is already present. Medical screening allows the presumptive identification of unrecognized disease or defects by the application of tests, examinations or other procedures that can be applied rapidly. Screening tests sort out apparently well persons who probably have a disease or significant finding from those who probably do not. Although a screening test is not intended to be diagnostic, it must detect as early as possible any abnormality related to an exposure if it is to be useful in disease prevention. Ideally, such a test will detect a physical effect or adaptation to the exposure long before symptomatic impairment occurs. Screening focuses on individuals within a population. It is the application of clinical procedures to members of a group who often are

asymptomatic, but may be at high risk, for the purpose of identifying those who need further attention or evaluation.

When the risk of a particular disease outcome is known or suspected to be elevated in employees in a particular workplace or job category, *medical surveillance* is the strategy used to determine the group experience with that outcome. Surveillance, while involving tests or exams provided to individuals, focuses its analysis on the collective findings for the specified population that is considered to be at risk. Information is obtained for the purpose of detecting group patterns of abnormal medical parameters or actual disease in order to initiate intervention, control, or additional investigation, if needed. Surveillance involves collecting medical information on groups of people in order to demonstrate changes or trends. This may allow workplace job interventions which, in turn, can lead to primary prevention of harm to the other individuals in that group.

Surveillance programs must utilize the best available tests which are in use at the time. A test which is controversial or which is difficult to interpret may lead to confusion, and may delay prompt action. The most widely applied mandatory surveillance procedures are based on relatively simple and straightforward tests. Medical surveillance programs must also include tests and examinations which are acceptable to the workers. Also, as with any clinical procedure, the benefit of the test to the worker must outweigh any potential harm the test itself may cause.

The frequency of testing depends on the natural history of the disease; latency periods between an actual exposure and the appearance of disease are important considerations. Most surveillance procedures are repeated annually, since one year represents a reasonable reflection of economic concerns related to the cost of conducting exams, and the time over which adverse effects of harmful exposures may become evident. The following sections present a more specific summary of the components, purposes, and procedures of a medical surveillance program.

Attachment D 2 (a) provides an example of a letter that may be used to inform employees of the medical surveillance program, the tests that may be conducted, and the way the resulting information is to be handled and used by the agency.

Components

The major components of DOI medical surveillance programs are designed to address the principles and concerns described in the previous discussion:

- Job Title/Position Exposure Profile
- Employee Specific Exposure Profile
- Exposure-Specific Examination and Laboratory Services
- Standardized Clinical Procedures
- Second Level Review by AMO
- Data Management and Analysis
- Agency and Employee Reporting Mechanisms
- Program Evaluation and Modification

Job Title/Position Exposure Profile
Medical surveillance programs should be based on a comprehensive evaluation of an agency's workforce, worksites, and job duties. This evaluation is intended to identify the type, frequency and severity of an employee's potential exposures to physical, environmental, chemical, or biological stressors according to the worker's duties and responsibilities. Using position descriptions, employees often can be divided into exposure groups that, for medical surveillance purposes, may be quite similar. This *Handbook* provides several such job/exposure-specific sets of recommended services, along with forms and specific guides.

Industrial hygiene and occupational medicine specialist surveys form the basis for the most specific hazard identification. Among the techniques available for further refining hazard identification and quantification are walk-through surveys and environmental monitoring.

A walk-through survey of the work environment provides a means of identifying hazards and unsafe or high risk work practices as the worker goes about a task. Employee and supervisory input also are sought in this assessment phase of the program. The work environment survey ideally should be performed by an occupational health and safety team consisting of the industrial hygienist, agency safety specialist, and an occupational health physician or nurse.

Whenever possible, the medical surveillance program also should reflect environmental monitoring. In environmental monitoring, periodic or continuous measurements are made of a potential exposures in the workplace. The industrial hygienist may include workplace and/or personal sampling techniques in the analysis for specific exposures or stressors.

Following the position description or job title exposure profile assessment, the agency should identify individual employees to be included in the medical surveillance program, with the assistance of supervisors, the safety manager, the industrial hygienist, and the occupational health professional. These employees then should be notified of their inclusion in the program and informed as to the program's goals, benefits, and procedures.

Employee Specific Exposure Profile
The aggregation of employees into essentially homogeneous exposure groups by job title or position involves compromises since, by definition, each exposure group is intended to contain employees whose tasks are such that their probability of exposures is nearly the same. Most personal exposure profiles cannot be determined entirely accurately in this manner, due to the diversity of specific tasks within a given job title or position description.

More specific exposure information may be obtained from each employee by way of an individual interview, or an employee-completed occupational exposure history form. The interview allows the industrial hygienist to determine specific frequencies and

severities of exposures. Interview information also should be reviewed by the employee's supervisor to help assure validity. See *Attachment D 2 (b)* for an example of a form that may be used to record the results of an industrial hygienist's employee interview.

An occupational exposure history form also may be used to document an employee's perception of hazards to which s/he feels actually or potentially exposed. Individual histories should be reviewed by supervisory personnel, the safety officer, and an occupational health professional (e.g., the AMO) to determine the employee specific exposure profile. This history form is useful especially where exposure data from environmental monitoring is sparse or nonexistent, where industrial hygiene interviews cannot be (or have not been) conducted, and where a more formal job/title assessment has not been done. In these circumstances, it may be necessary to overestimate the extent of exposure in order to avoid missing true exposures, and the harm that may result for the employee and the agency. See *Attachment D 2 (c)* for an example of a form that may be used as an employee-completed occupational exposure history form.

Exposure-Specific Examination and Laboratory Services

The combination of the job title/position exposure profile and the employee specific exposure profile allows on occupational medicine professional to determine the recommended tests and examinations for each employee. Most listings of such tests and examination items reflect a basic core of services, upon which specific additional tests are performed, based on the identified exposures. See attachments D 4 through E 2 for information on specific tests to be conducted, based on identified exposures or job categories.

Standardized Clinical Procedures

The medical evaluation can be provided in a variety of ways (see Tab 5, *Medical Service Providers*, in this *Handbook*). Nurses and physicians providing services must be aware of the goals of the program, and the necessity of collecting clinical information in a systematic manner. While a "general" physical examination may be performed, a key part of the medical surveillance program is the extra attention given to target organs and systems that may be affected by agents identified in the exposure profile. See attachments D 4 through E 2 for information on specific areas for special attention, based on identified exposures or job categories.

Second Level Review by Occupational Health Experts

Upon its completion, the provider conducting the examination should forward the data collected during the examination process to the AMO for review. To facilitate the review, copies of all the applicable physical exam forms, history forms, lab tests, audiograms, spirograms, electrocardiograms, X-ray reports, etc., should be provided. By virtue of training and experience, the AMO is the individual designated by the agency as uniquely qualified to integrate clinical data with the toxicological profile of various substances and to recognize an association between symptoms and/or other findings and the presence of work-related exposures. In addition, examinations done at different sites and by different examiners can be compared by the AMO in the event similar findings

among employees with similar exposures or exposure risks are encountered and identified. During this review process, any further studies which should be performed as part of the medical surveillance program (usually to further clarify a potential work-related problem) can be determined.

Data Management and Analysis
Following review by the AMO of the data from the examination phase, pertinent information should be entered into a DOI data base. Contact the Occupational Health Programs Manager for further information regardingavailable data base options.

Analysis of the data in any meaningful fashion will depend upon the standardization of the data elements entered into this database. Summary reports should be prepared at periodic intervals, including such things as the number and types of exams/tests completed, pertinent findings (without employee identification), group trends, and program costs. Long term data analysis will depend upon the steady, systematic collection of data over a period of years and on the commitment of the bureaus and area/programs to support medical surveillance programs for the long term.

All medical surveillance information must be treated with appropriate confidentiality. Data for analysis must be compiled in an aggregate (non-individually-identifiable) form before being shared with agency managers (or others) who have not been identified as having a "need to know," and with employee representatives. The data will allow labor and management to evaluate workplace-associated problems and to take remedial action without jeopardizing the rights of individual employees. See Tab 6, *Medical Records - Employee Medical File System*, for further information on this topic.

Agency and Employee Reporting Mechanisms
Since one of the primary purposes of medical surveillance, ultimately, is to safeguard the health of employees, both individually and collectively, a written summary of any examination should be sent to the employee. This summary should contain the results of the medical surveillance evaluation, including a report of laboratory tests and other procedures, as well as an interpretation of the significance of any findings. Recommendations should be made to the employee for any additional testing indicated as part of the medical surveillance program, and information on non work-related problems requiring further medical evaluation also should be conveyed to the employee in a timely manner.

The local agency manager should receive a written statement from the AMO indicating the physician's opinion concerning: 1) any detected medical conditions which place the employee at increased risk of harm from continued performance of the job; 2) any recommended work modifications; and 3) and a statement that the employee has been informed of the results of these findings and any other findings requiring further medical follow up. Medical conditions should <u>not</u> be identified specifically in these agency letters. No medical findings or diagnoses unrelated to the effects of the employee's job should be included in the report to the supervisor. For further information on this subject, see Tab 6, *Medical Records - Employee Medical File System*.

Program Evaluation and Modification

It is important for any program continuously to assess the quality of its functions and to improve those areas in which it is deemed to be deficient. The purposes of a comprehensive quality review include: 1) documentation of high quality health care services; 2) measurement of the efficacy of program activities in meeting agency goals (with subsequent modification of the program, as appropriate); 3) identification of areas warranting improvement; 4) assessment of client satisfaction; and 5) satisfaction of legislative and regulatory requirements. Assistance with setting up a program evaluation process may be sought through the AMO. Please also refer to Tab 10, *Agency Continuous Quality Improvement Program for Medical Services*.

Example - Medical Surveillance Introductory Letter **Attachment D 2 (a)**

The following represents the text of a letter that can be used in introducing the medical surveillance program to employees enrolled for services:

Introduction to the Medical Surveillance Program
Because of the nature of your job, you have been designated by your employer to participate this year in the medical surveillance program provided by this agency. This examination and review program is provided to assure that you are able to meet the various requirements of your job, to comply with federal regulations, and to help safeguard both you and your co-workers from preventable illnesses and injuries. Though you retain the right to refuse to participate, and you may accept or withdraw from any or all of the program components that are offered, it is important that you understand that complete recommendations and medical clearances for your job can only be provided if the examination has been carried out. In some cases, these clearances depend on an employee meeting specific agency policies or federal regulations, such as those for law enforcement officers, firefighters, or drivers of commercial vehicles.

Important Forms to Be Completed
The **Notice to Patients** form conveys information on the Privacy Act of 1974, which governs the collection, storage, and use of confidential medical information. All information gathered as part of the medical surveillance program is considered confidential and, in general, no information about the results of your exam can be released to anyone else without your written consent, except as provided for and explained by this Notice to Patients form.

When properly completed and signed, the **Authorization for Disclosure of Information** form allows the examining facility to share summary, work-related information with your supervisor. Medical information that is not related to work will not be released to your supervisor without an additional, specific written consent from you. *We cannot provide any medical surveillance services to you unless we have your consent to release summary information to your supervisor*.

There are several types of medical history forms that you may be asked to complete. These are intended to provide information to assist the examining physician and the Agency Medical Officer as they evaluate your health and the effects of your job.

Preparation for Your Examination
You will be given instructions that are very important to follow in preparation for having lab tests done, to be sure the results are accurate. These primarily involve fasting for 12 hours before you have your blood drawn, and following a specific diet if you are to have your stools checked for blood. If you do not receive these instructions, please ask the nurse or call this office.

The Components of Your Exam
Your examination may involve one or more of the following components.

General Physical Examination -- This is a complete physical examination of the major body systems. You may be asked to disrobe for parts of the exam to allow the physician to see you fully as he or she conducts the examination. The examiner will pay particular attention to specified body systems, organs, or physical signs that may indicate harmful effects of the exposures identified in your occupational history. A brief or limited exam may be carried out if, for example, all you need is to have your hearing evaluated, or a clearance to wear a respirator.

Audiogram -- Baseline and periodic audiograms are carried out using equipment and test locations that meet the criteria established by the Occupational Safety and Health Administration (OSHA) and the Council for Accreditation in Occupational Hearing Conservation (CAOHC). A hearing booth is not required and may or may not be available for your exam, but accurate audiogram results can be obtained as long as background noise has been kept below specified levels during the testing period. For at least 14 hours prior to your audiogram you should avoid all loud noises, or be sure to use effective hearing protection if noise cannot be avoided.

Vision Tests (Color, Best Near and Far, Depth, and/or Peripheral) -- Both corrected (with glasses or contacts) and uncorrected vision (without glasses or contacts) are usually checked in each eye and with both eyes combined. If you use contacts, be sure to bring any necessary containers and cleaning solutions you will need for holding them during the exam and reinserting them afterwards.

Chest X-Ray -- Such a test may be required to establish a baseline for certain jobs, to help evaluate clinical findings or medical history information, or if you have current or recent job-related asbestos or silica exposure. X-ray tests usually are done by referral to an outside radiographic facility.

Pulmonary Function Test (Spirometry) -- A pulmonary function test (PFT) may be conducted to evaluate your ability to work safely while using a respirator, to assess your lung capacity and respiratory reserve, and/or to look for evidence of lung or breathing problems. This test involves blowing into a tube as hard as you can while a machine records the results.

Electrocardiogram -- An electrocardiogram may be conducted to help evaluate the health of your heart.

Exercise Stress Test -- This test may be conducted if, in the opinion of the examining physician or the AMO, it is important to evaluate your ability to safely carry out physically-demanding or aerobic work tasks. It usually is done by referral to a special clinic where your heart and breathing can be monitored closely during the test.

Laboratory Tests -- These tests should be obtained following a 12 hour fast (consuming only water and prescribed medications). Routine blood tests include a complete blood count (CBC) and a chemistry panel, including glucose, BUN, creatinine, electrolytes, protein, calcium, phosphorus, liver function tests (liver enzymes, bilirubin), cholesterol, HDL-cholesterol, LDL-cholesterol, and triglycerides. A urinalysis also is done routinely. Other lab tests may be ordered, depending on your occupational history and any pertinent, identified exposures.

24 Hour Urine Test -- A 24 hour collection of urine may be ordered to check for exposure to certain heavy metals or other potentially toxic materials that you may have been exposed to in the course of your work.

Follow-up

Following your examination, a complete review of your histories, laboratory results, and examination findings will be carried out by an occupational health physician, and you will be sent a confidential summary of all your findings. Much of what you will find in the summary will be information of a strictly confidential nature. It is for your use, and we hope you will read it carefully and share it with your personal physician. Recommendations for follow up testing will be found in this letter, as well as clearances or recommended modifications in your work, if applicable. Because we want you to have full access to all of your own health information, you also will receive a copy of the summary that is sent to your supervisor. This supervisor summary only contains recommendations regarding medical clearances for work; if work restrictions are needed; and/or if you have evidence of health problems from any work place exposures. No other confidential medical information is included in the supervisor's letter without your knowledge and consent.

If you have questions about your medical surveillance exam, please contact your supervisor or the AMO.

Example - Industrial Hygienist Interview Form Attachment D 2 (b)

The form starting on the following page is an example of a form that may be used to record the results of an industrial hygienist's interview with an employee as part of identifying potentially significant occupational exposures.

DOI INDUSTRIAL HYGIENE INTERVIEW SUMMARY
EMPLOYEE DATA FOR DEPARTMENT OF THE INTERIOR
MEDICAL SURVEILLANCE PROGRAM

Employee Information: Date of Interview:

Last:_____ Date of Birth:
First:_____ Sex: M F
Middle:_____ SSN:

Agency:_____ Subunit:

Job Title:

Work Phone:_____ Name of Supervisor:
Work Address:

Home Phone:
Home Address:

Currently in Medical Surveillance Monitoring Program for:
(Circle) **ASBESTOS** **NOISE** **OTHER** **(Specify):** _____

Year of First Asbestos Exposure with This Agency ( ):

Year of Your Prior First Asbestos Exposure (Before this Agency):

Clearances Necessary (Circle as appropriate):
Diver **Driver (CDL)** **Drive-for-Work (non-CDL)** **OTHER (Specify):**
Respirator User: Y / N Type of Respirator (Air Purifying/Supplied Air/SCBA)

Exposure Information Summary:

(For each item, circle entry for both Frequency and Severity)

CODES:

Exposure Frequency
0 - 12 (one day/month or less) = Low
12 - 52 (one day/week or less) = Medium
52+ (more than one day/week)= High

Exposure Severity
I = Incidental (Process and/or products are used nearby. pass through the area or may conduct short inspection. Worker is not involved with job that is producing the potential exposure.
L = Low (Less than 1/2 the PEL or TLV.)
M = Medium (From 1/2, up to the full PEL or TLV.)
H = High (Greater than the PEL or TLV.

Exposure	Frequency	Severity	Physician's Notes (Sign)
NOISE	L M H	I L M H	
Industrial Hygienist's Notes:			
ASBESTOS	L M H	I L M H	
Industrial Hygienist's Notes:			
HEAVY METALS	L M H	I L M H	
(Arsenic, Mercury, Welding Fumes, Other-- Please Specify)			
Industrial Hygienist's Notes:			

Exposure	Frequency	Severity
LEAD	L **M*** H	I L **M*** H

* > 30 days/year at Action Level

Industrial Hygienist's Notes:

Physician's Notes (Sign)

CADMIUM	L **M*** H	I L **M*** H

* > 30 days/year at Action Level

Industrial Hygienist's Notes:

[prior exposure > 60 months? Y / N

SOLVENTS	L M H	I L M H

(Please Specify Type)

Industrial Hygienist's Notes:

FORMALDEHYDE	L M H	I L M H

(And Other Aldehydes)

Industrial Hygienist's Notes:

DUSTS	L M H	I L M H

(Specify Type, e.g., wood, silica, etc.

Industrial Hygienist's Notes:

PESTICIDES	L M H	I L M H

Industrial Hygienist's Notes:

Other Significant Exposures Which Should Prompt Examination:

(Please circle, as appropriate, and provide any necessary clarifying comments)

HEAVY LIFTING L M H (Over 50 lbs)

Industrial Hygienist's Notes:

VIBRATION L M H

Industrial Hygienist's Notes:

CORROSIVES	L M H	I L M H

[i.e.: Acid, base, quick lime]

Industrial Hygienist's **Notes:**

Heat Stress	L M H	I L M H

[ie: Tyvek Suit]

Industrial Hygienist's Notes:

OTHER (Specify)	L M H	I L M H

[i.e.: PCBs, Ozone, EMF, Fiberglass]

Industrial Hygienist's Notes:

Industrial Hygiene Interviewer Date Agency Representative Date

Example - Occupational/Work History Form **Attachment D 2 (c)**

The form starting on the following page is an example of one that may be used by employees to record their occupational/work history, as part of identifying potentially significant occupational exposures.

U.S. DEPARTMENT OF THE INTERIOR
OCCUPATIONAL HEALTH DIVISION
MEDICAL SURVEILLANCE
OCCUPATIONAL/WORK HISTORY

1. NAME (Last, First Middle Initial)	2. SOCIAL SECURITY NUMBER	3. DATE OF BIRTH (MMDDYY)	4. JOB TITLE
5. WORK ADDRESS (Building, Street)	6. WORK ADDRESS (City, State, Zip)	7. SEX (X one) ☐ MALE ☐ FEMALE	8. TELEPHONE NUMBER (Please include area code)

This Occupational Work History form is to be completed first by the employee and then reviewed by the Supervisor and Safety Officer. Finally, it will be reviewed by the agency or national Medical Review Officer and forwarded to the examining physician.

EMPLOYEE:	Date Form Received	Date sent to Supervisor	Signature
SUPERVISOR:	Date Form Received	Date Sent to the MRO	Signature
	Comments by Supervisor (if any):	[Check certification exams needed:] ☐ Respirator ☐ Diver ☐ Commercial Driver's License ☐ Work-Related Driving Ability ☐ Other (specify) ☐ Other (specify)	

PLEASE READ THE FOLLOWING EXPLANATORY COMMENTS:

The Occupational/Work History is used to refine the medical surveillance evaluation to include those agents not usually considered when dealing with only your job description. It is also helpful to the examining physician in gathering more information regarding individual exposures. Attached is a list of agents or chemicals that you may have worked with on your job. Also included are some particular work conditions or "tasks." The presence of a chemical or work task on the list does not mean that you *have* or *will* come into contact with that item, but only serves as a checklist of some things you might otherwise forget.

The Occupational Work History does not serve as evidence for or against actual exposure (that is, actual entrance of a chemical into the body or actual biological effect from a physical agent).

Please do not include those exposures which may be "incidental" or "casual." For example, walking by the area where painting is taking place, but not actually participating in the painting operation, supervising the activity, or spending substantial time in the area for another reason, should not usually be included as a potential exposure.

Any ill effects which were noted at the time of a potential exposure or which you believe are connected to a particular chemical, physical agent, or task, should be indicated on the history form. Also, the type of protective equipment worn, if any, should be noted.

Feel free to make comments or notes where further explanation is deemed necessary.

BASELINE OCCUPATIONAL/WORK HISTORY
PRIOR WORK HISTORY

(Complete this page if this is your first DOI Medical Surveillance examination, or if previously submitted information requires updating.)

NAME:

Please list all *previous jobs* starting with the *most recent* (include only jobs prior to your current job):

Agency/Company	Dates	Specific Hazards*	Job Duties

* "Hazards" include but are not limited to: chemicals, dusts, gases fumes, radiation, vibration, cold, heat, intense light, repetitive motion, and loud noise.

Asbestos Exposure History

Please list the year and place where you first had exposure to asbestos without the benefit of personal protective equipment. (Examples: shipyard work, home remodeling, various hobbies). This question is important for you to answer as the date of exposure to asbestos is needed to determine the best way to screen for any asbestos related disease.

NAME: Page 3

The potential exposures/agents listed below refer to your *current* job. (*Use blank lines to write in other chemicals/agents.)*

Potential Exposure or Work Condition	Frequency (check one) D = Daily W = Weekly M = Monthly S = Seasonal				Duration (check one) Average use in Hours			Intensity of any ill effects (check one) N = None MI = Mild (e.g. headache) MA = Major (e.g. slow recovery; need medical care)			Protective Equipment (check one) R = Respirator G = Gloves E = Eye Protection P = Protective Clothing				Physician Comments
	D	W	M	S	1	1-4	4-8	N	MI	MA	R	G	E	P	
Dusts or Fumes - Usual Route of Exposure: Inhalation															
Aluminum															
Silica															
Carbon Dust															
Chromium															
Iron															
Lead															
Mercury Metal															
Cadmium															
Nickel															
Zinc															
Asbestos															
Cement Dust															
Fibrous Glass															
Plastic Fumes															
Welding Fumes															
Wood Dust(s)															
Beryllium															
Solvents - Usual Route of Exposure: Inhalation and Skin															
Alcohols															
Acetone															
Methylene Chloride															
Paint (epoxy)															
Paint (oil based)															
Paint (urethane)															
Toluene															
Xylene															
Stoddard Solvent															
Hexane															
Benzene															
Trichloroethylene															
Other (specify)															

NAME:

The potential exposures/agents listed below refer to your *current* job. (*Use blank lines to write in other chemicals/agents.)*

Potential Exposure or Work Condition	Frequency (check one) D = Daily W = Weekly M = Monthly S = Seasonal				Duration (check one) Average use in Hours			Intensity of any ill effects (check one) N = None MI = Mild (e.g. headache) MA = Major (e.g. slow recovery, need medical care)			Protective Equipment (check one) R = Respirator G = Gloves E = Eye Protection P = Protective Clothing				Physician Comments
	D	W	M	S	1	1-4	4-8	N	MI	MA	R	G	E	P	
Other Chemicals															
Acids															
Oil Mists															
PCB's															
Caustics (Bases)															
Pesticides															
(Organophosphate)															
(Other)															
Wood Preservatives															
Dioxins/Furans															
Pentachlorophenol															
Other Chemicals (specify)															
Other Potential Exposures or Work Tasks															
Noise over 85 dBA															
Vibrating Tools															
Heavy Equipment (cranes, forklifts, etc)															
Drive light vehicles															
Sewage samples															
Other Biological Hazards (Specify)															
Work in confined area															
Work in high places															
Carpentry															
Lifting over 50 lbs.															
Firearm use															
Hyperbaric Pressure															

Additional Comments - Please list any other chemicals or hazards to which you may be exposed, but which have not already been covered.

NAME:

The protective equipment listed below refer to your *current* job. (*Use blank lines to write in other equipment.)*

Type of Equipment	Frequency (check one) D = Daily W = Weekly M = Monthly S = Seasonal E = Emergencies ONLY					Duration (check one) Average use in Hours			Intensity of work effort while wearing equipment (check one) S = Sedentary L = Light to Moderate (e.g. walking, climbing/no load) H = Heavy (e.g. walking, climbing with more than 20 lbs.)			Physician Comments
	D	W	M	S	E	0-1	1-4	4-8	S	L	H	
Negative Pressure Respirators:												
Half Mask Cartridge												
Full Mask Cartridge												
Powered Air-Purifying Respirators:												
Half Mask												
Full Mask												
Air Supplied Respirators:												
Self-Contained (SCBA)												
Air-Line (Half Mask)												
Air-Line (Full Mask)												
Protective Clothing:												
Cloth Overalls												
Tyvek type suits												
Firefighter turnout gear												
Vibration dampening gloves												

This section may be used for any additional explanations or comments:

DOI Standard Medical History and Examination Form Attachment - D 3

Following this page (or found as an accompanying document with this Handbook) is the updated DOI Standard Medical History and Examination Form, reflecting revised language regarding agency response to misrepresentations of employee/applicant information. The form may be used for pre-placement exams, medical surveillance exams, or specified clearance exams. It may be used independently, or in conjunction with an additional occupational history form, as presented in a preceding section of this Attachment. If used with an occupational history form, the input of that form may be incorporated into the additional tests or clearances that are indicated on the examination form.

Some programs use different forms in order to meet specific needs. Examples include those used for most law enforcement and wildland firefighter exams, as well as some types of inspectors.

Privacy Act Notification Form **Attachment - D 3 (a)**

What follows this page is the two-page (front and back) DOI Privacy Act Notification Form. The DOI Standard Medical History and Examination Form contains a Privacy Act notice and a section to designate an authorization for release of information. If this DOI form is not used, the following Privacy Act Notification Form should be provided to employees who are to receive clinical services from which the agency will be receiving reports or summaries. While a signature on the Privacy Act Notification form is recommended, signing the form is not considered mandatory.

U. S. DEPARTMENT OF THE INTERIOR

PRIVACY ACT NOTIFICATION FORM

The following information is provided in order to comply with the requirements of the Privacy Act of 1974, and is consistent with the provisions of 5 CFR 293, 5 USC 2951(2) and 3301, Executive Orders 12107 and 12564, and the Departmental Manual 370 DM 293.

The health services you receive related to your employment with the Department of the Interior result in the gathering and recording of information that is personal and may be highly confidential. Depending on the provider of services (i.e., Departmental, other federal agency, or private health services agency), original documents or copies will be placed in an Employee Medical Folder (EMF), which is a distinct part of your official personnel folder. The EMF is maintained within the Employee Medical File System (EMFS) of the employing Department, Bureau, or individual office. The categories of records contained in your EMF are: 1) occupational medical records; 2) employee exposure records; and 3) records resulting from the testing for use of illegal drugs.

The records may be maintained in a manual or electronic system. Regardless of location, the information these folders contain is yours, and is considered privileged. Protecting the physical security of your record, as well as the information it contains, is the responsibility ultimately of the Department's Director of Personnel, with delegations of responsibility to the heads of the employing bureau or office, and the personnel officer of the employing bureau or office. The provider of clinical services also is held responsible for the security of all confidential information for which they have records.

Unless it is with your written consent, the information in your EMF is only for official purposes as specified by law. Those purposes include the following:

a. To ensure that records required to be retained on a long-term basis to meet the mandates of law, Executive order, or regulations (e.g., the Department of Labor's Occupational Safety and Health Administration (OSHA) and OWCP regulations), are so maintained.
b. To provide data necessary for proper medical evaluations and diagnoses, to ensure that proper treatment is administered, and to maintain continuity of medical care.
c. To provide an accurate medical history of the total health care and medical treatment received by the individual as well as job and/or hazard exposure documentation and health monitoring in relation to health status and claims of the individual.
d. To enable the planning for further care of the patient.
e. To provide a record of communications among members of the health care team who contribute to the patient's care.
f. To provide a legal document describing the health care administered and any exposure incident.
g. To provide a method for evaluating quality of health care rendered and job-health-protection including engineering protection provided, protective equipment worn, workplace monitoring, and medical exam monitoring required by OSHA or by good practice.
h. To ensure that all relevant, necessary, accurate, and timely data are available to support any medically-related employment decisions affecting the subject of the records (e.g., in connection with fitness-for-duty and disability retirement decisions).
i. To document claims filed with and the decisions reached by the OWCP and the individual's possible reemployment rights under statutes governing that program.
j. To document employee's reporting of on-the-job injuries or unhealthy or unsafe working conditions, including the reporting of such conditions to the OSHA and actions taken by that agency or by the employing agency.
k. To ensure proper and accurate operation of the agency's employee drug testing program under Executive Order 12564.

The "Routine Uses" of your EMF are summarized on the back of this page.

Your receipt of health services as part of your employment, and your submission of confidential information to your EMF, are **voluntary**. If you do not wish to participate in these services, or provide the requested information, you are not required to do so. However, your continued employment or assignment to specific duties may depend on the availability of complete and current occupational health records. Lacking such information, the Department may be required to take personnel action related to your employment.

ACKNOWLEDGMENT OF REVIEW OF PRIVACY ACT INFORMATION

I have reviewed the Department of the Interior Privacy Act Notification Form and understand the use of my confidential medical information within the Department's Employee Medical File System.

_____ _____
(Signature) (Date)

ROUTINE USES ALLOWED FOR EMPLOYEE MEDICAL FILE SYSTEM RECORDS

a. To disclose information to the Department of Labor, Department of Veterans Affairs, Social Security Administration, Federal Retirement Thrift Investment Board, or a national, State, or local social security type agency, when necessary to adjudicate a claim (filed by or on behalf of the individual) under a retirement, insurance, or health benefit program.
b. To disclose information to a Federal, State, or local agency to the extent necessary to comply with laws governing reporting of communicable disease.
c. To disclose information to another Federal agency, to a court, or a party in litigation before a court or in an administrative proceeding being conducted by a Federal agency when the Government is a party to the judicial or administrative proceeding.
d. To disclose information to the Department of Justice, or in a proceeding before a court, adjudicative body, other administrative body before which the agency is authorized to appear, when:

1. The agency, or any component thereof; or
2. Any employee of the agency in his or her official capacity; or
3. Any employee of the agency in his or her individual capacity where the Department of Justice or the agency has agreed to represent the employee; or
4. The United States, where the agency determines that litigation is likely to affect the agency or any of its components, is a party to litigation or has an interest in such litigation, and the use of such records by the Department of Justice or the agency is deemed by the agency to be relevant and necessary to the litigation, provided, however, that in each case it has been determined that the disclosure is compatible with the purpose for which the records were collected.

e. To disclose in response to a request for discovery or for appearance of a witness, information that is relevant to the subject matter involved in a pending judicial or administrative proceeding.
f. To disclose pertinent information to the appropriate Federal, State, or local agency responsible for investigating, prosecuting, enforcing, or implementing a statute, rule, regulation, or order when the disclosing agency becomes aware of an indication of a violation or potential violation of civil or criminal law or regulation.
g. To disclose information to the Office of Management and Budget at any stage in the legislative coordination and clearance process in connection with private relief legislation as set forth in OMB Circular No. A-19.
h. To disclose information to a congressional office from the record of an individual in response to an inquiry from the congressional office made at the request of that individual.
i. To disclose information to the Merit System Protection Board or the Office of the Special Counsel, the Federal Labor Relations Authority and its General Counsel, the Equal Employment Opportunity Commission, arbitrators, and hearing examiners to the extent
necessary to carry out their authorized duties.
j. To disclose information to survey team members from the Joint Commission on Accreditation of Hospitals (JCAH) when requested in connection with an accreditation review, but only to the extent that the information is relevant and necessary to meet the JCAH standards.
k. To disclose information to the National Archives and Records Administration in records management inspections and its role as Archivist.
l. To disclose information to health insurance carriers contracting with the Office to provide a health benefits plan under the Federal Employees Health Benefits Program information necessary to verify eligibility for payment of a claim for health benefits.
m. By the agency maintaining or responsible for generating the records to locate individuals for health research or survey response and in the production of summary descriptive statistics and analytical studies (e.g., epidemiological studies) in support of the function for which the records are collected and maintained. While published statistics and studies do not contain individual identifiers, in some instances the selection of elements of data included in the study might be structured in such a way as to make the data individually identifiable by inference.
n. To disclose information to the Office of Federal Employees Group Life Insurance or Federal Retirement Thrift Investment Board that is relevant and necessary to adjudicate claims.
o. To disclose information, when an individual to whom a record pertains is mentally incompetent or under other legal disability, to any person who is responsible for the care of the individual, to the extent necessary.
p. To disclose to the agency-appointed representative of an employee, all notices, determinations, decisions, or other written communications issued to the employee, in connection with an examination ordered by the agency under--

(1) Medical evaluation (formerly Fitness for Duty) examinations procedures; or
(2) Agency-filed disability retirement procedures.

q. To disclose to a requesting agency, organization, or individual the home address and other information concerning those individuals who it is reasonably believed might have contracted an illness or been exposed to or suffered from a health hazard while employed in the Federal workforce.
r. To disclose information to a Federal agency, in response to its request or at the initiation of the agency maintaining the records, in connection with the retention of an employee, the issuance of a security clearance, the conducting of a suitability or security investigation of an individual, the classifying of jobs, the letting of a contract, or the issuance of a license, grant, or other benefit by the requesting agency; or the lawful, statutory, administrative, or investigative purpose of the agency, to the extent that the information is relevant and necessary to the requesting agency's decision on the matter.
s. To disclose to any Federal, State, or local government agency, in response to its request or at the initiation of the agency maintaining the records, information relevant and necessary to the lawful, statutory, administrative, or investigatory purpose of that agency as it relates to the conduct of job related epidemiological research or the insurance of compliance with Federal, State, or local government laws on health and safety in the work environment.
t. To disclose to officials of labor organizations recognized under 5 U.S.C. chapter 71, analyses using exposure or medical records and employee exposure records, in accordance with the records access rules of the Department of Labor's OSHA, and subject to the limitations at 29 CFR 1910.20(e)(2)(iii)(B).
u. To disclose the results of a drug test of a Federal employee pursuant to an order of a court of competent jurisdiction where required by the United States Government to defend against any challenge against any adverse personnel action.
v. To disclose information to contractors, grantees, or volunteers performing or working on a contract, service, grant, cooperative agreement or job for the Federal Government. Policies and practices of storing, retrieving, safeguarding, and retaining and disposing of records in the system

Authorization for Disclosure of Information Form Attachment - D 3 (b)

What follows this page is the DOI Authorization for Disclosure of Information Form. It may be used by an employee who is authorizing the release of confidential information from his or her occupational medical record to any other recipient of such information, including management personnel in the employee's bureau, another DOI office, or any other person/program to whom the employee wishes to allow access to his/her confidential medical records. This form should be signed prior to any examination which is intended to result in clearances or job related actions. The form also may be used by an employee to authorize the release of information from his/her personal physician's medical records for the individual if such information is needed by the AMO for work-related purposes, though most physicians or the clinics in which they work have their own forms available which may be used for this purpose.

U. S. DEPARTMENT OF THE INTERIOR

AUTHORIZATION FOR DISCLOSURE OF INFORMATION FORM

The following information is provided in order to comply with the requirements of the Privacy Act of 1974, and is consistent with the provisions of 5 CFR 293, 5 USC 2951(2) and 3301, Executive Orders 12107 and 12564, and the Departmental Manual 370 DM 293. The release of information about a patient who is treated or referred for treatment of alcohol or drug abuse, or the medical results of such abuse, is governed by the Confidentiality of Alcohol and Drug Abuse Patient Record Regulations, 42 CFR, Part 2. Any person who knowingly and willfully requests or obtains any record concerning an individual from a Federal agency under false pretenses shall be guilty of a misdemeanor and fined not more than $5,000 (5 USC 552a(I)(3) and in the case of alcohol and drug abuse patient records a falsified authorization of disclosure is prohibited under 42 CFR 2.31(d) and is punishable by a fine of not more than $500 for a first offense or a fine of not more than $5,000 for a subsequent offense in accordance with 42 CFR 2.14.

TO: _____
(Name of Health Services Provider -- Custodian of the Records to be Released)

_____
(Address)

_____

You are hereby authorized to furnish information from the record of:

_____
(Name of Subject Individual)

An employee (or prior employee) of: _____
(Bureau/Office/Agency)

The records are to be released to the following recipient:

_____
(Name of Individual or Entity to Receive the Information)

_____
(Address)

_____

The inclusive dates for the information that is to be released, and the **specific information to be released**, are:

From_____ To_____

The release is for the following specific purpose:

- ☐ COMPENSATION CLAIM(S)
- ☐ PRIVATE PHYSICIAN
- ☐ SELF
- ☐ INSURANCE CLAIM(S)
- ☐ ATTORNEY
- ☐ OTHER

If this authorization has not otherwise been revoked or has not expired in accordance with the terms of the duration statement provided above or has not been given for a longer period as set forth in the duration statement, it will terminate one year from the date of the signature.

Signature:	Date:
Signature of Parent or Guardian, if Subject is a Minor:	If the signer is other than the subject individual, indicate the relationship or authority for this request:

Law Enforcement Officers **Attachment - D 4**

What follows is a model of a comprehensive guide to the medical examination and review of applicants and incumbents for firearms-carrying law enforcement positions within the Department of the Interior. It may be used for general reference on the subject, or the materials may be used to implement a full program acceptable to DOI.

THE UNITED STATES DEPARTMENT OF INTERIOR

MEDICAL STANDARDS and REVIEW CRITERIA FOR REVIEWING MEDICAL OFFICERS

THESE STANDARDS ARE APPLICABLE TO THE FOLLOWING POSITION:

[…agency…]

COMMISSIONED LAW ENFORCEMENT OFFICERS

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THE UNITED STATES DEPARTMENT OF INTERIOR

MEDICAL STANDARDS and REVIEW CRITERIA FOR REVIEWING MEDICAL OFFICERS

THESE STANDARDS ARE APPLICABLE TO THE FOLLOWING POSITION:

[…agency…]
COMMISSIONED LAW ENFORCEMENT OFFICERS

General Background

Under 5 CFR Part 339 Medical Qualifications Determinations, medical standards may be established for positions with duties that are arduous or hazardous in nature. The medical standards described in this section are established because of the arduous and hazardous occupational, functional and environmental requirements of the position covered by these standards. The medical standards, which establish minimum requirements for medical fitness that are considered necessary for the safe and efficient performance of the full range of essential functions of […agency…] Commissioned Law Enforcement Officers, are provided to aid the agency medical review officer (MRO), agency Program Manager, and agency officials in identifying those medical problems that may hinder an individual's ability to satisfactorily perform their job without undue risk to self or others. They also are to be used to ensure consistency and uniformity in the application of medical expectations upon applicants and incumbents. Executive Order 11478 (as amended) prohibits discrimination in federal employment because of race, color, religion, sex, national origin, handicap, age, or sexual orientation.

These standards and their application will be guided by the considerations set forth in 5 CFR Part 339, Medical Qualifications Determinations. Listed below are both minimal expectations and examples of medical conditions and/or physical impairments that may be disqualifying. No medical condition may be considered to be disqualifying automatically in its own right. Individualized assessments must be made on a case-by-case basis to determine an individual's ability to meet the requirements of the position covered by these standards and their ability to perform his or her duties in a safe and efficient manner, with or without reasonable accommodation, despite any medical condition that may be present. Final consideration of a medical qualification recommendation may require additional medical information and/or testing that is not routinely required during either the baseline or periodic medical examination.

These medical standards are intended to serve as a general guideline for the safe placement into and the continued working in a hazardous and arduous job position within the Department of Interior's law enforcement program. Each of the medical standards listed in this document is subject to clinical interpretation and application by the agency

MRO who will incorporate into the review of each case his/her knowledge of the job requirements and environmental conditions in which employees may be expected to work.

The medical standards in this document are not listed in order of importance. They are listed in an order that approximates the sequence in which an examination might be carried out, and the resulting pieces of medical information assembled and reviewed by the MRO, but their order is not pertinent. The only pertinent issues are the content of the standards and the context in which they are applied.

The standards and guidelines have been developed using many references and resources, including:

1. 5 CFR-339 Medical Qualifications Determinations

2. A review of existing Federal agency law enforcement medical guidelines and standards

3. Federal agency law enforcement scientific studies, including the U.S. Secret Service study on visual acuity, U. S. Treasury study on radial keratotomy, and U.S. Marshall study on hearing loss

4. State of California law enforcement medical guidelines (Peace Officer Standards and Training, POST), 2004

5. Onsite observation of the performance of law enforcement training and duties by DOI and U.S. Public Health Service personnel.

6. Executive Order 11478 (1969) as amended by Executive Order 13087 (1998).

7. November 10, 2005 DRAFT of DOI Directive 3200: Physical Readiness Program

Rationale for Medical Evaluation and Review of Law Enforcement Positions

The job requirements for law enforcement employees of the DOI are by their nature arduous and hazardous. These job requirements are performed under variable and unpredictable working conditions. Due to these job requirements and working conditions, the DOI has developed an occupational safety and health program that includes medical standards for law enforcement positions in order to insure the following:

1. DOI law enforcement personnel will be able to perform the full range of duties under the conditions under which those duties must be performed.

2. Existing/preexisting medical conditions of DOI law enforcement personnel will not be exacerbated, aggravated, or accelerated.

3. Adherence to DOI's strong commitment to public safety and to maintaining the integrity of mission accomplishment.

The implementation of the DOI occupational safety and health program insures the uniformity, consistency, and defensibility of the DOI medical personnel management decision-making process.

Periodicity of Medical Evaluations

Medical standards apply to all applicants and all incumbent […agency…] Commissioned LEOs on a 24 hour-a-day / 7 day-a-week basis. The generally recommended schedule for medical evaluations of applicants and incumbents in order periodically to assess compliance with these standards is as follows:

Applicants:
(Baseline exam)

Incumbents:
(Periodic exam)

- ages 39 and under: every 3 years
- ages 40 through 44 every 2 years
- ages 45 and above: every year

(Exit exam)

- Within a month prior to separation from a permanent LE position

In addition, the MRO may determine and recommend that, due to health or safety factors, the medical evaluation of an individual employee may require a different schedule, an increased frequency, or additional components for their exam in order to evaluate the medical fitness of the individual to perform the full range of functional requirements of the job.

ESSENTIAL FUNCTIONS AND WORK CONDITIONS OF A
Commissioned […agency…] Law Enforcement Officer

Time/Work Volume	Physical Requirements*	Environment	Physical Exposures
May include:			
• typically a 5-day work week, including nights, weekends and holidays • 8 hour work days with repetitive days exceeding 8 hours • irregular work schedules with consecutive overlapping schedules • numerous off-duty call outs to return to work for emergencies • multiple and consecutive duty assignments without a significant break between • a pace of work set by emergency situations • ability to be deployed at any time in any geographic area for extended assignments up to 21 days • adjust to time zone changes • working independently for extended periods • working in small and large teams for extended periods	• using batons, hand cuffs, pepper spray, tasers and other defensive equipment in self defense and to apprehend and control suspects • demonstrating proficiency with handguns, rifles, and shotguns (e.g. loading, clearing, firing) • using techniques such as ground wrestling, control holds and strikes with hands and feet for self defense and to apprehend and control suspects. • detecting and responding to real and apparent threats (e.g. booby traps, knives, guns, uncooperative suspects) • rigorous exertion in emergency situations • extensive walking, climbing, kneeling, stooping, running, jumping, twisting, bending and standing in place • lifting and carrying at times for distances, more than 50#	• varied climates (e.g. cold, hot, dry, humid, snow, rain) • varied light conditions, ranging from total darkness to extremely intense sun • high altitudes/mountains • heights/tall buildings • very steep terrain • uneven surfaces with holes and drop offs • rocky, loose, or muddy ground surfaces • thick vegetation • down/standing trees • wet slippery vegetation • very rough roads and trails • caves and enclosed natural and made made-type areas • marine settings, such as lakes, open ocean, and swift water • dense swamps • high voltage electrical hazards • isolated/remote areas	• deprived of or extended periods of light (bright sunshine/UV rays), dark, extreme heat and severe cold • airborne particulates • airborne and contact allergens • fumes, gases • burning materials, natural and manmade • blood borne pathogens • hazardous chemicals • snakes and reptiles • threatening wild or domestic, large or small animals • insects/ticks • poisonous plants • falling rocks and trees • close quarters with other officers or the public for extended periods • high noise exposure, including impact/impulse • uncooperative suspects

Time/Work Volume	Physical Requirements	Environment	Physical Exposures
(Continued) May include:			
	• working with limited/disrupted sleep • working with hunger/irregular meals and dehydration • flying in helicopters and fixed wing airplanes • driving for long periods of time • driving under pursuit, evasive, and emergency situations • using boats, airboats, snowmobiles, ATVs, bicycles, horseback, and motorcycle • immersion in water that is over the head when standing • using specialized visual equipment (e.g. night vision goggles, night cameras, infrared) • wearing a variety of heavy PPE on a daily basis (e.g. bulletproof vests, boots, eyewear, 30# gun belt) • wearing respirators and weapons of mass destruction PPE to provide rescue or evacuation assistance	• with no ready access to medical help • areas of natural disaster (e.g. flood, hurricane, tornado, fire) • areas of terrorist attack • non-compliant, combative, and violent persons • large metropolitan setting with heavy vehicle traffic and high volumes of people • extensive interaction with the public • extensive crowds at large events including large scale protests	

**The employee may be required to perform all of the listed Physical Requirements during intensive rigorous training of a repetitive nature for an extended period of time which may exceed three months, in addition to performing these tasks on a regular and recurring basis as part of their regular duties.*

Standard Medical Evaluation Components for […agency…] Commissioned Law Enforcement Officer Examinations

(Note: in response to […agency…] program requirements and operational efficiencies, these evaluation components have been coordinated with those for Structural Firefighters and Divers; if this type of coordination is not applicable to your agency, adjustments should be made accordingly.)

SERVICES, BY CATEGORY

« HISTORIES »

General Medical and Occupational History

« EXAMINATION ITEMS »

General Physical Examination

General Appearance and Vital Signs

Special Attention To:

- Eyes, Ears, Nose, Mouth, and Throat
- Central Nervous System
- Peripheral Nervous System, including sensation, reflexes, and proprioception
- Back & Musculoskeletal System, including strength, ROM, flexibility
- Cardiovascular System
- Genitourinary System
- Gastrointestinal System
- Respiratory System
- Skin
- Thyroid
- Endocrine and Metabolic System

« DIAGNOSTIC TESTS/PROCEDURES »

Audiogram: 500, 1000, 2000, 3000, 4000, 6000, 8000 Hertz in both ears (done yearly for Firearms Instructors; recorded in decibels at each frequency)

Vision - Far Vision Acuity (uncorrected and corrected, each eye separately as well as both together, recorded in Snellen units)

Vision - Near Vision Acuity (best vision with both eyes, with or without correction)

Peripheral Vision (nasal and temporal, recorded in degrees; each eye measured separately)

Depth perception (recorded in seconds of arc, with a clinical assessment to confirm normal functional depth perception if stereopsis is less than 100 sec of arc)

Color Discrimination: Ishihara (minimum of 14 plates) or Farnsworth D-15, AND confirmed ability to distinguish red / green / yellow (amber)

Pulmonary Function Test/Spirometry

Chest X-Ray, PA and lateral (baseline only)

Electrocardiogram, Resting (baseline, periodic [age 40 and above], and exit exams)

TB (Mantoux) skin test (baseline and exit exams only)

« LABORATORY »
Lab Panel
- Complete Blood Count (CBC)
- Urinalysis
- Chemistry panel, including liver function tests and lipid profile

Sickle cell prep (baseline only)

VISION STANDARD

The applicant/incumbent must be able to see well enough to safely and efficiently carry out the requirements of the job. This requires binocular vision, far visual acuity, depth perception, peripheral vision, and color vision, which may be demonstrated by:

- Uncorrected far vision equal to or better than 20/100 in each eye; and
  (Note: successful users of long-wear soft contact lenses who meet the corrected far vision standard are considered to have met the "uncorrected" vision guideline.)

- Far vision that is correctable to 20/20 in each eye; and
- Near vision that is correctable to 20/30 with both eyes; and
  (Note: contact lenses and glasses are acceptable for correction of both near and far vision acuity, but the user must be able to demonstrate that the corrective device(s) can be worn safely and for extended periods of time without significant maintenance, as well as being worn with any necessary personal protective equipment.)
  (Note: orthokeratology, the temporary reduction in myopia by the programmed application of rigid gas-permeable contact lenses, is acceptable for meeting the corrected vision standard as long as individuals wear their lenses according their prescribed schedule and meet the above visual acuity requirements for corrected vision.)
- Normal depth perception; and
- Peripheral vision that is normal (generally considered to be 70-85 degrees in the temporal direction in each eye); and
- Color vision that is sufficient to pass the Ishihara 14 plate series color vision test, or the Farnsworth D-15 color vision test (X-Chrome lenses are not acceptable as a means for correcting color deficiencies), and able to identify red, green, and amber (yellow); and
- Having no ophthalmologic condition that would increase ophthalmic sensitivity to bright light, fumes, or airborne particulates, or susceptibility to sudden incapacitation.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. Any **OPHTHALMOLOGIC CONDITIONS** which causes an individual to be particularly susceptible to environmental exposures, such as sunlight, dusts, fumes, and various volatile compounds.
2. **REFRACTIVE SURGICAL PROCEDURES (e.g., LASIK, Radial Keratotomy, Photorefractive surgery, Keratoplasty, etc.)**
   These operative procedures may be considered acceptable as long as the

individual's vision meets the above standards post-operatively and the operation was performed **AT LEAST** 6 months (for radial keratotomy or photorefractive surgery) or 3 months (for LASIK) before performing in an LEO position. The individual must be free of post-operative complications. The results of an eye examination by a board-certified Ophthalmologist will be required to insure that vision is not impeded due to post-operative complications such as infection, glare, or contrast-sensitivity.

3. **CHRONIC CONJUNCTIVITIS**
   Due to the possible visual impairment and/or increased susceptibility to environmental exposures which could interfere with the job performance, this condition may result in a medical disqualification.
4. **CORNEAL ULCERS**
   This condition generally is disqualifying since essential duties of the position could further exacerbate the condition, in addition to the condition causing impairments of visual acuity. This condition must be treated and cleared by an Ophthalmologist before any further consideration is given.
5. **KERATITIS**
   Any visual impairment associated with keratitis that is likely to interfere with job performance generally is disqualifying.
6. **RETINAL DETACHMENT**
   This condition generally is disqualifying due to the serious visual obstruction and the risk of sudden incapacitation.
7. **RETINITIS PIGMENTOSA**
8. **GLAUCOMA**
   This condition, if confirmed by an ophthalmologist, generally is disqualifying if there is any impairment of peripheral vision.
9. **NIGHT BLINDNESS**
10. **OCULAR LENS IMPLANTATION** may be acceptable following an adequate post surgical recovery period and if visual acuity meets the Vision Standards.
11. **ANY OTHER VISION CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly incapacitated generally is disqualifying.

HEARING STANDARD

The applicant/incumbent must be able to hear well enough to safely and efficiently carry out the requirements of the job (the use of a hearing aid or aids to meet these standards is ***not*** permitted). The standards require binaural hearing (to localize sounds) and auditory acuity, which may be demonstrated by:

- A current pure tone, air conduction audiogram, using equipment and a test setting which meet American National Standards Institute standards (see 29 CFR 1910.95); and

- Documentation of hearing thresholds of no greater than 30 dB at 500, 1000, and 2000 Hz in either ear; and
- Documentation of hearing thresholds of no greater than 40 dB at 3000 Hz in either ear; and
- No evidence by physical examination and medical history of ear conditions (external, middle, or internal) likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **MENIERE'S DISEASE**
2. **VESTIBULAR NEURONITIS**
3. **VERTIGO & PAROXYSMAL POSITIONAL VERTIGO**
4. **ACOUSTIC NEUROMA**
5. **WEGENER S GRANULOMATOSIS**
6. **OTOSCLEROSIS**
7. **COCHLEAR IMPLANTATION**
8. Any **OTHER DISEASE OR DEFECT** of the ear which adversely affects hearing or equilibrium and which may interfere with the safe and efficient job performance generally is disqualifying.

HEAD, NOSE, MOUTH, THROAT AND NECK STANDARD

The applicant/incumbent must have structures and functions of the head, nose, mouth, throat, and neck that are sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the head, nose, mouth, throat, and neck that is within the range of normal variation, including:
  - normal flexion, extension, and rotation of the neck; and
  - open nasal and oral airways; and
  - unobstructed Eustachian tubes; and
  - no structural abnormalities that would prevent the normal use of personal protective equipment, including eyewear; and
- Normal conversational speech; and
- No evidence by physical examination and medical history of head, nose, mouth, throat, or neck conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ANOSMIA**
2. **ARTIFICIAL LARYNX OR ESOPHAGEAL SPEECH**
3. **NECK MASSES, LYMPHADENOPATHY, OR TRACHEOSTOMY**
4. Any **OTHER CHRONIC DISEASE OR CONDITION** which significantly interferes with speech or breathing and bears the potential to render the person suddenly incapacitated is generally disqualifying.

THE DERMATOLOGIC STANDARD

The applicant/incumbent must have skin that is sufficient for the individual to safely and efficiently carry out the requirements of the function. This may be demonstrated by:

- A physical exam of the skin that is within the range of normal variation; and
- No evidence by physical examination and medical history of dermatologic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ALBINISM**
2. **SKIN CANCER** (including melanoma and severe or poorly controlled basal cell or squamous cell carcinoma)
3. **KAPOSI'S SARCOMA**
4. **SEVERE CHRONIC DERMATITIS**
5. Any **OTHER DERMATOLOGIC CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly incapacitated is generally disqualifying.

CENTRAL AND PERIPHERAL NERVOUS SYSTEMS STANDARD

The applicant/incumbent must have a nervous system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the cranial and peripheral nerves and the vestibular and cerebellar system that is within the range of normal variation, including:
  - intact cranial nerves, I-XII; and
  - normal vibratory sense in the hands and feet; and
  - normal proprioception of the major joints; and
  - normal sensation of hot and cold in the hands and feet; and
  - normal sense of touch in the hands and feet; and
  - normal reflexes of the upper and lower extremities; and
  - normal balance (e.g., heel-toe walk; Romberg; balance on one foot); and

- Normal basic mental status evaluation (e.g., person, place, time, current events); and
- No evidence by physical examination and medical history of nervous, cerebellar, or vestibular system conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ATAXIA**
2. **CHOREOATHETOSIS**
3. **HUNTINGTON'S CHOREA**
4. **MULTIPLE SCLEROSIS**
5. **MUSCULAR DYSTROPHY**
6. **NARCOLEPSY**
7. **NEUROFIBROMATOSIS**
8. **PARKINSON S DISEASE**
9. **CEREBROVASCULAR ACCIDENT (STROKE)**
10. **TRANSIENT ISCHEMIC ATTACKS**
11. **SENSORY DYSFUNCTION** (smell, touch, taste).
12. **MIGRAINE CEPHALGIA**
13. Any **OTHER NERVOUS SYSTEM CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly incapacitated is generally disqualifying
14. **SEIZURES OR EPILEPSY**

    An individual with a history of one or more seizures must provide the following written information from a physician who is board certified in neurology. This information is to be provided on the physician's own letterhead, and must include:

    1) the physician's printed or typed name (i.e., legible), signature, and date;
    2) confirmation that the physician has reviewed and is familiar with the requirements of the job, as presented in the Essential Functions And Work Conditions Of A Commissioned [...AGENCY...] Law Enforcement Officer;
    3) a summary of all current medications, along with any known side effects experienced or expected to be experienced by the officer;
    4) the known or suspected triggers or factors that may lead to seizure activity for the officer;
    5) the results of the most recent diagnostic testing, such as an EEG
    6) the officer's overall medical prognosis, related to his/her seizure disorder; and
    7) the estimated risk or likelihood of future seizure activity the officer might experience, of any degree of severity.

PSYCHIATRIC / PSYCHOLOGICAL FUNCTION STANDARD

The applicant/incumbent must have judgment, mental functioning, and social interaction/behavior that will provide for the safe and efficient conduct of the requirements of the job. This may be demonstrated by:

- No evidence by physical examination and medical history of psychiatric or psychological conditions (including alcohol or substance dependence) considered likely to interfere with efficient job performance, present a safety risk to the individual or others, or to worsen as a result of carrying out the essential functions of the job.

Disorders which affect safe and efficient job performance may be disqualifying, and consideration must be given to the individual's history of treatment and control of the condition(s). All diagnoses must be consistent with the diagnostic criteria as established by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), or subsequent revisions. Any condition not listed here shall be considered on a case-by-case basis.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO:

1. **AXIS I DISORDERS**
2. **AXIS II DISORDERS**
3. Any **OTHER PSYCHIATRIC** or **PSYCHOLOGICAL CONDITION** which significantly or potentially interferes with normal function or bears the potential to render the person suddenly incapacitated.

CARDIOVASCULAR SYSTEM STANDARD

The applicant/incumbent must have a cardiovascular system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the cardiovascular system that is within the range of normal variation, including:
  - blood pressure of less than or equal to 140 mmHg systolic and 90 mmHg diastolic; and
  - a normal electrocardiogram at each scheduled exam, as required (minor, asymptomatic arrhythmias may be acceptable); and
  - no pitting edema in the lower extremities, and
  - normal cardiac exam; and
- No evidence by physical examination and medical history of cardiovascular conditions likely to present a safety risk or to worsen as a result of carrying out the

essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **PACEMAKERS**
2. **PROSTHETIC VALVES** or any other condition or post-surgical management that requires the use of Coumadin or other anti-coagulants may be disqualifying.
2. **CORONARY ARTERY DISEASE**.
3. **HYPERTENSION** that requires the use of any medication to stabilize the blood pressure may be disqualifying.
4. **LEFT BUNDLE BRANCH BLOCK.**
5. **MYOCARDITIS/ ENDOCARDITIS/ PERICARDITIS** (Active or recently resolved cases). A past history of these diseases may require additional testing to determine the current capabilities.
6. History of **MYOCARDIAL INFARCTION**.
7. History of **CARDIAC SURGERY** (depending on the procedure and when it was performed).
8. **VALVULAR HEART DISEASE** such as mitral valve stenosis, mitral valve regurgitation, aortic stenosis, mitral valve prolapse, etc.
9. **DYSRHYTHMIAS** such as ventricular tachycardia or fibrillation, Wolff-Parkinson-White syndrome, Paroxysmal Atrial Tachycardia with or without block.
10. **ANGINA PECTORIS** or chest pain of unknown etiology.
11. **CARDIOMYOPATHY** from any cause.
12. **CONGESTIVE HEART FAILURE**
13. **MARFAN'S SYNDROME**
14. **CONGENITAL ANOMALIES**
15. **PACEMAKERS or PROSTHETIC VALVES** are generally disqualifying. Any other condition or post-surgical management that requires the use of Coumadin or other anti-coagulants generally is disqualifying.
16. **IMPLANTED CARDIAC DEFIBRILLATORS**, devices that may, as a result either of their normal operation or a malfunction, render the individual suddenly or subtly incapacitated, generally are disqualifying.
17. Any **OTHER CARDIAC DISEASE OR CONDITION** which significantly interferes with normal cardiac function and bears the potential to render the person suddenly incapacitated is generally disqualifying.

PERIPHERAL VASCULAR SYSTEM STANDARD

The peripheral vascular system involves the veins and arteries of the extremities. The applicant/incumbent must have a vascular system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the vasculature of the upper and lower extremities that is within the range of normal variation, including:
  - no evidence of phlebitis or thrombosis; and
  - no evidence of venous stasis or edema; and
  - no evidence of arterial insufficiency; and
- No evidence by physical examination and medical history of peripheral vasculature conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **CHRONIC VENOUS INSUFFICIENCY**
2. **DEEP VEIN THROMBOSIS**
3. **CHRONIC THROMBOPHLEBITIS**
4. Any **OTHER CHRONIC DISEASE OR CONDITION** which significantly compromises the vascular system and bears the potential to render the person suddenly incapacitated generally is disqualifying.

CHEST AND RESPIRATORY SYSTEM STANDARD

The applicant/incumbent must have a respiratory system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the respiratory system that is within the range of normal variation; and
- A pulmonary function test (PFT) showing:
  - forced vital capacity (FVC) of at least 70% of the predicted value; and
  - forced expiratory volume at 1 second (FEV_1) of at least 70% of the predicted value; and
  - the ratio FEV_1/FVC of at least 70%; and
- No evidence by physical examination and medical history of respiratory conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **SIGNIFICANT OBSTRUCTIVE OR RESTRICTIVE DISORDER.**
2. **ASTHMA** after the age of 12 years must be considered on a case-by-case basis. A person may be requested to submit documentation of a diagnostic assessment

prior to making final recommendations.

3. **ACTIVE PULMONARY TUBERCULOSIS (TB)**: A history of confirmed TB that has been treated for longer than 6 months is acceptable provided that documentation supports the treatment history, confirms that the person has been rendered non-communicable, and the other provisions of the Chest and Respiratory System Standard have been met.
4. **HISTORY OF CHRONIC BRONCHITIS ASSOCIATED WITH DECREASED PFT RESULTS**.
5. **LUNG ABSCESS**
6. **PULMONARY EMBOLISM** (within the past six months or if there is a recurrent history or use of anticoagulants)
7. **SPONTANEOUS PNEUMOTHORAX** (if recurrent, or recent)
8. **EMPHYSEMA**
9. **SARCOIDOSIS** (if associated with an impaired pulmonary function)
10. **PULMONARY INFARCTION**
11. **TUMORS OF THE LUNG**
12. **PNEUMONECTOMY** (if FEV_1 less than 70%)
13. Any **OTHER RESPIRATORY DISEASE OR CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly incapacitated is generally disqualifying.

Note: The requirement to use an inhaler (such as for asthma) requires agency review, and further information may be required related to the individual's history, the causes of bronchospastic episodes or exacerbations, and the response to medications.

GASTROINTESTINAL SYSTEM STANDARD

The applicant/incumbent must have a gastrointestinal tract that is sufficient for the individual to safely and efficiently carry out the requirements of the job. The gastrointestinal (GI) tract should be considered normal from the mouth to the anus by the examining physician. The standard may be demonstrated by:

- A physical exam and evaluation of the mouth, abdomen, anus, and rectum that is within the range of normal variation; and
- Normal liver function and blood chemistry laboratory tests; and
- No evidence by physical examination (including laboratory testing) and medical history of gastrointestinal conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ACUTE AND CHRONIC ACTIVE HEPATITIS**
2. **CROHN'S DISEASE / ULCERATIVE COLITIS / REGIONAL ENTERITIS**

or IRRITABLE BOWEL SYNDROME (Satisfactory control or management of these conditions with surgical and/or medical treatments will be considered on a case-by-case basis.)

3. **COLOSTOMIES**
4. **ILEITIS** (recurrent or chronic)
5. **CHOLECYSTITIS or CHOLELITHIASIS** (symptomatic or asymptomatic)
6. **DIVERTICULITIS** (symptomatic)
7. **DYSPHAGIA** from any cause. Severity, treatment, and current status of these conditions will be reviewed on a case-by-case basis.
8. **CIRRHOSIS OF THE LIVER** (depending upon the degree of severity, the etiology, and the prognosis)
9. **INTESTINAL OBSTRUCTION** from any cause, until the condition has fully resolved
10. **PANCREATITIS**
11. **ACTIVE GASTRIC OR DUODENAL ULCER**
12. **GASTRIC OR BOWEL RESECTION**, if there is any evidence (historical or physical) of pain, hemorrhages, fainting episodes or dietary restrictions that could interfere with the performance of the job.
13. An **UNTREATED (and clinically-significant) INGUINAL, INCISIONAL,** or **VENTRAL HERNIA**.
14. Any **OTHER GASTROINTESTINAL DISEASE OR CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly incapacitated is generally disqualifying.

GENITOURINARY SYSTEM STANDARD

In general, any dysfunction of the genitourinary or reproductive system that has the capability of interfering with the required tasks or rendering the person suddenly incapacitated may be considered disqualifying. The applicant/incumbent must have a genitourinary system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. Compliance with the standard may be demonstrated by:

- A normal clean catch urinalysis; and
- No evidence by physical examination and medical history of genitourinary conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **POLYCYSTIC KIDNEY DISEASE**
2. **ACUTE** or **CHRONIC RENAL FAILURE**
3. **NEPHROTIC SYNDROME**

4. **SYMPTOMATIC URINARY CALCULI**
5. **NEUROGENIC BLADDER**
6. **BERGER'S DISEASE**
7. **HISTORY OF RENAL VEIN THROMBOSIS**
8. **UNCORRECTED OBSTRUCTIVE UROPATHIES**
9. **RENAL TOXICITY**
10. **RENAL TRANSPLANTATION** may be considered disqualifying unless the applicant is not taking immunosuppressive drugs and is cleared medically by the surgeon who performed the operation (or the successor surgical consultant for the individual) to participate in strenuous activities, and to withstand blunt trauma to his/her flanks without a greater than normal risk of harm.
11. Any **OTHER GENITOURINARY DISEASE OR CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly incapacitated is generally disqualifying.

MUSCULOSKELETAL SYSTEM STANDARD

The applicant/incumbent must have a musculoskeletal system that is sufficient for the individual to safely and efficiently carry out the functional requirements of the job. Any condition that adversely impacts an individual's movement, range of motion, agility, flexibility, strength, dexterity, coordination or the ability to accelerate, decelerate and change directions quickly and easily may be considered disqualifying. A healthy musculoskeletal system may be demonstrated by:

- A physical exam of the upper and lower extremities (including all digits), neck, and back that is within the range of normal variation, including strength, flexibility, range of motion, and joint stability; and
- No evidence by physical examination and medical history of musculoskeletal conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ARTHRITIS** (any etiology) if there is limited joint motion and/or pain.
2. **AMPUTATIONS** of one or more digits if it directly affects the ability to grip and handle weapons or other required equipment and tools efficiently.
3. **AMPUTATIONS OF ANY EXTREMITY**.
4. **ANKYLOSING SPONDYLITIS**.
5. **SCOLIOSIS,** if the lateral curve is 20 degrees of more, or if there is any demonstrable loss of normal and pain-free function.
6. **MUSCULAR DYSTROPHY**
7. **LUMBOSACRAL INSTABILITY**, including pain or limitations of flexibility

and strength that limits the individual's ability to stand, bend, stoop, carry heavy objects or sit for long periods of time.

8. **DEGENERATIVE DISC DISEASE** that is symptomatic.
9. **FIXED LORDOSIS OR KYPHOSIS** which limits mobility and skeletal strength.
10. **FRACTURES:** these may require orthopedic evaluation to determine whether functional limitations currently exist. A recent fracture that requires immobilization (or for which limb immobilization is indicated, such as casting, bracing, etc.), and that prevents the safe and efficient performance of the full range of law enforcement duties, will require deferment of the clearance until the injury has healed sufficiently for the treating physician to be able to document that immobilization is no longer required, that no physical limitations are present, and no restrictions are required.
11. **SCIATICA OR OTHER NEUROPATHIES**
12. **CHRONIC LOW BACK PAIN** (by medical history), with or without demonstrable pathology, may be considered disqualifying. Each case will be reviewed in the context of the etiology, the response to therapeutic regimens, frequency of recurrence, exacerbating factors, and lengths of disability associated with the recurrences, combined with the current clinical presentation.
13. A history of a **CHRONIC SPRAIN OR STRAIN OF THE NECK** that limits mobility or causes recurring cephalgia (headaches) may be disqualifying.
14. Evidence of a **CERVICAL RIB, SUBLUXATION, TORTICOLLIS, SYMPTOMATIC THORACIC OUTLET SYNDROME** or a **BRACHIAL CLEFT CYST**
15. Any evidence of a **CERVICAL NEUROPATHY**, including numbness, tingling or loss of motor strength in the upper extremities, may be disqualifying.
16. Any medical condition, congenital or acquired, which interferes with agility, dexterity, the lifting of heavy objects, or the ability to perform the full range of law enforcement duties may be disqualifying.
17. A condition may be disqualifying if there is evidence that the general body symmetry may directly interfere with the safe utilization of issued standard and specialty equipment, including but not limited to handguns, shotguns, handcuffs, motor vehicles, personal protective equipment, etc.

ENDOCRINE AND METABOLIC SYSTEMS STANDARD

Any excess or deficiency in hormone production can produce metabolic disturbances affecting weight, stress adaptation, energy production, and a variety of symptoms or pathology such as elevated blood pressure, weakness, fatigue and collapse. The applicant/incumbent must have endocrine and metabolic functions that are sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the skin, thyroid, and eyes that is within the range of normal variation; and
- Normal fasting blood sugar level; and
- Normal blood chemistry results; and
- No evidence by physical examination (including laboratory testing) and history of endocrine/metabolic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ADRENAL DYSFUNCTION** (such as Addison's Disease or Cushing's Syndrome).
2. **THYROID DISEASE** that is uncontrolled or associated with complications. Hypothyroidism adequately controlled by hormone replacement may be considered acceptable.
3. **PITUITARY DYSFUNCTION**
4. **DIABETES MELLITUS**
5. **HYPERGLYCEMIA**
6. **DIABETES INSIPIDUS**
7. Any **OTHER ENDOCRINE CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly incapacitated generally is disqualifying.

HEMATOPOETIC SYSTEM STANDARD

The applicant/incumbent must have a hematopoietic (blood and blood-producing) system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the skin that is within the range of normal variation; and
- A complete blood count (including at least hemoglobin, hematocrit, platelets, and white blood count, with differential) that is within the normal range; and
    - No evidence by physical examination (including laboratory testing) and medical history of hematopoietic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ANEMIA**
2. **INHERITED CLOTTING DISORDERS (ex. HEMOPHILIA)** generally are disqualifying

3. **CHRONIC LYMPHANGITIS**
4. **THROMBOCYTOPENIA OR CLOTTING DISORDER**
5. **SICKLE CELL ANEMIA**
6. **SPLENOMEGALY**
7. Any **OTHER HEMATOPOETIC CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly incapacitated is generally disqualifying.

PROSTHETICS, TRANSPLANTS, AND IMPLANTS STANDARD

The presence or history of organ transplantation or use of prosthetics or implants are not of themselves disqualifying. However, the applicant/incumbent must be able to safely and efficiently carry out the requirements of the job despite these factors. This may be demonstrated by:

- No evidence by physical examination and medical history that the transplant, the prosthesis, the implant, or the conditions that led to the need for these treatments are likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

Note: For individuals with transplants, prosthetics, or implanted pumps or electrical devices, the examinee will be required to provide for agency review satisfactory documentation from his/her surgeon or physician that the individual (and, if applicable, his/her prosthetic or implanted device) is considered to be fully cleared and compatible with the specified functional requirements of the job.

INFECTIOUS DISEASE / IMMUNE SYSTEM / ALLERGIC DISORDERS STANDARD

The applicant/incumbent must be free of communicable diseases, have a healthy immune system, and be free of significant allergic conditions in order to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A general physical exam of all major body systems that is within the range of normal variation, including:
  - no evidence of current communicable disease that would be expected to interfere with the safe and effective performance of the requirements of the job; and
  - no evidence of current communicable disease that would be expected to pose a threat to the health of any co-workers or the public; and
- Normal complete blood count, including white blood count and differential; and
- No evidence by physical examination and medical history of infectious disease, immune system, or allergy conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE,

BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **HEREDITARY ANGIOEDEMA**
2. **GOODPASTURE'S SYNDROME**
3. **AUTOIMMUNE HEMOLYTIC ANEMIA**
4. **VASCULITIS**
5. **HASHIMOTO'S THYROIDITIS**
6. **MYASTHENIA GRAVIS**
7. **SYSTEMIC LUPUS ERYTHEMATOSUS**
8. **STINGING INSECT ALLERGY**
9. Any **OTHER INFECTIOUS DISEASE, IMMUNE SYSTEM, OR ALLERGIC CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly incapacitated is generally disqualifying.

MEDICATION STANDARD

The need for and use of prescribed or over-the-counter medications are not of themselves disqualifying. However, there must be no evidence by physical examination, laboratory tests, or medical history of any impairment of body function or mental function and attention due to medications that are likely to present a safety risk or to worsen as a result of carrying out the specified functional requirements. Each of the following points should be considered:

1. Medication(s) (type and dosage requirements)
2. Potential drug side effects
3. Drug-drug interactions
4. Adverse drug reactions
5. Drug toxicity or medical complications from-long term use
6. Drug-environmental interactions
7. Drug-food interactions
8. History of patient compliance

All medication requirements will be evaluated to ensure that safe and efficient job performance will not be affected adversely by their use. Medications such as narcotics, sedative hypnotics, barbiturates, amphetamines, or any drug with the potential for addiction or a reduction in attentiveness that are taken for extended periods of time (usually beyond 10 days) or are prescribed for a persistent or recurring underlying condition generally would be considered disqualifying. Cases will be reviewed on a case-by-case basis.

Wildland Firefighters **Attachment - D 5**

This section has been removed to avoid redundancy, potential inconsistencies, and confusion with the official information on wildland firefighters available through other DOI resources. The reader is referred to http://www.nifc.gov/medical_standards/ for further information, required forms, and guidance on the processes to be followed in this important subject area.

Divers **Attachment - D 6**

As covered in the Occupational Safety and Health manual for one DOI agency3, the safety "*of divers is the prime consideration in all diving activities. Supervisors and managers will not promote nor will individual divers attempt difficult or hazardous tasks that compromise diver safety*." As part of this safety emphasis, all DOI divers must be cleared medically according to the individual employing agency's policies and protocols prior to engaging in diving activities. Reflecting the work that has been done by two DOI agencies, the Fish and Wildlife Service (FWS) and the National Park Service (NPS), to establish comprehensive programs for their divers, and the consultative review of the FWS program provided by a specialist in hyperbaric medicine, the basic guidelines for medical exams promulgated by the these agencies have been used as the basis for the model medical standards presented on the following pages. The format used for this model is the one developed for the NPS program (due to it being the most recently updated), and it may serve as a guide for other agencies that wish to develop or review their own policies in comparison with those established for the NPS and FWS.

3 Fish and Wildlife Service Occupational Safety and Health Manual, Part 241 (Safety Operations), Chapter 10 (Diving Safety)

THE UNITED STATES DEPARTMENT OF INTERIOR

MEDICAL STANDARDS and REVIEW CRITERIA FOR REVIEWING MEDICAL OFFICERS

THESE STANDARDS ARE APPLICABLE TO THE FOLLOWING POSITION:

[…agency…]
DIVERS

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THE UNITED STATES DEPARTMENT OF INTERIOR

MEDICAL STANDARDS and REVIEW CRITERIA FOR REVIEWING MEDICAL OFFICERS

THESE STANDARDS ARE APPLICABLE TO THE FOLLOWING POSITION:

[…agency…]
DIVERS

General Background

Under 5 CFR Part 339 (Medical Qualifications Determinations), medical standards may be established for positions with duties that are arduous or hazardous in nature. The medical standards described in this section have been established because of the recognized arduous and hazardous occupational, functional and environmental requirements of the position covered by these standards. These medical standards, which establish the minimum requirements for medical fitness that are considered necessary for the safe and efficient performance of the full range of essential functions of divers, are provided to aid the agency reviewing medical officer (RMO), the […agency…] Medical Standards Program Manager, other agency officials, and covered applicants and incumbent employees in identifying those medical problems that may hinder an individual's ability to perform their job satisfactorily and without undue risk to self or others. They also are to be used to ensure consistency and uniformity in the application of medical expectations to applicants and incumbents. Executive Order 11478 (as amended) prohibits discrimination in federal employment because of race, color, religion, sex, national origin, handicap, age, or sexual orientation.

These standards and their application will be guided by the considerations set forth in 5 CFR Part 339. This document presents both minimal expectations and examples of medical conditions and/or physical impairments that may be incompatible with safe and efficient job performance and, as a result, be disqualifying. However, no medical condition may be considered to be disqualifying automatically in its own right. Individualized assessments must be made on a case-by-case basis to determine an individual's ability to meet the requirements of the position covered by these standards and their ability to perform his or her duties in a safe and efficient manner, with or without reasonable accommodation, despite any medical condition that may be present. Final agency consideration of an RMO's medical qualification recommendation may require additional medical information and/or testing that is not routinely required during either the baseline or periodic medical examination.

These medical standards are intended to serve as a general guideline for the safe placement into and the continued working in a hazardous and arduous job position within the […agency…] diving program. Each of the medical standards listed in this document

is subject to clinical interpretation and application by the agency RMO who will incorporate into the review of each case his/her knowledge of the job requirements and environmental conditions in which employees may be expected to work.

The medical standards in this document are not listed in order of importance. They are listed in an order that approximates the sequence in which an examination might be carried out, and the resulting pieces of medical information assembled and reviewed by the RMO, but their order is not pertinent. The only pertinent issues are the content of the standards and the context in which they are applied.

The standards and guidelines have been developed using many references and resources, many of which are listed here:

1. 5 CFR 339 (Medical Qualifications Determinations)

2. 29 CFR 1910, Subpart T, Appendix B: Guidelines for Scientific Diving

3. NPS Reference Manual #4: Diving Management

4. U.S. Fish and Wildlife Service Transmittal Sheet: Part 241 FW 10: Safety Operations, Diving Safety

5. U.S. Fish and Wildlife Service SCUBA Diving Medical Examination Form

6. U.S. Navy: Manual of the Medical Department (NAVMED P-117): Chapter 15, Section III: Standards for Enlistment and Commissioning; and Article 15-102: Diving Duty Examinations and Standards

7. National Oceanic and Atmospheric Administration (NOAA) Diving Medical Evaluation Criteria

7. The American Academy of Underwater Sciences (AAUS): Standards for Scientific Diving

8. Executive Order 11478 (1969), as amended by Executive Order 13087 (1998)

Rationale for Medical Evaluation and Review of Diving Positions

The job requirements for employees of the DOI who dive are by their nature arduous and hazardous, and they are performed under variable and unpredictable working conditions. Due to these job requirements and working conditions, the DOI and […agency…] have developed an occupational safety and health program that includes medical standards for positions that require diving in order to insure the following:

1. Personnel who dive will be able to perform the full range of duties safely and efficiently under the conditions under which those duties must be performed.

2. Existing/preexisting medical conditions of personnel who dive will not be exacerbated, aggravated, accelerated, or permanently worsened as a result of the essential functions of the job.

3. Adherence to DOI's and […agency…]' strong commitment to public safety and to maintaining the integrity of mission accomplishment.

The implementation of the DOI and […agency…] occupational safety and health program insures the uniformity, consistency, and defensibility of the DOI medical personnel management decision-making process.

Periodicity of Medical Evaluations

In response to program requirements and operational efficiencies, the periodicity of evaluations for divers is coordinated with those for structural firefighters and law enforcement officers. However, medical standards apply to all applicants and all incumbent divers on a 24 hour-a-day / 7 day-a-week basis, not just at the time of their scheduled examinations and clearance reviews. The schedule for medical evaluations of applicant and incumbent divers in order periodically to assess compliance with these standards is as follows:

Applicants: Baseline exam: after the job offer, but prior to placement
Incumbents: Periodic exams:

- ages 39 and under: every 3 years
- ages 40 through 44: every 2 years
- ages 45 and above: every year

Exit exam: within a month of separation from a diving position

In addition, the RMO may determine and recommend that, due to health or safety factors, the medical evaluation of an individual employee may require a different schedule, an increased frequency, or additional components for the exam in order to evaluate the medical fitness of an individual to perform the full range of functional requirements of the job.

ESSENTIAL FUNCTIONS AND WORK CONDITIONS OF A […agency…] DIVER

Time/Work Volume	Physical Requirements	Environment	Physical Exposures
May include:			
• long hours (up to 12 hour shifts) • irregular hours • shift work • time zone changes • multiple and consecutive assignments • conduct up to 3 hour dives • swim 75 feet totally underwater, then swim 1,200 feet, each without swim aids, with a combined time of 15 minutes or less • tread water without swim aids for 10 minutes	• lift and carry more than 50# • lift and load heavy equipment • drive or ride for many hours • work on small and large teams • arduous exertion • extensive climbing, swimming • kneeling, stooping, twisting, bending • put on and wear wet suits or dry suits • put on, carry, and use 35# tanks • fine manipulation of tools and equipment • wear full face mask, to allow for underwater communications or for excessively cold water work • work on various floating platforms, including skiffs, 18-26' boats, 22-45' landing-type crafts, and other boats • climb into and out of floating boats and platforms, even when nearly exhausted • use a snorkel • dive to 100' or more • provide rescue or evacuation assistance	• uneven terrain • rocky, loose, wet, or muddy ground surfaces • wet leaves/grasses • varied climates (cold/hot/wet/dry/humid/ snow/rain) • varied light conditions, including dim light or darkness, above and below water • high altitudes • very rough roads • natural and manmade bodies of water • isolated/remote sites • no ready access to medical help • under water vegetation, trees, and other entanglement hazards • marine environment • live boats (unanchored) • rough wave conditions • swells on open water • confined spaces, both above and below water • deep water (>100 feet) • under water currents	• light (bright sunshine, UV) • extreme heat (>100°F) • extreme cold • extreme and rapid temperature variations • variations in pressure, ranging from 1 to 4 atmospheres • loud noises • poisonous or hazardous aquatic plants and animals • boats and other large equipment • close quarters, large numbers of other workers • hunger/irregular meals • dehydration • under water rock hazards • falls • hazardous petroleum products

Standard Medical Evaluation Components for […agency…] Diver Examinations

(Note: in response to […agency…] program requirements and operational efficiencies, these evaluation components have been coordinated with those for Structural Firefighters and Law Enforcement Officers)

SERVICES, BY CATEGORY

« HISTORIES »

General Medical and Occupational History

Noise Exposure History

« EXAMINATION ITEMS »

General Appearance and Vital Signs

General Physical Examination

Special Attention To:

- Skin
- Head, Eyes, Ears (including TM movement), Nose, Mouth, and Throat
- Thyroid
- Endocrine and Metabolic System
- Cardiovascular System, including peripheral vasculature
- Respiratory System
- Central Nervous System
- Peripheral Nervous System, including sensation, reflexes, and proprioception
- Back & Musculoskeletal System, including strength, ROM, flexibility, stability
- Genitourinary System, including inguinal ring
- Gastrointestinal System, including umbilicus and abdominal wall

« DIAGNOSTIC TESTS/PROCEDURES »

Audiogram: 500, 1000, 2000, 3000, 4000, 6000, 8000 Hertz in both ears

Vision - Far Vision Acuity (uncorrected and corrected, each eye separately as well as both together, recorded in Snellen units)

Vision - Near Vision Acuity (best vision, using both eyes)

Peripheral Vision (nasal and temporal, recorded in degrees; each eye separately)

Depth perception (recorded in seconds of arc, with a clinical assessment to confirm normal functional depth perception if stereopsis is less than 40 sec of arc)

Color Discrimination (baseline only)

Pulmonary Function Test/Spirometry

Chest X-Ray, PA and lateral (baseline only)

PPD (tuberculosis skin test) (baseline only)

Electrocardiogram, Resting (baseline, periodic [age 40 and above], and exit exams)

« LABORATORY »

Lab Panel

- Complete Blood Count (CBC)
- Urinalysis
- Chemistry panel, including fasting glucose, electrolytes, renal function, liver function, and cardiac risk factor assessment

Blood type and Group (baseline only)

Sickle cell prep (baseline only)

VISION STANDARD

The applicant/incumbent must be able to see well enough to safely and efficiently carry out the requirements of the job. This requires binocular vision, far visual acuity, depth perception, peripheral vision, and color vision, which may be demonstrated by:

- Uncorrected far vision equal to or better than 20/50 in each eye (successful users of long-wear soft contact lenses who meet the corrected far vision standard are considered to have met the "uncorrected" vision guideline); and
- Far vision that is correctable to 20/25 or better in each eye; and
- Near vision that is correctable to 20/40 or better with both eyes together (contact lenses and glasses are acceptable for correction of both near and far vision acuity, but the user must be able to demonstrate that the corrective device(s) can be worn safely and for extended periods of time without significant maintenance, as well as being worn with any necessary personal protective equipment); and
- Normal depth perception; and
- Peripheral vision that is normal (generally considered to be 70 degrees or greater in the temporal direction in each eye); and
- Color vision sufficient to identify red, green, and amber (yellow); and
- Having no ophthalmologic condition, including recent ocular surgery, that would increase susceptibility to sudden incapacitation.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **REFRACTIVE SURGICAL PROCEDURES (e.g., LASIK, Radial Keratotomy, Photorefractive surgery, Keratoplasty, etc.)**
   These operative procedures may be considered acceptable as long as the individual has been cleared for diving by a board-certified Ophthalmologist, vision screening meets the above standards, and the operation was performed **AT LEAST** 6 months (for radial keratotomy or photorefractive surgery) or 3 months (for LASIK) before performing in a diving position
2. **OCULAR LENS IMPLANTATION** may be acceptable following an adequate post surgical recovery period if visual acuity meets the Vision Standards, and if the diver has been cleared by his Ophthalmologist for diving
3. **CHRONIC CONJUNCTIVITIS**
   Due to the possible visual impairment and/or increased susceptibility to environmental exposures which could interfere with the job performance, this condition may result in a medical disqualification
4. **CORNEAL ULCERS**
   This condition generally is disqualifying since essential duties of the position could further exacerbate the condition, in addition to the condition causing impairments of visual acuity; this condition must be treated and the diver cleared

by an Ophthalmologist before an agency clearance decision is made

5. **GLAUCOMA**, if inadequately treated, or if there is any impairment of peripheral vision, may be disqualifying
6. **ANY OTHER VISION CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly or subtly incapacitated generally is disqualifying

HEARING STANDARD

The applicant/incumbent must be able to hear well enough to safely and efficiently carry out the requirements of the job. The standards require auditory acuity, which may be demonstrated by:

- A current pure tone, air conduction audiogram, using equipment and a test setting which meet American National Standards Institute standards (see 29 CFR 1910.95); and
- Documentation of hearing thresholds of no greater than 30 dB at 500, 1000, and 2000 Hz in either ear; and no greater than 45 dB at 3000 Hz in either ear; and no greater than 55 dB at 4000 Hz in either ear; and
- No evidence by physical examination and medical history of ear conditions (external, middle, or internal) likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **MENIERE'S DISEASE**
2. **VESTIBULAR NEURONITIS**
3. **VERTIGO & PAROXYSMAL POSITIONAL VERTIGO**
4. **ACOUSTIC NEUROMA**
5. **OTOSCLEROSIS**
6. **CHOLESTEATOMA**
7. **STAPEDECTOMY OR MIDDLE EAR RECONSTRUCTIVE SURGERY**
8. **CURRENT TYMPANIC MEMBRANE PERFORATION (FULLY HEALED PERFORMATIONS MAY BE ACCEPTABLE)**
9. **OBSTRUCTED EUSTACHIAN TUBE**
10. **ACUTE OR CHRONIC EAR INFECTIONS (INTERNAL, MIDDLE, OR EXTERNAL)**
11. **MASTOIDITIS OR SURGERY**
12. **CERUMEN OBSTRUCTION OF THE EXTERNAL CANAL**
13. Any **OTHER DISEASE OR DEFECT** of the ear which adversely affects hearing or equilibrium and which may interfere with the safe and efficient job performance generally is disqualifying

HEAD, NOSE, MOUTH, THROAT AND NECK STANDARD

The applicant/incumbent must have structures and functions of the head, nose, mouth, throat, and neck that are sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the head, nose, mouth, throat, and neck that is within the range of normal variation, including:
  - normal flexion, extension, and rotation of the neck; and
  - open nasal and oral airways; and
  - unobstructed Eustachian tubes; and
  - no structural abnormalities that would prevent the normal use of self contained underwater breathing apparatus; and
- Normal conversational speech; and
- No evidence by physical examination and medical history of head, nose, mouth, throat, or neck conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **NECK MASSES, LYMPHADENOPATHY, TRACHEOSTOMY, OR TRACHEAL FISTULA**
2. **ACUTE OR CHRONIC SINUSITIS**
3. **HEAD INJURY WITH SEQUELAE**
4. **ACUTE OR CHRONIC DENTAL DISEASE, INCLUDING CARIES AND PERIODONTITIS**
5. **ACUTE OR CHRONIC SOFT TISSUE INFECTION OR DISEASE**
6. Any **OTHER CHRONIC DISEASE OR CONDITION** which significantly interferes with speech or breathing and bears the potential to render the person suddenly incapacitated is generally disqualifying

DERMATOLOGIC STANDARD

The applicant/incumbent must have skin that is sufficient for the individual to safely and efficiently carry out the requirements of the function. This may be demonstrated by:

- A physical exam of the skin that is within the range of normal variation; and
- No evidence by physical examination and medical history of dermatologic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **SKIN CANCER** (including melanoma and severe or poorly controlled basal cell or squamous cell carcinoma)
2. **SEVERE, CHRONIC, OR CONTACT DERMATITIS (IF DUE TO MATERIALS LIKELY TO BE ENCOUNTERED IN PPE OR SCUBA)**
3. **ANY OPEN SKIN LESIONS, UNTIL WELL HEALED**
4. Any **OTHER DERMATOLOGIC CONDITION** which significantly interferes with normal function or bears the potential to render the person suddenly or subtly incapacitated, or to be aggravated by prolonged exposure to water or occlusive coverings, generally is disqualifying

CENTRAL AND PERIPHERAL NERVOUS SYSTEMS STANDARD

The applicant/incumbent must have a nervous system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the cranial and peripheral nerves and the vestibular and cerebellar system that is within the range of normal variation, including:
  - intact cranial nerves, I-XII; and
  - normal vibratory sense in the hands and feet; and
  - normal proprioception of the major joints; and
  - normal sensation of hot and cold in the hands and feet; and
  - normal sense of touch in the hands and feet; and
  - normal reflexes of the upper and lower extremities; and
  - normal balance (e.g., heel-toe walk; Romberg; balance on one foot); and
- Normal basic mental status evaluation (e.g., person, place, time, current events); and
- No evidence by physical examination and medical history of nervous, cerebellar, or vestibular system conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **HISTORY OF NEUROLOGICAL DECOMPRESSION ILLNESS WITH RESIDUAL DEFICIT**
2. **HEAD INJURY WITH SEQUELAE**
3. **ATAXIA**
4. **MUSCULAR DYSTROPHY**

5. **NARCOLEPSY**
6. **SYNCOPE (FAINTING SPELLS)**
7. **PARKINSON S DISEASE**
8. **CEREBROVASCULAR ACCIDENT (STROKE), OR FIXED NEUROLOGICAL DEFICIT**
9. **INTRACRANIAL TUMOR, ANEURYSM, HEMORRHAGE, OR VASCULAR MALFORMATION** until at least 3 months after surgical correction, and with clearance by surgeon
10. **TRANSIENT ISCHEMIC ATTACKS OR RECURRING NEUROLOGICAL DISORDERS**
11. **SENSORY DYSFUNCTION** (smell, touch, taste).
12. **MIGRAINE HEADACHES, IF ACCOMPANIED BY AURA, SENSORY IMPAIRMENT, PHOTOPHOBIA, OR NAUSEA AND VOMITING**
13. **ORGANIC BRAIN DISEASE**
14. History of or current **CENTRAL NERVOUS SYSTEM SHUNT**
15. Any **OTHER NERVOUS SYSTEM CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly incapacitated is generally disqualifying
16. **EPILEPSY OR SEIZURES OF ANY TYPE**
    An individual with a history of one or more seizures must provide the following written information from a physician who is board certified in neurology. This information is to be provided on the physician's own letterhead, and must include:
    1) the physician's printed or typed name (i.e., legible), signature, and date;
    2) confirmation that the physician has reviewed and is familiar with the requirements of the job, as presented in the Essential Functions And Work Conditions of a National Park Service Diver;
    3) a summary of all current medications, along with any known side effects experienced or expected to be experienced by the diver;
    4) the known or suspected triggers or factors that may lead to seizure activity for the diver;
    5) the results of the most recent diagnostic testing, such as an EEG
    6) the diver's overall medical prognosis, related to his/her seizure disorder; and
    7) the estimated risk or likelihood of future seizure activity the diver might experience, of any degree of severity

PSYCHIATRIC / PSYCHOLOGICAL FUNCTION STANDARD

The applicant/incumbent must have judgment, mental functioning, and social interaction/behavior that will provide for the safe and efficient conduct of the requirements of the job. This may be demonstrated by:

- No evidence by physical examination and medical history of psychiatric or psychological conditions (including untreated or unsuccessful treatment for alcohol or substance abuse) considered likely to interfere with efficient job performance, present a safety risk to the individual or others, or to worsen as a result of carrying out the essential functions of the job.

Disorders which affect safe and efficient job performance may be disqualifying, and consideration must be given to the individual's history of treatment and control of the condition(s). All diagnoses must be consistent with the diagnostic criteria as established by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), or subsequent revisions. Any condition not listed here shall be considered on a case-by-case basis.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO:

1. **AXIS I DISORDERS (PYSCHIATRIC CLINICAL DISORDERS)**
2. **AXIS II DISORDERS (PERSONALITY DISORDERS)**

With particular attention to:

3. **CLAUSTROPHOBIA OR OTHER PERTINENT PHOBIAS**
4. **SUICIDAL IDEATION, GESTURES, OR ATTEMPTS**
5. **UNTREATED OR INADEQUATELY TREATED DEPRESSION OR ANXIETY DISORDER**
6. Any **OTHER PSYCHIATRIC** or **PSYCHOLOGICAL CONDITION** which significantly or potentially interferes with normal function or bears the potential to render the person suddenly or subtly incapacitated

CARDIOVASCULAR SYSTEM STANDARD

The applicant/incumbent must have a cardiovascular system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the cardiovascular system that is within the range of normal variation, including:
    - blood pressure of less than or equal to 140 mmHg systolic and 90 mmHg diastolic; and
    - a normal electrocardiogram at baseline and at each scheduled exam after age 40 (minor, asymptomatic arrhythmias may be acceptable); and
    - no pitting edema in the lower extremities, and
    - normal cardiac exam; and

- No evidence by physical examination and medical history of cardiovascular conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **CORONARY ARTERY DISEASE**
2. **LEFT BUNDLE BRANCH BLOCK**
3. **MYOCARDITIS/ ENDOCARDITIS/ PERICARDITIS** (Active or recently resolved cases) A past history of these diseases may require additional testing to determine the current capabilities
4. History of **MYOCARDIAL INFARCTION**
5. History of **CARDIAC SURGERY**, depending on the time that has been allowed for recovery, the recovery of aerobic fitness (13 METS or greater is recommended), and a clearance by the treating surgeon or cardiologist to return to unrestricted diving
6. **SYMPTOMATIC VALVULAR HEART DISEASE (INCLUDING MITRAL VALVE PROLAPSE)**
7. **ATRIAL SEPTAL DEFECT** (note: while screening for the condition is not required for a diving medical clearance, the known presence of a **PATENT FORAMEN OVALE**, or **PFO**, does not preclude a clearance so long as the diving officer has been notified regarding the need to avoid diving circumstances where the risk of bubble formation is increased)
8. **DYSRHYTHMIAS** such as ventricular tachycardia or fibrillation, Wolff-Parkinson-White syndrome, Paroxysmal Atrial Tachycardia with or without block
9. **ANGINA PECTORIS** or chest pain of unknown etiology
10. **CARDIOMYOPATHY** from any cause
11. **CONGESTIVE HEART FAILURE**
12. **PACEMAKERS** generally are disqualifying, depending on the reason for the pacemaker; individuals considered for clearance must be able to document that their pacemaker is capable of withstanding (and operating normally) under conditions expected to be encountered while diving (e.g., pressures associated with dives of 100 feet or more, and rapid changes in pressure)
13. **PROSTHETIC VALVES**, depending on the time that has been allowed for recovery, the recovery of aerobic fitness (13 METS or greater is recommended), and a clearance by the treating surgeon or cardiologist to return to unrestricted diving; any other condition or post-surgical management that requires the use of Coumadin or other anti-coagulants generally is disqualifying unless the individual documents that the anticoagulation is regularly monitored, stable, and within INR targets prescribed by the treating physician
14. **IMPLANTED CARDIAC DEFIBRILLATORS**, devices that may, as a result either of their normal operation or a malfunction, render the individual suddenly or subtly incapacitated, generally are disqualifying

15. Any **OTHER CARDIAC DISEASE OR CONDITION** which significantly interferes with normal cardiac function and bears the potential to render the person suddenly incapacitated is generally disqualifying

PERIPHERAL VASCULAR SYSTEM STANDARD

The peripheral vascular system involves the veins and arteries of the head, neck, and upper and lower extremities. The applicant/incumbent must have a vascular system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the vasculature of the head, neck, and upper and lower extremities that is within the range of normal variation, including:
  - no evidence of phlebitis or thrombosis; and
  - no evidence of venous stasis or edema; and
  - no evidence of arterial insufficiency; and
- No evidence by physical examination and medical history of peripheral vasculature conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ARTERITIS**
2. **CHRONIC VENOUS INSUFFICIENCY**
3. **DEEP VEIN THROMBOSIS**
4. **CHRONIC THROMBOPHLEBITIS**
5. **SYMPTOMATIC VARACOSE VEINS**
6. **RAYNAUD'S DISEASE**
7. Any **OTHER CHRONIC DISEASE OR CONDITION** which significantly compromises the vascular system and bears the potential to render the person suddenly incapacitated generally is disqualifying; any condition that requires the use of Coumadin or other anti-coagulants generally is disqualifying unless the individual documents that the anticoagulation is regularly monitored, stable, and within INR targets prescribed by the treating physician

CHEST AND RESPIRATORY SYSTEM STANDARD

The applicant/incumbent must have a respiratory system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the respiratory system that is within the range of normal variation; and
- A pulmonary function test (PFT) showing:
  - forced vital capacity (FVC) of at least 70% of the predicted value; and
  - forced expiratory volume at 1 second (FEV_1) of at least 70% of the predicted value; and
  - the ratio FEV_1/FVC of at least 70%; and
- No evidence by physical examination and medical history of respiratory conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **SIGNIFICANT OBSTRUCTIVE OR RESTRICTIVE DISORDER**
2. **ASTHMA** after the age of 12 years must be considered on a case-by-case basis; individuals whose asthma is stable, well controlled, and does not preclude normal lung function, may be cleared; documentation of a current diagnostic assessment prior to making final recommendations may be necessary
3. **ACTIVE PULMONARY TUBERCULOSIS (TB)**: A history of confirmed TB that has been treated for longer than 6 months is acceptable provided that documentation supports the treatment history, confirms that the person has been rendered non-communicable, and the other provisions of the Chest and Respiratory System Standard have been met
4. **HISTORY OF CHRONIC OR RECURRENT BRONCHITIS ASSOCIATED WITH DECREASED PFT RESULTS**.
5. **LUNG ABSCESS, EMPYEMA, BLEBS, OR CYSTS**
6. **PLEURISY WITH EFFUSION**
7. **PULMONARY EMBOLISM** within the past six months; any condition that requires the use of Coumadin or other anti-coagulants generally is disqualifying unless the individual documents that the anticoagulation is regularly monitored, stable, and within INR targets prescribed by the treating physician
8. History of **SPONTANEOUS PNEUMOTHORAX**
9. History of **PULMONARY BAROTRAUMA** (e.g., mediastinal or subcutaneous emphysema) resulting from a dive in which there were no known procedural violations, or any **SUBSEQUENT CASE OF PULMONARY BAROTRAUMA**, regardless of circumstances
10. History of **TRAUMATIC PNEUMOTHORAX** (if recurrent, or recent)
11. **GENERALIZED OR BULLOUS EMPHYSEMA**
12. **ACUTE OR CHRONIC UPPER RESPIRATORY INFECTION**
13. **PNEUMONECTOMY OR LOBECTOMY** (if FEV_1 less than 70%)
14. **OTHER OPEN CHEST SURGERY** until fully recovered and cleared by the surgeon or pulmonologist to confirm a lack of air trapping

15. Any **OTHER RESPIRATORY DISEASE OR CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly incapacitated is generally disqualifying

Note: The requirement to use an inhaler (such as for asthma) requires agency review, and further information may be required related to the individual's history, the causes of bronchospastic episodes or exacerbations, and the response to medications.

GASTROINTESTINAL SYSTEM STANDARD

The applicant/incumbent must have a gastrointestinal (GI) tract that is sufficient for the individual to safely and efficiently carry out the requirements of the job. The standard may be demonstrated by:

- A physical exam and evaluation of the GI tract, including the mouth, throat, abdomen, rectum, and anus, that is within the range of normal variation; and
- Normal liver function and blood chemistry laboratory tests; and
- No evidence by physical examination (including laboratory testing) and medical history of GI conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ACUTE OR CHRONIC ACTIVE HEPATITIS**
2. **CROHN'S DISEASE / ULCERATIVE COLITIS / REGIONAL ENTERITIS or IRRITABLE BOWEL SYNDROME** (Satisfactory control or management of these conditions with surgical and/or medical treatments will be considered on a case-by-case basis)
3. **COLOSTOMY**
4. **SYMPTOMATIC CHOLECYSTITIS or CHOLELITHIASIS**
5. **DIVERTICULITIS** (symptomatic)
6. **CIRRHOSIS OF THE LIVER** (depending upon the degree of severity, the etiology, and the prognosis)
7. **GASTRIC OR INTESTINAL OBSTRUCTION** from any cause, until the condition has fully resolved
8. History of **GASTRIC OR BOWEL RESECTION**, until symptom-free and fully and successfully recovered from surgery
9. History of **GASTRIC BYPASS SURGERY**
10. **ACTIVE GASTRIC OR DUODENAL ULCER**
11. **SYMPTOMATIC GASTRO-ESOPHAGEAL REFLUX DISEASE**
12. Clinically-significant or bowel encompassing **INGUINAL, INCISIONAL, HIATAL,** or **VENTRAL HERNIA**

13. **ACHALASIA**
14. **ACTIVE (BLEEDING, LARGE, OR SYMPTOMATIC) HEMORRHOIDS**
15. Any **OTHER GASTROINTESTINAL DISEASE OR CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly incapacitated is generally disqualifying

GENITOURINARY SYSTEM STANDARD

In general, any dysfunction of the genitourinary or reproductive system that has the capability of interfering with the required tasks or rendering the person suddenly incapacitated may be considered disqualifying. The applicant/incumbent must have a genitourinary system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. Compliance with the standard may be demonstrated by:

- A normal clean catch urinalysis; and
- No evidence by physical examination and medical history of genitourinary conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **POLYCYSTIC KIDNEY DISEASE**
2. **ACUTE** or **CHRONIC RENAL FAILURE**
3. **NEPHROTIC SYNDROME**
4. **SYMPTOMATIC URINARY CALCULI**
5. **NEUROGENIC BLADDER**
6. **HISTORY OF RENAL VEIN THROMBOSIS**
7. **UNCORRECTED OBSTRUCTIVE UROPATHIES**
8. History of **ENURESIS OR URINARY INCONTINENCE** (after age 13)
9. Any **OTHER GENITOURINARY DISEASE OR CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly incapacitated is generally disqualifying

MUSCULOSKELETAL SYSTEM STANDARD

The applicant/incumbent must have a musculoskeletal system that is sufficient for the individual to safely and efficiently carry out the functional requirements of the job. Any condition that adversely impacts an individual's movement, range of motion, agility, flexibility, strength, dexterity, or coordination may be incompatible with the activities inherent with diving. A healthy musculoskeletal system may be demonstrated by:

- A physical exam of the upper and lower extremities (including all digits), neck, and back that is within the range of normal variation, including strength, flexibility, range

of motion, and joint stability; and

- No evidence by physical examination and medical history of musculoskeletal conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ARTHRITIS** (any etiology) if there is limited joint motion and/or pain
2. **OSTEONECROSIS, IF IT INVOLVES ANY ARTICULAR SURFACE**
3. **AMPUTATIONS** of one or more phalanges or digits if it directly affects the ability to grip and handle any required equipment or tools efficiently
4. **AMPUTATIONS OF ANY EXTREMITY**
5. **ANKYLOSING SPONDYLITIS OR ANY INFLAMMATORY OR SYMPTOMATIC SPONDYLOPATHY**
6. **SCOLIOSIS,** if a lumbar curve is 20 degrees of more, or if a thoracic curve is 30 degrees or more, or if there is any demonstrable loss of normal and pain-free function.
7. **LUMBOSACRAL INSTABILITY**, including pain or limitations of flexibility and strength that limits the individual's ability to stand, bend, stoop, carry heavy objects or sit for long periods of time
8. **DEGENERATIVE DISC DISEASE** that is symptomatic
9. **FIXED LORDOSIS OR KYPHOSIS** which limits mobility and skeletal strength
10. **SURGICAL FUSION OF SPINAL VERTEBRAE**
11. **FRACTURES:** these may require orthopedic evaluation to determine whether functional limitations currently exist; a recent fracture that requires immobilization (or for which limb immobilization is indicated, such as casting, splinting, bracing, etc.), and that prevents the safe and efficient performance of the full range of diving duties, will require deferment of the clearance until the injury has healed sufficiently for the treating physician to be able to document that immobilization is no longer required, that no physical limitations are present, and no restrictions are required
12. **SCIATICA OR OTHER NEUROPATHIES**
13. **CHRONIC LOW BACK PAIN** (by medical history), with or without demonstrable pathology, may be considered disqualifying; each case will be reviewed in the context of the etiology, the response to therapeutic regimens, frequency of recurrence, exacerbating factors, and lengths of disability associated with the recurrences, combined with the current clinical presentation
14. A history of a **CHRONIC SPRAIN OR STRAIN OF THE NECK** that limits mobility or causes recurring cephalgia (headaches) may be disqualifying
15. Evidence of a **CERVICAL RIB, SUBLUXATION, TORTICOLLIS, SYMPTOMATIC THORACIC OUTLET SYNDROME** or a **BRACHIAL CLEFT CYST**

16. Any evidence of a **CERVICAL NEUROPATHY** that is associated with numbness, tingling or loss of motor strength in the upper extremities may be disqualifying
17. Any medical condition, congenital or acquired, which interferes with agility, dexterity, the lifting of heavy objects, or the ability to perform the full range of diving duties may be disqualifying
18. A condition may be disqualifying if there is evidence that the general body symmetry may directly interfere with the safe utilization of issued standard and specialty diving equipment

ENDOCRINE AND METABOLIC SYSTEMS STANDARD

Any excess or deficiency in hormone production can produce metabolic disturbances affecting weight, stress adaptation, energy production, and a variety of symptoms or pathology such as elevated blood pressure, weakness, fatigue and collapse. The applicant/incumbent must have endocrine and metabolic functions that are sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the skin, thyroid, and eyes that is within the range of normal variation; and
- Normal fasting blood sugar level; and
- Normal blood chemistry results; and
- No evidence by physical examination (including laboratory testing) and history of endocrine/metabolic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ADRENAL DYSFUNCTION** (such as Addison's Disease or Cushing's Syndrome)
2. **THYROID DISEASE** that is uncontrolled or associated with complications; hypothyroidism adequately controlled by hormone replacement may be considered acceptable
3. **PITUITARY DYSFUNCTION**
4. **DIABETES MELLITUS**, unless documented to be stable and well controlled on a regimen that is compatible with the work schedule and physical demands of the diving assignment, and with no history of symptomatic hypoglycemic events during the preceding two years
5. **DIABETES INSIPIDUS**
6. Any **OTHER ENDOCRINE CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly or subtly

incapacitated generally is disqualifying

HEMATOPOETIC SYSTEM STANDARD

The applicant/incumbent must have a hematopoietic (blood and blood-producing) system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A physical exam of the skin that is within the range of normal variation; and
- A complete blood count (including at least hemoglobin, hematocrit, platelets, and white blood count, with differential) that is within the normal range; and
    - No evidence by physical examination (including laboratory testing) and medical history of hematopoietic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ANEMIA, HEREDITARY OR ACQUIRED (AND NOT CURABLE)**
2. **INHERITED COAGULATION DEFECTS (e.g., HEMOPHILIA, VON WILLEBRAND'S DISEASE, IDIOPATHIC THROMBOCYTOPENIA)** generally are disqualifying
3. **AGRANULOCYTOSIS OR LEUKOPENIA**
4. **CHRONIC LYMPHANGITIS**
5. **SPLENOMEGALY OR SPLENECTOMY** (unless due to trauma)
6. Any **OTHER HEMATOPOETIC CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly or subtly incapacitated is generally disqualifying

PROSTHETICS, TRANSPLANTS, AND IMPLANTS STANDARD

The presence or history of organ transplantation or the use of prosthetics or implants are not of themselves disqualifying. However, the applicant/incumbent must be able to safely and efficiently carry out the requirements of the job despite these factors. This may be demonstrated by:

- No evidence by physical examination and medical history that the transplant, the prosthesis, the implant, or the conditions that led to the need for these treatments are likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

Note: For individuals with transplants, prosthetics, or implanted pumps or electrical

devices, the examinee may be required to provide for agency review satisfactory documentation from his/her surgeon or physician that the individual (and, if applicable, his/her prosthetic or implanted device) is considered to be fully cleared and compatible with the specified functional requirements of the job.

INFECTIOUS DISEASE / IMMUNE SYSTEM / ALLERGIC DISORDERS STANDARD

The applicant/incumbent must be free of communicable diseases, have a healthy immune system, and be free of significant allergic conditions in order to safely and efficiently carry out the requirements of the job. This may be demonstrated by:

- A general physical exam of all major body systems that is within the range of normal variation, including:
  - no evidence of current communicable disease that would be expected to interfere with the safe and effective performance of the requirements of the job; and
  - no evidence of current communicable disease that would be expected to pose a threat to the health of any co-workers or the public; and
- Normal complete blood count, including white blood count and differential; and
- No evidence by physical examination and medical history of infectious disease, immune system, or allergy conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **VASCULITIS**
2. **HASHIMOTO'S THYROIDITIS**
3. **MYASTHENIA GRAVIS**
4. **SYSTEMIC FUNGAL INFECTIONS**
5. **SYSTEMIC LUPUS ERYTHEMATOSUS**
6. **MULTIPLE SCLEROSIS**
7. **POSITIVE PPD (TUBERCULOSIS SKIN TEST)**, unless the individual has completed a full course of prophylactic treatment
8. Any **OTHER INFECTIOUS DISEASE, IMMUNE SYSTEM, OR ALLERGIC CONDITION** which significantly interferes with normal function and bears the potential to render the person suddenly or subtly incapacitated is generally disqualifying

MEDICATION STANDARD

The need for and use of prescribed or over-the-counter medications are not of themselves disqualifying. However, there must be no evidence by physical examination, laboratory

tests, or medical history of any impairment of body function or mental function and attention due to medications that are likely to present a safety risk or to worsen as a result of carrying out the specified functional requirements. Each of the following points should be considered:

1. Medication(s) (type and dosage requirements)
2. Potential drug side effects
3. Drug-drug interactions
4. Adverse drug reactions
5. Drug toxicity or medical complications from-long term use
6. Drug-environmental interactions
7. Drug-food interactions
8. History of patient compliance

All medication requirements will be evaluated to ensure that safe and efficient job performance will not be affected adversely by their use. Medications such as narcotics, sedative hypnotics, barbiturates, amphetamines, or any drug with the potential for addiction or a reduction in attentiveness that are taken for extended periods of time (usually beyond 10 days) or are prescribed for a persistent or recurring underlying condition generally would be considered disqualifying. Cases will be reviewed on a case-by-case basis.

Inspectors **Attachment - D 7**

The Department of the Interior has several job categories that involve the inspection of facilities, structures, and environments. While each job has unique aspects, there are sufficient similarities to allow some generalizations to be valid for certain groups of jobs. For purposes of this *Handbook*, medical standards for two job groups have been developed: those that involve inspection of land-based features, and those that involve travel and inspection work in an off-shore environment that requires air travel. Both sets of standards were developed by multi-disciplinary teams involving DOI, Public Health Service, and Office of Personnel Management representatives who conducted field evaluations to assure that the resulting standards reflected actual work practices and requirements.

Before any agency uses either set of medical standards, careful consideration should be given to the applicability of the standards to the functions and working conditions of the jobs the agency wishes to cover. Reference should be made to the job description tables contained in the respective sets of standards, and adjustments in both the tables and the resulting standards may need to be made accordingly.

The first set of standards (Tab 12, Attachment D 7 (a)) is for employees who conduct inspections of remote land-based features, such as mine sites or terrain in which mines have existed in the past. The second set of standards (Tab 12, Attachment D 7 (b)) is for employees who conduct inspections of structures and environmental conditions in off-shore locations requiring air and boat travel for access.

SAMPLE MEDICAL STANDARDS

And Review Criteria for Agency Medical Officer**s**

These Standards Are Applicable to the Following Function:

EMPLOYEES WHO CONDUCT INSPECTIONS IN REMOTE LOCATIONS INVOLVING EXPOSURE TO HEAVY EQUIPMENT AND UNEVEN TERRAIN

Under 5 CFR 339, Medical Qualifications Determinations, medical standards may be established for positions with duties that are arduous or hazardous in nature. The medical standards described in this chapter are required because of the arduous and hazardous occupational, functional, and environmental requirements of these inspectors. The medical standards are provided to aid the examining physician, the agency medical officer, and agency officials in determining what medical problems may hinder an individual's ability to safely and efficiently perform the functional requirements of the position without undue risk to himself/herself or others. They are also intended to ensure consistency and uniformity in the medical evaluation of applicants and incumbent employees.

Each of the medical standards described in the chapter is subject to clinical interpretation by the agency's medical officer, who will incorporate his or her knowledge of the job requirements under and the environmental conditions in which bureau employees must work. The AMO will make specific assessments on a case-by-case basis to determine each given individual's ability to meet the performance related requirements of his or her position. Final consideration and medical determination may require additional medical information and/or testing that is not routinely required during either the preplacement or the periodic medical-examination processes.

A. RATIONALE FOR MEDICAL EVALUATION AND REVIEW OF THESE INSPECTORS

The job requirements for these employees are by their nature arduous and hazardous. These jobs, and those of similar positions, are performed under variable and unpredictable working conditions. For these reasons, the Medical Standards Review Team has developed the standards that follow for these positions. Our goal here has been to help ensure that:

- Personnel will be able to perform the full range of functional requirements of their position duties under the conditions in which those duties must be performed;

- Existing/preexisting medical conditions of personnel and applicants will not be aggravated or accelerated; and

- The agency's strong commitment to public and employee health and safety, as well as to the accomplishment, with integrity, of its mission will remain unimpaired.

B. MEDICAL EVALUATIONS

Medical evaluations of applicants are to be conducted before the applicant is placed (this is the so-called "preplacement exam"). Evaluations of incumbents are to be conducted every 3 years thereafter. The AMO may recommend that, owing to health and safety risks, a given individual's medical evaluation should be conducted more frequently.

The medical evaluation is to consist of those services summarized in table II-1. The evaluation is to be conducted by a qualified health care provider (see Tab 5, "Medical Services Providers,"), who should use the DOI Standard Medical History and Examination Form to record and report the results of the exam. The AMO will provide the final recommendation to a designated agency official as to whether or not an examined individual has been deemed capable of meeting the full range of position functional requirements.

An individual who is unable to obtain and maintain a drivers license for any medical reasons will not be considered for an inspector position until such time as the medical condition is resolved and a drivers license has been issued. Regardless of the reissuance of a drivers license, the applicant must still meet the medical standards outlined in this chapter.

COMMON FUNCTIONS AND WORK CONDITIONS FOR THESE INSPECTORS

Time/Work Volume	Physical Requirements	Environment	Physical Exposures
May include:			
up to: • 3-4 inspections/day • about 25 per month *and*: • long hours • irregular hours	• steep terrain • rocky, loose, or muddy ground surfaces • thick vegetation • down/standing trees • wet leaves/grasses • falling rocks • open water, still or flowing • mostly outdoors • varied climates (cold/hot/wet/dry/humid/ snow/rain) • heights • open holes/drop offs • very rough roads • isolated/remote sites	• dim light or darkness • bright sunshine/UV • burning materials • caustic materials • explosives • airborne particulates • fumes • fuel vapors • allergens • loud noises • snakes • insects/ticks • large animals • large equipment	• inspect field sites • work independently • use PPE (may include hard hat, steel toed shoes, and eyewear) • read maps • change tires • arduous exertion • carry 10# • use shovel and soil probe • drive for many hours • fly in helicopters and fixed wing airplanes • extensive walking • kneeling • stooping • loading boxes/equipment • speak/meet with the public

Medical services to be provided

Histories:
- General medical history
- Occupational history

Examination items:
- General appearance and vital signs
- General physical examination, with special attention to:
  - Overall physical fitness
  - Skin
  - Eyes, ears, nose, mouth, and throat
  - Neck
  - Thyroid
  - Endocrine and metabolic system
  - Respiratory system
  - Cardiovascular system
  - Back and musculoskeletal system
  - Extremities
  - Peripheral vascular system
  - Abdomen
  - Gastrointestinal system
  - Genitourinary system
  - Central nervous system
  - Peripheral nervous system
  - Mental status evaluation

Diagnostic tests/procedures:
- Audiogram (including 500, 1,000, 2,000, 3,000, 4,000, 6,000, and 8,000 Hertz [Hz] in both ears)
- Vision, including:
- Far and near vision acuity (uncorrected and corrected)
- Peripheral vision
- Depth perception
- Color discrimination (red/green/yellow; baseline exam only)
- Chest x-ray, Posterior-Anterior and Lateral (baseline exam and as determined to be necessary)
- Pulmonary function test, spirometry (baseline exam and as determined to be necessary)
- Electrocardiogram, resting (baseline exam)

Laboratory:

Complete blood count (including hemoglobin, hematocrit, platelets, and white blood count, with differential)
Clean-catch dipstick urinalysis (baseline exam)
Liver function tests (LDH, SGOT, SGPT, GGT, and bilirubin; baseline exam)
Cardiac risk profile (total cholesterol, LDL, HDL, and triglycerides)
Fasting blood sugar

Clearances:

All medical clearances must be provided by the AMO.

C. MEDICAL STANDARDS

1. Vision Standard

The applicant/incumbent must be able to see well enough to safely and efficiently carry out the functional requirements of the position. This requires binocular vision, near and far visual acuity, depth perception, peripheral vision, and color vision, which may be demonstrated by meeting all of the following standards:

- Distant visual acuity of at least 20/200 in each eye without correction;
- Distant visual acuity of least 20/40 in each eye, with or without correction;
- Near visual acuity, with or without correction, of at least 20/25 (Jaeger equivalent No. 2);
- Color vision sufficient to distinguish at least red, green, and amber (yellow);
- Peripheral vision of at least 70° laterally in each eye;
- Normal depth perception; and
- No ophthalmologic condition that would increase ophthalmic sensitivity to bright light, fumes, or airborne particulates, or susceptibility to sudden incapacitation.

Any vision condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

2. Hearing Standard

The applicant/incumbent must be able to hear well enough to safely and efficiently carry out the functional requirements of the position. This requires binaural hearing (to localize sounds) and auditory acuity, which may be demonstrated by meeting all of the following standards:

- A current pure tone, air conduction audiogram, using equipment and a testing room which meet the standards of the American National Standards Institute (see 29 CFR 1910.95);
- Documentation of hearing thresholds of no greater than 40 decibels at 500, 1,000, 2,000, and 3,000 Hz in each ear, with or without a pre-fitted personal hearing aid;
- No evidence by physical examination or medical history of ear conditions (external, middle, or internal) likely to progress and/or pose problems with carrying out the functional requirements of the position.
- If a hearing aid is used, it must be of a type unlikely to be dislodged or damaged while the user performs the regular functional requirements of the position.

Any ear or hearing condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

3. Head, Nose, Mouth, Throat, and Neck Standard

The applicant/incumbent must have structures and functions of the head, nose, mouth, throat, and neck that are normal or otherwise sufficient for the individual to safely and efficiently carry out the functional requirements of the position. This may be demonstrated by meeting all of the following standards:

- A physical exam of the head, nose, mouth, throat, and neck that is within the range of normal variation, including:
  - normal flexion, extension, and rotation of the neck;
  - open nasal and oral airways;
  - unobstructed Eustachian tubes;
  - no structural abnormalities that would prevent the normal use of a hard hat and protective eyewear;
  - normal sense of smell; and
  - normal conversational speech; and
- No evidence by physical examination or medical history of head, nose, mouth, throat, or neck conditions likely to progress and/or pose problems with carrying out the functional requirements of the position.

Any head, nose, mouth, throat, or neck condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

4. Peripheral Vascular System Standard

The applicant/incumbent must have peripheral vasculature that is normal or otherwise sufficient for the individual to safely and efficiently carry out the functional requirements of the position. This may be demonstrated by meeting all of the following standards:

- A physical exam of the vasculature of the upper and lower extremities that is within the range of normal variation, including:
  - no evidence of phlebitis or thrombosis;
  - no evidence of venous stasis; and
  - no evidence of arterial insufficiency; and
- No evidence by physical examination or medical history of peripheral vasculature conditions likely to progress and/or pose problems with carrying out the functional requirements of the position.

Any vascular condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

5. Cardiovascular System Standard

The applicant/incumbent must have a cardiovascular system that is normal or otherwise sufficient for the individual to safely and efficiently carry out the functional requirements of the position. This may be demonstrated by meeting all of the following standards:

- A physical exam of the cardiovascular system that is within the range of normal variation, including:
  - blood pressure of less than or equal to 160 mmHg systolic and 90 mmHg diastolic, whether treated or untreated (if treated, please see the Medication Standard);
  - a normal baseline electrocardiogram (minor, asymptomatic arrhythmias may be acceptable); and
  - no pitting edema in the lower extremities; and
- No evidence by physical examination or medical history of cardiovascular conditions likely to progress and/or pose problems with carrying out the functional requirements of the position.

Any cardiovascular condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

6. Chest and Respiratory System Standard

The applicant/incumbent must have a respiratory system that is normal or otherwise sufficient for the individual to safely and efficiently carry out the functional requirements of the position. This requires may be demonstrated by meeting all of the following standards:

- A physical exam of the respiratory system that is within the range of normal variation;
- A pulmonary function test (on the baseline exam) showing:
  - forced vital capacity (FVC) of at least 70 percent of the predicted value;
  - forced expiratory volume at 1 second (FEV1) of at least 70 percent of the predicted value; and
  - the ratio FEV1/FVC of at least 70 percent of the predicted value; and
- No evidence by physical examination or medical history of respiratory conditions likely to progress and/or pose problems with carrying out the functional requirements of the position.

Any chest or respiratory condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

7. Gastrointestinal System Standard

The applicant/incumbent must have a gastrointestinal tract that is normal or otherwise sufficient for the individual to safely and efficiently carry out the functional requirements of the position. This may be demonstrated by meeting all of the following standards:

- A physical exam and evaluation of the gastrointestinal tract that is within the range of normal variation;
- Normal liver function tests (baseline exam); and
- No evidence by physical examination, laboratory, or medical history of gastrointestinal conditions likely to progress and/or pose problems with carrying out the functional requirements of the position.

Any gastrointestinal condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

8. Genitourinary System Standard

The applicant/incumbent must have a genitourinary system that is normal or otherwise sufficient for the individual to safely and efficiently carry out the functional requirements of the position. This may be demonstrated by meeting all of the following standards:

- A physical exam and evaluation of the genitourinary system that is within the range of normal variation;
- A normal clean catch urinalysis (baseline exam); and

- No evidence by physical examination or medical history of genitourinary conditions likely to progress and/or pose problems with carrying out the functional requirements of the position.

Any genitourinary condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

9. The Condition of Pregnancy

If an applicant or incumbent is a woman, and she raises the issue of pregnancy as the basis for a request for a special benefit, a change in duty status, or job restrictions, then justification and clarifying information for that request must be provided by the applicant's obstetrician or primary care physician, along with the estimated time period the special conditions are expected to apply.

10. Endocrine and Metabolic Systems Standard

Any excess or deficiency in hormonal production can produce metabolic disturbances affecting weight, stress adaptation, energy production, and a variety of symptoms or pathology such as elevated blood pressure, weakness, fatigue and collapse. The applicant/incumbent must have endocrine and metabolic functions that are normal or otherwise sufficient for the individual to safely and efficiently carry out the functional requirements of the position. This may be demonstrated by meeting all of the following standards:

- A physical exam of the skin, thyroid, and eyes that is within the range of normal variation;
- Normal fasting blood sugar level; and
- No evidence by physical examination, laboratory, or history of endocrine/metabolic conditions likely to progress and/or pose problems with carrying out the functional requirements of the position.

Any endocrine or metabolic condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

11. Musculoskeletal System Standard

The applicant/incumbent must have a musculoskeletal system that is normal or otherwise sufficient for the individual to safely and efficiently carry out the functional requirements of the position. This may be demonstrated by meeting all of the following standards:

- A physical exam of the upper and lower extremities, neck, and back that is within the range of normal variation for:
  - strength;
  - flexibility;
  - range of motion; and
  - joint stability; and
- No evidence by physical examination or medical history of musculoskeletal conditions likely to progress and/or pose problems with carrying out the functional requirements of the position.

Any musculoskeletal condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

12. Hematopoietic System Standard

The applicant/incumbent must have a hematopoietic (blood and blood-producing) system that is normal or otherwise sufficient for the individual to safely and efficiently carry out the functional requirements of the position. This may be demonstrated by meeting all of the following standards:

- A physical exam of the skin that is within the range of normal variation;
- A complete blood count (including hemoglobin, hematocrit, platelets, and white blood count, with differential) that is within the normal range; and
- No evidence by physical examination, laboratory tests, or medical history of hematopoietic conditions likely to progress and/or pose problems with carrying out the functional requirements of the position.

Any hematopoietic condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

13. Immune System/Allergic Disorders Standards

The applicant/incumbent must be free of communicable diseases, have a healthy immune system, and be free of significant allergic conditions in order to safely and efficiently carry out the functional requirements of the position. This may be demonstrated by meeting all of the following standards:

- A general physical exam of all major body systems that is within the range of normal variation, including:

no evidence of current communicable disease that would be expected to interfere with the safe and effective performance of the functional requirements of the job;
no evidence of current communicable disease that would be expected to pose a threat to the health of any co-workers or the public; and
normal nasal mucus membranes and major sinus cavities of the face;

- Normal complete blood count, including white blood count and differential; and
- No evidence by physical examination or medical history of infectious disease, immune system, or allergy conditions likely to progress and/or pose problems with carrying out the functional requirements of the position.

Any immune system or allergic condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

14. Central and Peripheral Nervous Systems/Vestibular System Standard

The applicant/incumbent must have a nervous system that is normal or otherwise sufficient for the individual to safely and efficiently carry out the functional requirements of the position. This may be demonstrated by meeting all of the following standards:

- A physical exam of the cranial and peripheral nerves and the vestibular system that is within the range of normal variation, including:
  intact cranial nerves, I-XII;
  normal vibratory sense in the hands and feet;
  normal proprioception in the wrist s, elbows, ankles, and knees;
  normal sensation of hot and cold in the hands and feet;
  normal sense of touch in the hands and feet;
  normal reflexes of the upper and lower extremities; and
  normal balance (i.e., heel-toe walk; Romberg; balance on one foot);
- Normal basic mental status evaluation (e.g., person, place, time, current events); and
- No evidence by physical examination or medical history of nervous or vestibular system conditions likely to progress and/or pose problems with carrying out the functional requirements of the position.

An individual with a history of seizures must provide a written opinion from the individual's neurologist and, if necessary, a neurologist selected by OSM, regarding the ability of the individual to safely and efficiently carry out the specified functional requirements of the position, under the anticipated work conditions. Any central or peripheral nervous system or vestibular system condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

15. Psychiatric Disorders Standard

The applicant/incumbent must have judgement, mental functioning, and social interaction/behavior that will provide for the safe and efficient conduct of the functional requirements of the position. This may be demonstrated by meeting the following standard:

- No evidence by physical examination or medical history of psychiatric conditions or behaviors (including alcohol or substance abuse) likely to progress and/or pose problems with carrying out the functional requirements of the position.

Please note that current drug addiction and use of illegal drugs is disqualifying. Individuals who have successfully completed a substance abuse treatment program may be found to be disabled under provisions of the Americans with Disabilities Act, and may be eligible for accommodation consideration. Any psychiatric condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

16. Dermatology Standard

The applicant/incumbent must have skin that is normal or otherwise sufficient for the individual to safely and efficiently carry out the functional requirements of the position. This may be demonstrated by meeting both the following standards:

- A physical exam of the skin that is within the range of normal variation; and
- No evidence by physical examination or medical history of dermatologic conditions likely to progress and/or pose problems with carrying out the functional requirements of the position.

Any dermatologic condition that may adversely affect the safe and efficient performance of the functional requirements of the position will be evaluated on a case-by-case basis.

17. Organ Transplantation and Prosthetics Standard

The presence or history of organ transplantation or use of prosthetics are not of themselves disqualifying. However, the applicant/incumbent must be able to safely and efficiently carry out the functional requirements of the position. There must be no evidence by physical examination, laboratory tests, or medical history that the transplant, the prosthesis, or the conditions that led to the need for transplant or prosthesis are likely to worsen and/or pose problems with carrying out the functional requirements of the position.

For individuals with transplants, it will be necessary for the AMO to receive and review documentation from the transplant surgeon or his/her representative that the individual is considered to be fully cleared to engage in the specified activities of the position, and under the conditions likely to be encountered.

18. Medication Standard

The need for and use of prescribed or over-the-counter medications are not of themselves disqualifying. However, there must be no evidence by physical examination, laboratory tests, or medical history of any impairment of body function or mental function and attention due to medications that are likely to progress and/or pose problems with carrying out the functional requirements of the position. Each of the following will be considered when making recommendations regarding the use of medications:

- Medication(s) (type and dosage requirements);
- Potential drug side effects;
- Drug-drug interactions;
- Adverse drug reactions;
- Drug toxicity and any medical complications associated with long-term drug use;
- Drug-environmental interactions;
- Drug-food interactions; and
- History of patient compliance.

Please note that anabolic steroids were legislated as controlled substances on February 27, 1991, and now require a physician's prescription for legitimate use. Any person currently using anabolic steroids without a prescription may be disqualified.

SAMPLE MEDICAL STANDARDS

And Review Criteria for Agency Medical Officers

These Standards Are Applicable to the Following Function:
EMPLOYEES WHO CONDUCT INSPECTIONS IN REMOTE LOCATIONS, REQUIRING OVER-WATER HELICOPTER FLIGHT

Under 5 CFR Part 339 Medical Qualifications Determinations, medical standards may be established for functions with duties that are arduous or hazardous in nature. The medical standards described in this section are required because of the arduous and hazardous occupational, functional and environmental requirements of inspectors who work offshore (hereinafter referred to as "Inspector"). Please refer to the table beginning on page 3 of this Attachment. The medical standards are provided to aid the examining physician, the designated agency medical officer(s), and officials of other involved government agencies (e.g., OPM). They are to be used when determining whether there are medical conditions present that may affect an individual's ability to safely and efficiently perform the requirements of an Inspector without undue risk to himself/herself or others. The results of such determinations are to be used by an agency-based team (e.g., safety, personnel, management, peers, and medical) to consider whether waivers or reasonable accommodation may be appropriate when an individual is found to not meet a specified standard. In this way, the standards are intended to help insure consistency and uniformity in the medical evaluation of all applicants and incumbents.

Each of the medical standards listed in this document are subject to clinical interpretation by an appropriate agency medical officer (AMO) who will incorporate his/her knowledge of the essential job functions and the environmental conditions under which an employee may work. Listed with the standards are examples of medical conditions and/or physical impairments that may be incompatible with safe and efficient performance of duties. Individualized assessments will be made on a case-by-case basis to determine the individual's ability to meet the performance-related requirements of the Inspector's job. Final consideration and medical determination may require additional medical information and/or testing that is not routinely required during either the pre-placement or periodic medical examination process.

Rationale for Medical Evaluation and Review of Inspectors

The essential functions of these Inspectors are by nature arduous and hazardous. These functions are performed under variable and unpredictable working conditions. In response, an interagency team has developed these standards in order to help insure the following:

1. Inspectors will be able to perform the full range of essential functions of their jobs under the conditions under which those functions may be performed.

2. Existing/preexisting medical conditions of Inspectors and applicants will not be aggravated, accelerated, exacerbated, or permanently worsened as a result of carrying out the functions of the job.

3. Demonstration of the strong commitment of the agency to public and employee health and safety, and a strong commitment to maintaining the integrity of mission accomplishment.

Medical Evaluations

Medical evaluations are to be conducted both as a *pre-placement* exam for all individuals who are to be assigned to roles that involve the duties of Inspectors, and every three years thereafter. The AMO may determine that, due to health and safety risks, interval changes in health status, and possible medically-related performance concerns, the medical evaluation of individual Inspectors should be conducted more frequently.

The medical evaluation is to consist of those services summarized in the table on page 5 of this Attachment. The evaluation is to be conducted by a qualified health care provider using the DOI Standard Medical History and Examination Form (or another form that provides similar information). For assistance in arranging for physician services, please refer to Tab 5 of this *Handbook*. The AMO will review the results of all examinations, and provide the final medical recommendation to the agency.

COMMON FUNCTIONS AND WORK CONDITIONS FOR THESE INSPECTORS

Time/Work Volume	Physical Requirements	Environment	Physical Exposures
May include:			
• normal day of 8-10 hours • up to 16 hour shifts (2-3 times per year) • up to 12 days in a row at work • up to 2 weeks in a row on board the platforms • inspection trips conducted up to 150 days per year • may be expected to take inspection trips every day • over 95% of trips are out and back in one day •(Alaska Only) over 95 percent of trips are out for more than 1 day • work normally conducted during daylight hours (flight dependent; no flying at night) • (Alaska Only) work normally conducted during daylight hours, but flying at night is routine • one day or less per year unable to return home after inspection, due to weather or equipment problems (in Alaska region only, it could be one day or more) • potential for emergency problems resulting in spending one or more days on the platform • inspector sets own work pace	• put on and wear safety gear (e.g., hard hat, steel toed shoes, hearing protection, flight helmet) • lift and carry briefcase, laptop computer, and duffel bag (about #25) • (Alaska Only) lift and carry briefcase, laptop computer, and arctic survival gear (about #75) • lift and carry ice chests with drilling mud (about #20) • drive to take off point, or to on-shore inspection sites, 30 minutes to 4 hours • climb into and out of helicopters with small- (e.g., 2-person) to medium- (e.g., 6-person) sized cabins. In Alaska, they could be large cabins (20 person) • fly in helicopters, including over water and for up to 1-2 hours at a time. In Alaska, 4-6 hours. • read and manipulate small avionics devices • hear flight intercom for communications • manipulate certain aircraft doors, shoulder harnesses • speak clearly (be understood by public, and co-workers) • climb and descend stairs and ladders (sometimes several flights, and often open-grated and over water) • see and step over obstacles and raised doorways • kneel, stoop, bend over, and push and pull objects • work in confined, tight spaces • land on helipads, sometimes with hard landings • walk on open-grated walkways, sometimes without railings, and at great heights	• airports and helicopter take-off points • offshore/ocean locations • slick metal and wooden surfaces • uneven surfaces • open gratings, over water • exposed heights (up to 200 feet on structures) • altitudes (up to 3000 feet in helicopters) • confined work areas • close living/working quarters • heat, cold, wet, dry (all with extremes) • high wind • high waves • fog • wildlife (e.g., birds, sea lions) • major industrial environment (e.g., drilling, production, and pumping equipment) • moving materials and heavy equipment • high ladders, steep stairs, swing ropes, man-baskets • high pressure devices	• high voltages • extreme heat and cold • extreme noise (>107dB) • sea life (marine and avian biota) • gases, particulates, fumes, including hydrogen sulfide gas • sleep disruption • falling objects, including bird droppings • combustibles, corrosives, solvents, and other chemicals, including hydrofluoric acid and other acids • bright sun, high UV light • welding fumes and light • open flame • dehydration

CONTINUED			
Time/Work Volume	**Physical Requirements**	**Environment**	**Physical Exposures**
May include:			
	• look in all directions • listen for and respond to alarm signals • hold clip board, write with pen or pencil • read documents and maps • use computer keyboard and laptop or personal • read gauges • see and correctly interpret colored warning lights (red, yellow, and green) • swing holding onto a rope • climb into small, unsteady boats • climb into or onto personnel baskets and be suspended 100 feet or more above the water • untie small and large ropes • be continuously and clearly aware of surroundings • climb into emergency devices, escape pods • don, wear, and use self contained breathing apparatus (SCBA, escape style only) • work independently and on small teams • enter and exit emergency equipment and helicopters quickly • be able to complete and pass a helicopter underwater egress and marine survival training course. This includes being submerged and overturned quickly while in a confined space, becoming reoriented, and escaping from the training device and reaching the surface and treading water.	• gases, at high pressures and temperatures • isolated, remote sites • long distances from support or medical help • emergency evacuation craft (confined spaces) • confined aircraft cabins • uncooperative or potentially hostile contact with company personnel and the public • variable light conditions	

Medical Examination Services to be Provided for Inspectors

HISTORIES

- General Medical History
- Occupational History

EXAMINATION ITEMS

- General Appearance and Vital Signs (height, weight, blood pressure, heart rate)
- General Physical Examination, with Special Attention To:
  - Overall Physical Fitness
  - Habitus (obesity)
  - Skin
  - Eyes, Ears (including eardrum mobility), Nose, Mouth, and Throat
  - Neck (including flexibility and rotation)
  - Thyroid
  - Respiratory System
  - Cardiovascular System
  - Back & Musculoskeletal System (including flexibility)
  - Extremities (including strength, range of motion, and joint stability)
  - Peripheral Vascular System
  - Abdomen
  - Gastrointestinal System
  - Genitourinary System
  - Central Nervous System (including cranial nerves I-XII, and cerebellar function)
  - Peripheral Nervous System (including reflexes, sensation, and position sense)
  - Mental Status Evaluation

DIAGNOSTIC TESTS/PROCEDURES

- Audiogram (including 500, 1000, 2000, 3000, 4000, 6000, 8000 Hertz in both ears)
- Visual Acuity, best near and far vision, corrected or uncorrected
- Peripheral Vision
- Depth perception
- Color Discrimination (including red, green, blue, and yellow) (baseline/exit exam)
- Pulmonary Function Test-Spirometry (baseline/exit exam)
- Chest X-Ray, PA & Lateral (baseline/exit exam)
- Electrocardiogram-Resting (baseline/exit exam)
- TB (Mantoux) skin test (baseline/exit exam)
- Tetanus vaccination (to maintain as current)

LABORATORY

- CBC (hemoglobin, hematocrit, platelets, white blood count with differential)
- Dipstick urinalysis (baseline/exit exam only)
- Blood chemistries:
  - LDH, SGOT/AST, SGPT/ALT, GGT, bilirubin [baseline/exit exam only]
  - Total cholesterol, LDL-C, HDL-C, triglycerides, blood sugar [each exam]

CLEARANCES

- Medical Clearance for Inspectors

PSYCHIATRIC STANDARD

The applicant/incumbent must have judgement, mental functioning, and social interaction/behavior that will provide for the safe and efficient conduct of the essential functions of the job. This may be demonstrated by:

- No evidence by physical examination and medical history of psychiatric conditions (including alcohol or substance abuse) likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

(All diagnoses must be consistent with the diagnostic criteria as established by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, DSM-IV.)

1. **AMNESTIC** disorders
2. **DELIRIUM** (depending upon etiology and duration)
3. **DEMENTIAS** (depending upon etiology and duration)
4. **DISSOCIATIVE DISORDERS**
5. **KLEPTOMANIA**
6. **PANIC DISORDER** and **OTHER ANXIETY DISORDERS** (including claustrophobia and acrophobia, depending upon etiology, duration and severity of clinical expression)
7. **DEPRESSIVE, BIPOLAR,** or **OTHER MOOD DISORDERS** (depending upon clinical course and status of current treatment and response)
8. **PYROMANIA**
9. **SCHIZOPHRENIA** (Exceptions may be may in cases of a single episode of schizophrenic reactions associated with an acute illness or toxic exposure capable of causing such reaction.)
10. **ANTISOCIAL, PARANOID,** or **SCHIZOID PERSONALITY DISORDER**
11. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

PROSTHETICS, TRANSPLANTS, AND IMPLANTS STANDARD

The presence or history of organ transplantation or use of prosthetics or implants are not of themselves disqualifying. However, the applicant/incumbent must be able to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- No evidence by physical examination and medical history that the transplant, the prosthesis, the implant, or the conditions that led to the need for these treatments are likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

  Note: In general, hand or arm amputations (with or without a prosthesis) are incompatible with the functional requirements of the job. For individuals with

any transplant, prosthetic, or implanted pump or electrical device, the examinee will have to provide documentation ***for agency review*** from his/her surgeon or physician that the examinee (and, if applicable, his/her prosthetic or implanted device) is considered to be fully compatible with the specified essential functions of the job.

IMMUNE SYSTEM/ALLERGIC DISORDERS STANDARD

The applicant/incumbent must be free of communicable diseases, have a healthy immune system, and be free of significant allergic conditions in order to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A general physical exam of all major body systems that is within the range of normal variation, including:
  - no evidence of current communicable disease that would be expected to interfere with the safe and effective performance of the essential functions of the job; and
  - no evidence of current communicable disease that would be expected to pose a threat to the health of any co-workers or the public; and
  - normal nasopharynx, major sinuses, Eustachian tube, and pulmonary exam
- Normal complete blood count, including white blood count and differential; and
- Current vaccination status for tetanus; and
- No evidence by physical examination and medical history of infectious disease, immune system, or allergy conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3). Individuals with a history of anaphylaxis or major allergy problems may be required to carry a personal anaphylaxis kit (injectable epinephrine).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **TUBERCULOSIS** A history of TB that has been appropriately treated for longer than 6 months is not disqualifying, provided that documentation supports the treatment history and the person has a current chest x-ray showing no active disease. A person with a positive PPD or Mantoux skin test will be required to have a Chest X-ray and, if indicated, a sputum culture.
2. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

MEDICATION STANDARD

The need for and use of prescribed or over-the-counter medications are not of themselves disqualifying. However, there must be no evidence by physical examination, laboratory tests, or medical history of any impairment of body function or mental function and attention due to medications if that impairment is likely to present a safety risk or to

worsen as a result of carrying out the specified essential functions of the job, under the conditions in which those functions must be carried out (see page 3). Each of the following points should be considered:

1. Medication(s) (type and dosage requirements)
2. Potential drug side effects
3. Drug-drug interactions
4. Adverse drug reactions
5. Drug toxicity or medical complications from long-term use
6. Drug-environmental interactions
7. Drug-food interactions
8. History of patient compliance

EYE / VISION STANDARD

The applicant/incumbent must be able to see well enough to safely and efficiently carry out the essential functions of the job (see page 3). This requires binocular vision, near and far visual acuity, depth perception, peripheral vision, and color vision, which may be demonstrated by:

- Far visual acuity of at least 20/40 in each eye; this may be achieved with corrective lenses (if necessary), including contact lenses or spectacles; and
- Near visual acuity of at least 20/30 (Snellen equivalent) at 16 inches; this may be achieved with corrective lenses (if necessary), including contact lenses or spectacles; and
- Color vision sufficient to distinguish at least red, green, blue, and amber (yellow); and
- Peripheral vision of at least 85° laterally in each eye; and
- Normal depth perception; and
- No ophthalmologic condition that would increase ophthalmic sensitivity to bright light, fumes, or airborne particulates, or susceptibility to sudden incapacitation.

Note: Contact lenses are acceptable for correction of visual acuity, but the user must be able to demonstrate that the corrective device(s) can be worn safely and for extended periods of time without significant maintenance, as well as being worn with any necessary personal protective equipment.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **CHRONIC CONJUNCTIVITIS**
2. **CORNEAL ULCERS**
   This condition must be treated and cleared by an Ophthalmologist before a medical clearance can be granted.
3. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

HEAD, NOSE, MOUTH, THROAT AND NECK STANDARD

The applicant/incumbent must have structures and functions of the head, nose, mouth,

throat, and neck that are sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the head, nose, mouth, throat, and neck that is within the range of normal variation, including:
  - normal flexion, extension, and rotation of the neck; and
  - open nasal and oral airways; and
  - unobstructed Eustachian tubes; and
  - no structural abnormalities that would prevent the normal use of a hard hat and protective eyewear; and
- Normal conversational speech; and
- No evidence by physical examination and medical history of head, nose, mouth, throat, or neck conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **MUTISM/APHONIA**
2. **NASAL POLYPS THAT SIGNIFICANTLY OBSTRUCT BREATHING**
3. **RESTRICTED RANGE OF MOTION IN THE NECK**
4. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

EAR / HEARING STANDARD

The applicant/incumbent must be able to hear well enough to safely and efficiently carry out the essential functions of the job. This requires binaural hearing (to localize sounds) and auditory acuity, which may be demonstrated by:

- A current pure tone, air conduction audiogram, using equipment and a test setting which meet the standards of the American National Standards Institute (see 29 CFR 1910.95); and
- Documentation of hearing thresholds of no greater than 40 dB at 500, 1000, 2000, and 3000 Hz in each ear; and
- No evidence by physical examination and medical history of ear conditions (external, middle, or internal) likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

Note: The use of a hearing aid(s) to meet this standard is ***not*** permitted.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **MENIERE'S DISEASE**
2. **RUPTURED OR PERFORATED EAR DRUM**

3. **ACUTE OR CHRONIC OTITIS MEDIA OR EXTERNA**
4. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

DERMATOLOGY STANDARD

The applicant/incumbent must have skin that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the skin that is within the range of normal variation; and
- No evidence by physical examination and medical history of dermatologic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ALBINISM**
2. **CHRONIC DERMATITIS**
3. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

VASCULAR SYSTEM STANDARD

The applicant/incumbent must have a vascular system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the vasculature of the upper and lower extremities that is within the range of normal variation, including:
  - no evidence of phlebitis or thrombosis; and
  - no evidence of venous stasis; and
  - no evidence of arterial insufficiency; and
- No evidence by physical examination and medical history of peripheral vasculature conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **CHRONIC VENOUS INSUFFICIENCY**
2. **DEEP VEIN THROMBOSIS**
3. **CHRONIC THROMBOPHLEBITIS**
4. **INTERMITTENT CLAUDICATION**
5. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

CARDIAC STANDARD

The applicant/incumbent must have a cardiovascular system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the cardiovascular system that is within the range of normal variation, including:
  - o blood pressure of less than or equal to 140 mmHg systolic and 90 mmHg diastolic; and
  - o a normal baseline electrocardiogram (minor, asymptomatic arrhythmias may be acceptable); and
  - o no pitting edema in the lower extremities, and
  - o normal cardiac exam.
- No evidence by physical examination and medical history of cardiovascular conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **PACEMAKERS or PROSTHETIC VALVES** may be disqualifying. Documentation from the individual's cardiologist, stating that the individual is stable and can safely carry out the specified essential functions of the job, under the specified work conditions, will be necessary before a clearance can be granted.
2. **CORONARY ARTERY DISEASE** Documentation from the individual's cardiologist that the physician understands the essential functions of the job and the work conditions, and considers the individual to be capable of safely and efficiently performing them, may allow a clearance despite this diagnosis.
3. **HYPERTENSION** that cannot be controlled to a level of 160/90 or less, or requires the use of any medication that affects the ability of the individual to safely and effectively carry out the essential functions of the job, may be disqualifying.
4. History of **MYOCARDIAL INFARCTION.** Documentation from the individual's cardiologist, stating that the individual is stable and can safely carry out the specified essential functions of the job, under the specified work conditions, will be necessary before a clearance can be considered.
5. **VALVULAR HEART DISEASE** such as mitral valve stenosis, symptomatic mitral valve regurgitation, aortic stenosis etc. Documentation from the individual's cardiologist, stating that the individual is stable and can safely carry out the specified essential functions of the job, under the specified conditions and without

aggravating the condition, will be necessary before a clearance can be considered.

6. **DYSRHYTHMIAS:** Documentation from the individual's cardiologist, stating that the individual is stable and can safely carry out the specified essential functions of the job, under the specified work conditions and without aggravating the condition, will be necessary before a clearance can be considered.
7. **ANGINA PECTORIS** or chest pain of unknown etiology.
8. **CONGESTIVE HEART FAILURE**
9. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

CHEST AND RESPIRATORY SYSTEM STANDARD

The applicant/incumbent must have a respiratory system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the respiratory system that is within the range of normal variation; and
- A pulmonary function test (baseline exam) showing:
  - forced vital capacity (FVC) of at least 70% of the predicted value; and
  - forced expiratory volume at 1 second (FEV1) of at least 70% of the predicted value; and
  - the ratio FEV1/FVC of at least 70% of the predicted value; and
- No evidence by physical examination and medical history of respiratory conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **SIGNIFICANT OBSTRUCTIVE** or **RESTRICTIVE PULMONARY DISEASE.**
2. **ASTHMA** must be considered on a case-by-case basis.
3. **ACTIVE PULMONARY TUBERCULOSIS (TB)**: Please see the Immune System/Allergic Disorders Standard for specific guidance on TB.
4. **HISTORY OF CHRONIC BRONCHITIS ASSOCIATED WITH DECREASED PULMONARY FUNCTION**
5. **SPONTANEOUS PNEUMOTHORAX** (if recurrent)
6. **PNEUMONECTOMY** (if associated with impaired pulmonary function)
7. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

ENDOCRINE AND METABOLIC SYSTEM STANDARD

Any excess or deficiency in hormonal production can produce metabolic disturbances affecting weight, stress adaptation, energy production, and a variety of symptoms or pathology such as elevated blood pressure, weakness, fatigue and collapse. The applicant/incumbent must have endocrine and metabolic functions that are sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the skin, thyroid, and eyes that is within the range of normal variation; and
- Normal fasting blood sugar level; and
- No evidence by physical examination (including laboratory testing) and history of endocrine/metabolic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ADRENAL DYSFUNCTION** (e.g., Addison's Disease or Cushing's Syndrome).
2. **THYROID DISEASE** (uncontrolled or associated with current complications).
3. **INSULIN DEPENDENT DIABETES MELLITUS**
4. **HYPERGLYCEMIA** without a history of diabetes will require additional tests including but not limited to a glycohemoglobin (or hemoglobin A_{1C}) and fasting glucose before a final medical determination is made.
5. **DIABETES INSIPIDUS**.
6. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

THE CONDITION OF PREGNANCY

If an applicant or incumbent is a woman, and she raises the issue of pregnancy as the basis for a request for a special benefit, a change in duty status, or job restrictions, then justification and clarifying information for that request must be provided by the applicant's obstetrician or primary care physician, along with the estimated time period the special conditions are expected to apply.

HEMATOPOIETIC SYSTEM STANDARD

The applicant/incumbent must have a hematopoietic (blood and blood-producing) system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the skin that is within the range of normal variation; and
- A complete blood count (including hemoglobin, hematocrit, platelets, and white

blood count, with differential) that is within the normal range; and

- No evidence by physical examination (including laboratory testing) and medical history of hematopoietic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ANEMIA**
2. **HEMOPHILIA**
3. **CHRONIC LYMPHANGITIS**
4. **SICKLE CELL ANEMIA**
5. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

MUSCULOSKELETAL SYSTEM STANDARD

The applicant/incumbent must have a musculoskeletal system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the upper and lower extremities, neck, and back that is within the range of normal variation for strength, flexibility, range of motion, and joint stability; and
- No evidence by physical examination and medical history of musculoskeletal conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ARTHRITIS** (any etiology) if there is a limitation of major joint motion, and/or pain that prevents the full range of required performance activities.
2. **AMPUTATIONS OF DIGITS** will be evaluated on a case-by-case basis.
3. **ANKYLOSING SPONDYLITIS**.
4. **LUMBOSACRAL INSTABILITY**: pain or limitation of flexibility and/or strength adversely affecting the ability to stand, bend, stoop, carry heavy objects or sit for long periods of time.
5. **SCIATICA OR OTHER NEUROPATHIES**
6. **CHRONIC LOW BACK PAIN** (by medical history) without demonstrable pathology must be considered on a case-by-case basis. Each case will be reviewed in context of the original history or etiology, the response to therapeutic regimes, frequency of recurrence, exacerbating factors, and lengths of disability associated with the recurrences combined with the current clinical presentation.
7. A history of a **CHRONIC SPRAIN OR STRAIN OF THE NECK** limiting mobility or causing recurring cephalgia (headaches)

8. Any evidence of a **CERVICAL NEUROPATHY**, including numbness, tingling or loss of motor strength in the upper extremities
9. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

CENTRAL AND PERIPHERAL NERVOUS SYSTEM STANDARD, AND VESTIBULAR SYSTEM STANDARD

The applicant/incumbent must have a nervous system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the cranial and peripheral nerves and the vestibular and cerebellar system that is within the range of normal variation, including:
  - intact cranial nerves, I-XII; and
  - normal proprioception of the major joints; and
  - normal sensation of hot and cold in the hands and feet; and
  - normal sense of touch in the hands and feet; and
  - normal reflexes of the upper and lower extremities; and
  - normal balance (e.g., heel-toe walk; Romberg; balance on one foot); and
- Normal basic mental status evaluation (e.g., person, place, time, current events); and
- No evidence by physical examination and medical history of nervous, cerebellar, or vestibular system conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ATAXIA** from any etiology
2. **VESTIBULAR NEURONITIS**
3. **VERTIGO**
4. **PHYSIOLOGIC VERTIGO (MOTION SICKNESS)**
5. **CEREBROVASCULAR ACCIDENT** or **TRANSIENT ISCHEMIC ATTACKS**.
6. **EPILEPSY** (See the seizure standard, below)
7. **NARCOLEPSY**
8. **SENSORY DYSFUNCTION** (smell, touch, proprioception)
9. **MIGRAINE**
10. **SEIZURES***
11. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

*Between 40 and 70 percent of people with a single, brief, generalized tonic-clonic seizure, who are found to have a normal EEG and no identified underlying cause for the seizure, will go on to experience further seizures if untreated. Those

most likely to remain seizure-free are those who: 1) have had no seizures for 2 to 4 years; 2) had few seizures before the condition was medically controlled; 3) required only one medication to obtain control; 4) have a normal neurologic examination; 5) have no identified structural lesion responsible for the seizures; and 6) have a normal electroencephalogram (EEG) at the end of the treatment period.* An individual with a history of seizures must meet the following criteria before a medical clearance can be granted:

1. the individual must be seizure-free for two years, with or without medication; and
2. present for review at the end of that two year period the results of the individual's current electroencephalogram (EEG), showing normal findings; and
3. provide a written opinion from the individual's neurologist and, if necessary, a neurologist selected by the employing agency, regarding the ability of the individual to safely and efficiently carry out the specified essential functions of the job, under the anticipated work conditions, referencing the table on page 3.

*Harrison's Principles of Internal Medicine, 13th Edition, McGraw-Hill, Inc., San Francisco, page 2232

GASTROINTESTINAL SYSTEM STANDARD

The applicant/incumbent must have a gastrointestinal tract that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam and evaluation of the gastrointestinal tract that is within the range of normal variation; and
- Normal liver function tests (baseline exam); and
- No evidence by physical examination (including laboratory testing) and medical history of gastrointestinal conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ACUTE AND CHRONIC ACTIVE HEPATITIS**.
2. **ACUTE VIRAL HEPATITIS** (After being asymptomatic for three (3) months an applicant may be re-evaluated).
3. **CROHN'S DISEASE / ULCERATIVE COLITIS / REGIONAL ENTERITIS/SPRUE or IRRITABLE BOWEL SYNDROME** (these conditions, if controlled with surgical, dietary, and/or medication treatments, will be reviewed on a case-by-case basis.)
4. **COLOSTOMIES**, unless the precipitating condition has stabilized and

the applicant/incumbent demonstrates successful management of the colostomy, considering the requirements of the function and the work conditions.

5. **ILEITIS**, either recurrent or chronic.
6. **CHOLECYSTITIS** (chronic or recurring).
7. **DIVERTICULITIS** (symptomatic).
8. **CIRRHOSIS OF THE LIVER** (depending upon the degree of severity and the etiology).
9. **INTESTINAL OBSTRUCTION** from any cause.
10. **ESOPHAGEAL VARICES**
11. **PANCREATITIS**
12. **UNTREATED (OR UNSUCCESSFULLY TREATED) INGUINAL, INCISIONAL OR VENTRAL HERNIA** that is associated with symptoms
13. **ACTIVE GASTRIC OR DUODENAL ULCER**
14. **GASTRIC OR BOWEL RESECTION**, if there is any evidence (historical or physical) of post-treatment, current pain, hemorrhage, fainting episodes or dietary restrictions that could interfere with the performance of the job.
15. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

GENITOURINARY SYSTEM STANDARD

The applicant/incumbent must have a genitourinary system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A normal clean catch urinalysis (baseline exam); and
- No evidence by physical examination and medical history of genitourinary conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **POLYCYSTIC KIDNEY DISEASE**
2. **ACUTE** or **CHRONIC RENAL FAILURE**
3. **NEPHROTIC SYNDROME**
4. **SYMPTOMATIC URINARY CALCULI**
5. **NEUROGENIC BLADDER**
6. **UNCORRECTED OBSTRUCTIVE UROPATHIES**
7. **RENAL TOXICITY FROM ANY CAUSE**
8. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

DEFINITIONS

Hazardous Materials Response Team (per 29 CFR 1910.120): "...an organized group of employees, designated by the employer, who are expected to perform work to handle and control actual or potential leaks or spills of hazardous substances requiring possible close approach to the substance. The team members perform responses to releases or potential releases of hazardous substances for the purpose of control or stabilization of the incident."

Permissible Exposure Level (per 29 CFR 1910.120): "...the exposure limits published in 'NIOSH Recommendations for Occupational Health Standards' dated 1986 incorporated by reference, or if none is specified, the exposure limits published in the standards specified by the American Conference of Governmental Industrial Hygienists in their publication 'Threshold Limit Values and Biological Exposure Indices for 1987-88' dated 1987 incorporated by reference."

Post Emergency Response (per 29 CFR 1910.120): "...that portion of an emergency response performed after the immediate threat of a release has been stabilized or eliminated and clean-up of the site has begun."

Employee (per 29 CFR 1910.20): "...a current employee, a former employee, or an employee being assigned or transferred to work where there will be exposure to toxic substances or harmful physical agents. In the case of a deceased or legally incapacitated employee, the employee's legal representative may directly exercise all the employee's rights... ."

Employees covered by this protocol are further specified by 29 CFR 1910.120(f)(2), and include:

"(i) all employees who are or may be exposed to hazardous substances or health hazards at or above the permissible exposure limits or, if there is no permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year;

(ii) all employees who wear a respirator for 30 days or more a year or as required by 29 CFR 1910.134 [Respiratory protection];

(iii) all employees who are injured, become ill or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation; and

(iv) members of HAZMAT teams."

Employee Exposure Record (per 29 CFR 1910.20): "...a record containing any of the following kinds of information:

Environmental (workplace) monitoring or measuring of a toxic substance or harmful physical agent,...

Biological monitoring results which directly assess the absorption of a toxic substance or harmful physical agent by body systems [e.g., laboratory tests],...

Material safety data sheets...

...a chemical inventory or any other record which reveals where and when used and the identity (e.g., chemical, common, or trade name) of a toxic substance or harmful physical agent."

Employee Medical Record (per 29 CFR 1910.20): "...a record concerning the health status of an employee which is made or maintained by a physician, nurse, or other health care personnel or technician..."

ASSESSMENT OF RISKS FOR EMPLOYEES

The performance of appropriate medical surveillance and respirator clearance services first requires a determination of the nature of an employee's workplace tasks, and exposures and potential exposures to toxic materials and physical stressors. Information to contribute to this determination may come from several sources. Any approach may be augmented significantly by the involvement of industrial hygienists who are familiar with the work sites, and the work tasks of the employees.

Material Safety Data Sheets should be made available to the employees for any known chemicals or potentially toxic materials used or encountered in the course of the employee carrying out his/her duties. The appropriate MSDS forms also should be made available to the examining physician as part of the post-emergency response when an employee is suspected or known to have been exposed to an identified toxic material.

Because of the risk of exposure to bloodborne pathogens, either as a result of contact with contaminated materials in the work place or as a result of providing emergency first responder medical services to co-workers or the public, consideration of this important potential risk must be incorporated into program planning.

Job Descriptions may provide information regarding the exposures that an employee could experience in carrying out their duties, including their assignment to the HAZMAT Team. Also, the job description should cover any personal protective equipment (PPE) that is to be used by employees in the specified position, and any known or anticipated significant environmental or ergonomic stressors. Actual employee exposures will depend on the nature of the incidents to which the Team responds, the tasks the individual employee carries out, the conditions under which the tasks are carried out, and

the adequacy of PPE that is used. Because of variability in the adequacy of PPE and the consistency and accuracy of its use, however, medical monitoring is necessary in response to environmental exposures that exceed the permissible exposure level, regardless of the use of PPE. In general, job descriptions are useful only for a preliminary categorization of groups of employees who: 1) need further quantification of potential exposure; or 2) are not likely to require further assessment or surveillance services.

Employee **Occupational Histories** may provide further information if accurately and completely prepared. They may be prepared individually by or for each employee, or by the employer for groups of employees who are known to carry out similar tasks and face similar potential toxic exposures or physical stressors. Reference should be made to Attachment D 2 (b), (c), and D 3 of this *Handbook* for examples of forms that may be used.

In addition, a current medical history must be made available to the examining physician, allowing a consideration of symptoms that might be related to exposure to hazardous materials, and to fitness of the employee both for carrying out the expected duties at the work site and for using any personal protective equipment that may be necessary for the specific work sites and duties. The DOI Standard Medical History and Examination Form may be used for this purpose (see Attachment D 3).

SERVICES TO BE PROVIDED

As a minimum, a general medical examination should be provided to all HAZMAT team members. Information obtained through the history and exposure review process described above is used to tailor further medical history questions, emphasize specific portions of the examination, and conduct further laboratory studies to assure the evaluation of organ systems most likely to demonstrate health effects of known or potential toxic exposures. In this way, expensive tests that do not need to be carried out are avoided, and those that are mandated by known or suspected exposures are not left out inadvertently.

OSHA Mandated Services are described in federal regulations, and include both the **frequency** of types of examinations and the **toxic agents** requiring medical surveillance. A list of these agents is provided in 29 CFR 1910 Subpart Z, which has been summarized in Tab 8 of this *Handbook*. The list includes the Federal Register locations of the regulations that apply to each listed agent. The content of the regulations for each specific agent are not reproduced here. However, 29 CFR 1910.120(f) provides the applicable regulations for the general category of "Hazardous waste operations and emergency response."

As covered by 29 CFR 1910.1030 (Bloodborne Pathogens), employees whose job duties include the provision of services that involve significant potential for exposure must be offered training in blood borne pathogens, and offered the three shot hepatitis B immunization series. A model plan and a guide to a blood borne pathogens program are

available from the OHS as companion documents to this *Handbook*. As part of the program for preventing injury and illness, and responding to untoward events when they occur, each DOI bureau/area/program should assure that an appropriate plan is in place for any employees with potential exposure.

Recommended Examination Components, and Exam Periodicity

The regulations presented in 29 CFR 1910.120(f) specify that medical examinations for the HAZMAT team "shall include a medical and work history (or updated history if one is in the employee's file) with special emphasis on symptoms related to the handling of hazardous substances and health hazards, and to fitness for duty including the ability to wear any required PPE under conditions (i.e., temperature extremes) that may be expected at the work site." The content of the exam itself "shall be determined by the attending physician." At the end of this section is a general listing of appropriate services that may be provided to members of the HAZMAT team, with the recognition that additional tests, procedures, or foci of attention may be necessary, depending on individual employee variation in documented or anticipated exposures.

The CFR specifies the **periodicity** of exams for HAZMAT team members, according to the purpose of the exam:

- **prior to assignment** to a position on the HAZMAT team, an exam is to be provided to the proposed team member (as governed by provisions of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, these should be approached as "pre-placement" exams, rather than "pre-employment" exams). The pre-placement exam allows the establishment of a baseline for subsequent comparisons, and provides for the identification of medical conditions that may impact the actual assignment of an employee to duties that might be contraindicated by those conditions;

- at least once **every twelve months**, unless determined by a physician to be necessary only every other year (the exams may be no less frequent than every other year);

- at the **termination of employment or reassignment** to a situation where the employee would not be covered by these requirements;

- **following the development of signs or symptoms** indicating possible overexposure to hazardous substances or health hazards, or if the employee has been injured or known to have been exposed above the permissible exposure limits or published exposure levels; or

- at **more frequent times**, if the physician determines this to be necessary. It should be added here that specific requirements for medical surveillance for some of the hazards identified in 29 CFR 1910 may require more frequent evaluations, including examinations and/or laboratory tests. An example would be an employee found to have elevated blood lead levels (covered by 29 CFR 1910.1025), in which case several repeat tests may be necessary before the employee can be cleared to return to work in the setting where exposures occurred.

Medical Services to be Provided for Hazardous Waste Workers

SERVICES, BY CATEGORY
« HISTORIES »
General Medical History
Occupational History
« EXAMINATION ITEMS »
General Physical Examination
General Appearance and Vital Signs
Special Attention To:
- Central Nervous System
- Peripheral Nervous System
- Back & Musculoskeletal System
- Cardiovascular System
- Eyes
- Respiratory System
- Skin
- Thyroid
- Metabolic System
- Habitus (obesity)
- Overall Physical Fitness

« DIAGNOSTIC TESTS/PROCEDURES »
Vision Test, Best Far Vision Acuity
Vision Test, Best Near Vision Acuity
Vision Test, Color Discrimination
Chest X-Ray, PA and Lateral (if indicated)
Pulmonary Function Test-Spirometry
Electrocardiogram-Resting (if indicated)
Exercise Stress Test (requires AMO clearance)
« LABORATORY »
Lab Panel (CBC, UA, Chemistry Panel)
Cholinesterase-RBC and Plasma
Heavy Metal Screen (24 Hour Urine, Quantitative, As, Pb, Hg, Cd)
Other, depending on known or potential exposures
« CLEARANCES »
Respirator Medical Clearance
Cartridge Respirator Clearance
Powered Air Respirator Medical Clearance
Self-Contained Breathing Apparatus Clearance
Medical Clearance for Lifting or Heavy Exertion
Medical Clearance to Work in Moisture Impermeable Clothing

[Note: The following constitutes the Medical Standards and Certification requirements of the Federal Aviation Regulations, as presented in 14 CFR 67. These regulations, with amendments, became effective September 16, 1996. They were revised effective January 1, 2008.]

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Authority: 49 U.S.C. 106(g), 40113, 44701-44703, 44707, 44709-44711, 45102-45103, 45301-45303.

Source: Docket No. 27940, 61 FR 11256, Mar. 19, 1996, unless otherwise noted.

Sec. 67.1 Applicability.

This part prescribes the medical standards and certification procedures for issuing medical certificates for airmen and for remaining eligible for a medical certificate.

Sec. 67.3 Issue.

Except as provided in Sec. 67.5, a person who meets the medical standards prescribed in this part, based on medical examination and evaluation of the person's history and condition, is entitled to an appropriate medical certificate.

Sec. 67.7 Access to the National Driver Register.

At the time of application for a certificate issued under this part, each person who applies for a medical certificate shall execute an express consent form authorizing the Administrator to request the chief driver licensing official of any state designated by the Administrator to transmit information contained in the National Driver Register about the person to the Administrator. The Administrator shall make information received from the National Driver Register, if any, available on request to the person for review and written comment.

Subpart B First-Class Airman Medical Certificate

Sec. 67.101 Eligibility.

To be eligible for a first-class airman medical certificate, and to remain eligible for a first-class airman medical certificate, a person must meet the requirements of this subpart.

Sec. 67.103 Eye.

Eye standards for a first-class airman medical certificate are:

(a) Distant visual acuity of 20/20 or better in each eye separately, with or without corrective lenses. If corrective lenses (spectacles or contact lenses) are necessary for 20/20 vision, the person may be eligible only on the condition that corrective lenses are worn while exercising the privileges of an airman certificate.

(b) Near vision of 20/40 or better, Snellen equivalent, at 16 inches in each eye separately, with or without corrective lenses. If age 50 or older, near vision of 20/40 or better, Snellen equivalent, at both 16 inches and 32 inches in each eye separately, with or without corrective lenses.

(c) Ability to perceive those colors necessary for the safe performance of airman duties.

(d) Normal fields of vision.

(e) No acute or chronic pathological condition of either eye or adnexa that interferes with the proper function of an eye, that may reasonably be expected to progress to that degree, or that may reasonably be expected to be aggravated by flying.

(f) Bifoveal fixation and vergence-phoria relationship sufficient to prevent a break in fusion under conditions that may reasonably be expected to occur in performing airman duties. Tests for the factors named in this paragraph are not required except for persons found to have more than 1 prism diopter of hyperphoria, 6 prism diopters of esophoria, or 6 prism diopters of exophoria. If any of these values are exceeded, the Federal Air Surgeon may require the person to be examined by a qualified eye specialist to determine if there is bifoveal fixation and an adequate vergence-phoria relationship. However, if otherwise eligible, the person is issued a medical certificate pending the results of the examination.

Sec. 67.105 Ear, nose, throat, and equilibrium.

Ear, nose, throat, and equilibrium standards for a first-class airman medical certificate are:

(a) The person shall demonstrate acceptable hearing by at least one of the following tests:

(1) Demonstrate an ability to hear an average conversational voice in a quiet room, using both ears, at a distance of 6 feet from the examiner, with the back turned to the examiner.

(2) Demonstrate an acceptable understanding of speech as determined by audiometric speech discrimination testing to a score of at least 70 percent obtained in one ear

or in a sound field environment.

(3) Provide acceptable results of pure tone audiometric testing of unaided hearing acuity according to the following table of worst acceptable thresholds, using the calibration standards of the American National Standards Institute, 1969 (11 West 42d Street, New York, NY 10036):

Frequency (Hz)	500 Hz	1000 Hz	2000 Hz	3000 Hz
Better ear (Db)	35	30	30	40
Poorer ear (Db)	35	50	50	60

(b) No disease or condition of the middle or internal ear, nose, oral cavity, pharynx, or larynx that--

(1) Interferes with, or is aggravated by, flying or may reasonably be expected to do so; or

(2) Interferes with, or may reasonably be expected to interfere with, clear and effective speech communication.

(c) No disease or condition manifested by, or that may reasonably be expected to be manifested by, vertigo or a disturbance of equilibrium.

Sec. 67.107 Mental.

Mental standards for a first-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of any of the following:

(1) A personality disorder that is severe enough to have repeatedly manifested itself by overt acts.

(2) A psychosis. As used in this section, ``psychosis'' refers to a mental disorder in which:

(i) The individual has manifested delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly accepted symptoms of this condition; or

(ii) The individual may reasonably be expected to manifest delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly accepted symptoms of this condition.

(3) A bipolar disorder.

(4) Substance dependence, except where there is established clinical evidence, satisfactory to the Federal Air Surgeon, of recovery, including sustained total abstinence from the substance(s) for not less than the preceding 2 years. As used in this section--

(i) “Substance'” includes: Alcohol; other sedatives and hypnotics; anxiolytics; opioids; central nervous system stimulants such as cocaine, amphetamines, and similarly acting sympathomimetics; hallucinogens; phencyclidine or

similarly acting arylcyclohexylamines; cannabis; inhalants; and other psychoactive drugs and chemicals; and

(ii) "Substance dependence" means a condition in which a person is dependent on a substance, other than tobacco or ordinary xanthine-containing (e.g., caffeine) beverages, as evidenced by--

(A) Increased tolerance;

(B) Manifestation of withdrawal symptoms;

(C) Impaired control of use; or

(D) Continued use despite damage to physical health or impairment of social, personal, or occupational functioning.

(b) No substance abuse within the preceding 2 years defined as:

(1) Use of a substance in a situation in which that use was physically hazardous, if there has been at any other time an instance of the use of a substance also in a situation in which that use was physically hazardous;

(2) A verified positive drug test result, an alcohol test result of 0.04 or greater alcohol concentration, or a refusal to submit to a drug or alcohol test required by the U.S. Department of Transportation or an agency of the U.S. Department of Transportation; or

(3) Misuse of a substance that the Federal Air Surgeon, based on case history and appropriate, qualified medical judgment relating to the substance involved, finds--

(i) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(ii) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

(c) No other personality disorder, neurosis, or other mental condition that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds--

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

Sec. 67.109 Neurologic.

Neurologic standards for a first-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of any of the following:

(1) Epilepsy;

(2) A disturbance of consciousness without satisfactory medical explanation of the cause; or

(3) A transient loss of control of nervous system function(s) without satisfactory medical explanation of the cause.

(b) No other seizure disorder, disturbance of consciousness, or neurologic condition that the Federal Air Surgeon, based on the case history and appropriate, qualified medical

judgment relating to the condition involved, finds--
(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or
(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

Sec. 67.111 Cardiovascular.

Cardiovascular standards for a first-class airman medical certificate are:
(a) No established medical history or clinical diagnosis of any of the following:
(1) Myocardial infarction;
(2) Angina pectoris;
(3) Coronary heart disease that has required treatment or, if untreated, that has been symptomatic or clinically significant;
(4) Cardiac valve replacement;
(5) Permanent cardiac pacemaker implantation; or
(6) Heart replacement;
(b) A person applying for first-class medical certification must demonstrate an absence of myocardial infarction and other clinically significant abnormality on electrocardiographic examination:
(1) At the first application after reaching the 35th birthday; and
(2) On an annual basis after reaching the 40th birthday.
(c) An electrocardiogram will satisfy a requirement of paragraph (b) of this section if it is dated no earlier than 60 days before the date of the application it is to accompany and was performed and transmitted according to acceptable standards and techniques.

Sec. 67.113 General medical condition.

The general medical standards for a first-class airman medical certificate are:
(a) No established medical history or clinical diagnosis of diabetes mellitus that requires insulin or any other hypoglycemic drug for control.
(b) No other organic, functional, or structural disease, defect, or limitation that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds--
(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or
(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.
(c) No medication or other treatment that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the medication or other treatment involved, finds--
(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

Sec. 67.115 Discretionary issuance.

A person who does not meet the provisions of Sec. Sec. 67.103 through 67.113 may apply for the discretionary issuance of a certificate under Sec. 67.401.

Subpart C Second-Class Airman Medical Certificate

Sec. 67.201 Eligibility.

To be eligible for a second-class airman medical certificate, and to remain eligible for a second-class airman medical certificate, a person must meet the requirements of this subpart.

Sec. 67.203 Eye.

Eye standards for a second-class airman medical certificate are:

(a) Distant visual acuity of 20/20 or better in each eye separately, with or without corrective lenses. If corrective lenses (spectacles or contact lenses) are necessary for 20/20 vision, the person may be eligible only on the condition that corrective lenses are worn while exercising the privileges of an airman certificate.

(b) Near vision of 20/40 or better, Snellen equivalent, at 16 inches in each eye separately, with or without corrective lenses. If age 50 or older, near vision of 20/40 or better, Snellen equivalent, at both 16 inches and 32 inches in each eye separately, with or without corrective lenses.

(c) Ability to perceive those colors necessary for the safe performance of airman duties.

(d) Normal fields of vision.

(e) No acute or chronic pathological condition of either eye or adnexa that interferes with the proper function of an eye, that may reasonably be expected to progress to that degree, or that may reasonably be expected to be aggravated by flying.

(f) Bifoveal fixation and vergence-phoria relationship sufficient to prevent a break in fusion under conditions that may reasonably be expected to occur in performing airman duties. Tests for the factors named in this paragraph are not required except for persons found to have more than 1 prism diopter of hyperphoria, 6 prism diopters of esophoria, or 6 prism diopters of exophoria. If any of these values are exceeded, the Federal Air Surgeon may require the person to be examined by a qualified eye specialist to determine if there is bifoveal fixation and an adequate vergence-phoria relationship. However, if otherwise eligible, the person is issued a medical certificate pending the results of the examination.

Sec. 67.205 Ear, nose, throat, and equilibrium.

Ear, nose, throat, and equilibrium standards for a second-class airman medical certificate are:

(a) The person shall demonstrate acceptable hearing by at least one of the following tests:

(1) Demonstrate an ability to hear an average conversational voice in a quiet room, using both ears, at a distance of 6 feet from the examiner, with the back turned to the examiner.

(2) Demonstrate an acceptable understanding of speech as determined by audiometric speech discrimination testing to a score of at least 70 percent obtained in one ear or in a sound field environment.

(3) Provide acceptable results of pure tone audiometric testing of unaided hearing acuity according to the following table of worst acceptable thresholds, using the calibration standards of the American National Standards Institute, 1969:

Frequency (Hz)	500 Hz	1000 Hz	2000 Hz	3000 Hz
Better ear (Db)	35	30	30	40
Poorer ear (Db)	35	50	50	60

(b) No disease or condition of the middle or internal ear, nose, oral cavity, pharynx, or larynx that--

(1) Interferes with, or is aggravated by, flying or may reasonably be expected to do so; or

(2) Interferes with, or may reasonably be expected to interfere with, clear and effective speech communication.

(c) No disease or condition manifested by, or that may reasonably be expected to be manifested by, vertigo or a disturbance of equilibrium.

Sec. 67.207 Mental.

Mental standards for a second-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of any of the following:

(1) A personality disorder that is severe enough to have repeatedly manifested itself by overt acts.

(2) A psychosis. As used in this section, ``psychosis'' refers to a mental disorder in which:

(i) The individual has manifested delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly accepted symptoms of this condition; or

(ii) The individual may reasonably be expected to manifest delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly

accepted symptoms of this condition.

(3) A bipolar disorder.

(4) Substance dependence, except where there is established clinical evidence, satisfactory to the Federal Air Surgeon, of recovery, including sustained total abstinence from the substance(s) for not less than the preceding 2 years. As used in this section--

(i) "Substance" includes: Alcohol; other sedatives and hypnotics; anxiolytics; opioids; central nervous system stimulants such as cocaine, amphetamines, and similarly acting sympathomimetics; hallucinogens; phencyclidine or similarly acting arylcyclohexylamines; cannabis; inhalants; and other psychoactive drugs and chemicals; and

(ii) "Substance dependence" means a condition in which a person is dependent on a substance, other than tobacco or ordinary xanthine-containing (e.g., caffeine) beverages, as evidenced by--

(A) Increased tolerance;

(B) Manifestation of withdrawal symptoms;

(C) Impaired control of use; or

(D) Continued use despite damage to physical health or impairment of social, personal, or occupational functioning.

(b) No substance abuse within the preceding 2 years defined as:

(1) Use of a substance in a situation in which that use was physically hazardous, if there has been at any other time an instance of the use of a substance also in a situation in which that use was physically hazardous;

(2) A verified positive drug test result, an alcohol test result of 0.04 or greater alcohol concentration, or a refusal to submit to a drug or alcohol test required by the U.S. Department of Transportation or an agency of the U.S. Department of Transportation; or

(3) Misuse of a substance that the Federal Air Surgeon, based on case history and appropriate, qualified medical judgment relating to the substance involved, finds--

(i) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(ii) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

(c) No other personality disorder, neurosis, or other mental condition that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds--

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

[Doc. No. 27940, 61 FR 11256, Mar. 19, 1996, as amended by Amdt. 67-19, 71 FR 35764, June 21, 2006]

Sec. 67.209 Neurologic.

Neurologic standards for a second-class airman medical certificate are:
(a) No established medical history or clinical diagnosis of any of the following:
  (1) Epilepsy;
  (2) A disturbance of consciousness without satisfactory medical explanation of the cause; or
  (3) A transient loss of control of nervous system function(s) without satisfactory medical explanation of the cause;
(b) No other seizure disorder, disturbance of consciousness, or neurologic condition that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds--
  (1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or
  (2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

Sec. 67.211 Cardiovascular.

Cardiovascular standards for a second-class medical certificate are no established medical history or clinical diagnosis of any of the following:
(a) Myocardial infarction;
(b) Angina pectoris;
(c) Coronary heart disease that has required treatment or, if untreated, that has been symptomatic or clinically significant;
(d) Cardiac valve replacement;
(e) Permanent cardiac pacemaker implantation; or
(f) Heart replacement.

Sec. 67.213 General medical condition.

The general medical standards for a second-class airman medical certificate are:
(a) No established medical history or clinical diagnosis of diabetes mellitus that requires insulin or any other hypoglycemic drug for control.
(b) No other organic, functional, or structural disease, defect, or limitation that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds--
  (1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or
  (2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.
(c) No medication or other treatment that the Federal Air Surgeon, based on the case

history and appropriate, qualified medical judgment relating to the medication or other treatment involved, finds--
(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or
(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

Sec. 67.215 Discretionary issuance.

A person who does not meet the provisions of Sec. Sec. 67.203 through 67.213 may apply for the discretionary issuance of a certificate under Sec. 67.401.

Subpart D Third-Class Airman Medical Certificate

Sec. 67.301 Eligibility.

To be eligible for a third-class airman medical certificate, or to remain eligible for a third-class airman medical certificate, a person must meet the requirements of this subpart.

Sec. 67.303 Eye.

Eye standards for a third-class airman medical certificate are:
(a) Distant visual acuity of 20/40 or better in each eye separately, with or without corrective lenses. If corrective lenses (spectacles or contact lenses) are necessary for 20/40 vision, the person may be eligible only on the condition that corrective lenses are worn while exercising the privileges of an airman certificate.
(b) Near vision of 20/40 or better, Snellen equivalent, at 16 inches in each eye separately, with or without corrective lenses.
(c) Ability to perceive those colors necessary for the safe performance of airman duties.
(d) No acute or chronic pathological condition of either eye or adnexa that interferes with the proper function of an eye, that may reasonably be expected to progress to that degree, or that may reasonably be expected to be aggravated by flying.

Sec. 67.305 Ear, nose, throat, and equilibrium.

Ear, nose, throat, and equilibrium standards for a third-class airman medical certificate are:
(a) The person shall demonstrate acceptable hearing by at least one of the following tests:
(1) Demonstrate an ability to hear an average conversational voice in a quiet room, using both ears, at a distance of 6 feet from the examiner, with the back turned to the examiner.
(2) Demonstrate an acceptable understanding of speech as determined by audiometric

speech discrimination testing to a score of at least 70 percent obtained in one ear or in a sound field environment.

(3) Provide acceptable results of pure tone audiometric testing of unaided hearing acuity according to the following table of worst acceptable thresholds, using the calibration standards of the American National Standards Institute, 1969:

Frequency (Hz)	500 Hz	1000 Hz	2000 Hz	3000 Hz
Better ear (Db)	35	30	30	40
Poorer ear (Db)	35	50	50	60

(b) No disease or condition of the middle or internal ear, nose, oral cavity, pharynx, or larynx that--

(1) Interferes with, or is aggravated by, flying or may reasonably be expected to do so; or

(2) Interferes with clear and effective speech communication.

(c) No disease or condition manifested by, or that may reasonably be expected to be manifested by, vertigo or a disturbance of equilibrium.

Sec. 67.307 Mental.

Mental standards for a third-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of any of the following:

(1) A personality disorder that is severe enough to have repeatedly manifested itself by overt acts.

(2) A psychosis. As used in this section, ``psychosis'' refers to a mental disorder in which--

(i) The individual has manifested delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly accepted symptoms of this condition; or

(ii) The individual may reasonably be expected to manifest delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly accepted symptoms of this condition.

(3) A bipolar disorder.

(4) Substance dependence, except where there is established clinical evidence, satisfactory to the Federal Air Surgeon, of recovery, including sustained total abstinence from the substance(s) for not less than the preceding 2 years. As used in this section--

(i) “Substance” includes: alcohol; other sedatives and hypnotics; anxiolytics; opioids; central nervous system stimulants such as cocaine, amphetamines, and similarly acting sympathomimetics; hallucinogens; phencyclidine or similarly acting arylcyclohexylamines; cannabis;

inhalants; and other psychoactive drugs and chemicals; and

(ii) "Substance dependence" means a condition in which a person is dependent on a substance, other than tobacco or ordinary xanthine-containing (e.g., caffeine) beverages, as evidenced by--

(A) Increased tolerance;

(B) Manifestation of withdrawal symptoms;

(C) Impaired control of use; or

(D) Continued use despite damage to physical health or impairment of social, personal, or occupational functioning.

(b) No substance abuse within the preceding 2 years defined as:

(1) Use of a substance in a situation in which that use was physically hazardous, if there has been at any other time an instance of the use of a substance also in a situation in which that use was physically hazardous;

(2) A verified positive drug test result, an alcohol test result of 0.04 or greater alcohol concentration, or a refusal to submit to a drug or alcohol test required by the U.S. Department of Transportation or an agency of the U.S. Department of Transportation; or

(3) Misuse of a substance that the Federal Air Surgeon, based on case history and appropriate, qualified medical judgment relating to the substance involved, finds--

(i) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(ii) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

(c) No other personality disorder, neurosis, or other mental condition that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds--

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

[Doc. No. 27940, 61 FR 11256, Mar. 19, 1996, as amended by Amdt. 67-19, 71 FR 35764, June 21, 2006]

Sec. 67.309 Neurologic.

Neurologic standards for a third-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of any of the following:

(1) Epilepsy;

(2) A disturbance of consciousness without satisfactory medical explanation of the cause; or

(3) A transient loss of control of nervous system function(s) without satisfactory

medical explanation of the cause.

(b) No other seizure disorder, disturbance of consciousness, or neurologic condition that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds--
  (1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or
  (2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

Sec. 67.311 Cardiovascular.

Cardiovascular standards for a third-class airman medical certificate are no established medical history or clinical diagnosis of any of the following:

(a) Myocardial infarction;
(b) Angina pectoris;
(c) Coronary heart disease that has required treatment or, if untreated, that has been symptomatic or clinically significant;
(d) Cardiac valve replacement;
(e) Permanent cardiac pacemaker implantation; or
(f) Heart replacement.

Sec. 67.313 General medical condition.

The general medical standards for a third-class airman medical certificate are:

(a) No established medical history or clinical diagnosis of diabetes mellitus that requires insulin or any other hypoglycemic drug for control.
(b) No other organic, functional, or structural disease, defect, or limitation that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the condition involved, finds--
  (1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or
  (2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.
(c) No medication or other treatment that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgment relating to the medication or other treatment involved, finds--
  (1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or
  (2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

Sec. 67.315 Discretionary issuance.

A person who does not meet the provisions of Sec. Sec. 67.303 through 67.313 may apply for the discretionary issuance of a certificate under Sec. 67.401.

Subpart E_Certification Procedures

Sec. 67.401 Special issuance of medical certificates.

(a) At the discretion of the Federal Air Surgeon, an Authorization for Special Issuance of a Medical Certificate (Authorization), valid for a specified period, may be granted to a person who does not meet the provisions of subparts B, C, or D of this part if the person shows to the satisfaction of the Federal Air Surgeon that the duties authorized by the class of medical certificate applied for can be performed without endangering public safety during the period in which the Authorization would be in force. The Federal Air Surgeon may authorize a special medical flight test, practical test, or medical evaluation for this purpose. A medical certificate of the appropriate class may be issued to a person who does not meet the provisions of subparts B, C, or D of this part if that person possesses a valid Authorization and is otherwise eligible. An airman medical certificate issued in accordance with this section shall expire no later than the end of the validity period or upon the withdrawal of the Authorization upon which it is based. At the end of its specified validity period, for grant of a new Authorization, the person must again show to the satisfaction of the Federal Air Surgeon that the duties authorized by the class of medical certificate applied for can be performed without endangering public safety during the period in which the Authorization would be in force.

(b) At the discretion of the Federal Air Surgeon, a Statement of Demonstrated Ability (SODA) may be granted, instead of an Authorization, to a person whose disqualifying condition is static or nonprogressive and who has been found capable of performing airman duties without endangering public safety. A SODA does not expire and authorizes a designated aviation medical examiner to issue a medical certificate of a specified class if the examiner finds that the condition described on its face has not adversely changed.

(c) In granting an Authorization or SODA, the Federal Air Surgeon may consider the person's operational experience and any medical facts that may affect the ability of the person to perform airman duties including--

(1) The combined effect on the person of failure to meet more than one requirement of this part; and

(2) The prognosis derived from professional consideration of all available information regarding the person.

(d) In granting an Authorization or SODA under this section, the Federal Air Surgeon specifies the class of medical certificate authorized to be issued and may do any or all of the following:

(1) Limit the duration of an Authorization;

(2) Condition the granting of a new Authorization on the results of subsequent

medical tests, examinations, or evaluations;

(3) State on the Authorization or SODA, and any medical certificate based upon it, any operational limitation needed for safety; or

(4) Condition the continued effect of an Authorization or SODA, and any second- or third-class medical certificate based upon it, on compliance with a statement of functional limitations issued to the person in coordination with the Director of Flight Standards or the Director's designee.

(e) In determining whether an Authorization or SODA should be granted to an applicant for a third-class medical certificate, the Federal Air Surgeon considers the freedom of an airman, exercising the privileges of a private pilot certificate, to accept reasonable risks to his or her person and property that are not acceptable in the exercise of commercial or airline transport pilot privileges, and, at the same time, considers the need to protect the safety of persons and property in other aircraft and on the ground.

(f) An Authorization or SODA granted under the provisions of this section to a person who does not meet the applicable provisions of subparts B, C, or D of this part may be withdrawn, at the discretion of the Federal Air Surgeon, at any time if--

(1) There is adverse change in the holder's medical condition;

(2) The holder fails to comply with a statement of functional limitations or operational limitations issued as a condition of certification under this section;

(3) Public safety would be endangered by the holder's exercise of airman privileges;

(4) The holder fails to provide medical information reasonably needed by the Federal Air Surgeon for certification under this section; or

(5) The holder makes or causes to be made a statement or entry that is the basis for withdrawal of an Authorization or SODA under Sec. 67.403.

(g) A person who has been granted an Authorization or SODA under this section based on a special medical flight or practical test need not take the test again during later physical examinations unless the Federal Air Surgeon determines or has reason to believe that the physical deficiency has or may have degraded to a degree to require another special medical flight test or practical test.

(h) The authority of the Federal Air Surgeon under this section is also exercised by the Manager, Aeromedical Certification Division, and each Regional Flight Surgeon.

(i) If an Authorization or SODA is withdrawn under paragraph (f) of this section the following procedures apply:

(1) The holder of the Authorization or SODA will be served a letter of withdrawal, stating the reason for the action;

(2) By not later than 60 days after the service of the letter of withdrawal, the holder of the Authorization or SODA may request, in writing, that the Federal Air Surgeon provide for review of the decision to withdraw. The request for review may be accompanied by supporting medical evidence;

(3) Within 60 days of receipt of a request for review, a written final decision either affirming or reversing the decision to withdraw will be issued; and

(4) A medical certificate rendered invalid pursuant to a withdrawal, in accordance with paragraph (a) of this section, shall be surrendered to the Administrator upon request.

(j) No grant of a special issuance made prior to September 16, 1996, may be used to

obtain a medical certificate after the earlier of the following dates:
(1) September 16, 1997; or
(2) The date on which the holder of such special issuance is required to provide additional information to the FAA as a condition for continued medical certification.

Sec. 67.403 Applications, certificates, logbooks, reports, and records: Falsification, reproduction, or alteration; incorrect statements.

(a) No person may make or cause to be made--
(1) A fraudulent or intentionally false statement on any application for a medical certificate or on a request for any Authorization for Special Issuance of a Medical Certificate (Authorization) or Statement of Demonstrated Ability (SODA) under this part;
(2) A fraudulent or intentionally false entry in any logbook, record, or report that is kept, made, or used, to show compliance with any requirement for any medical certificate or for any Authorization or SODA under this part;
(3) A reproduction, for fraudulent purposes, of any medical certificate under this part; or
(4) An alteration of any medical certificate under this part.
(b) The commission by any person of an act prohibited under paragraph (a) of this section is a basis for--
(1) Suspending or revoking all airman, ground instructor, and medical certificates and ratings held by that person;
(2) Withdrawing all Authorizations or SODA's held by that person; and
(3) Denying all applications for medical certification and requests for Authorizations or SODA's.
(c) The following may serve as a basis for suspending or revoking a medical certificate; withdrawing an Authorization or SODA; or denying an application for a medical certificate or request for an authorization or SODA:
(1) An incorrect statement, upon which the FAA relied, made in support of an application for a medical certificate or request for an Authorization or SODA.
(2) An incorrect entry, upon which the FAA relied, made in any logbook, record, or report that is kept, made, or used to show compliance with any requirement for a medical certificate or an Authorization or SODA.

Sec. 67.405 Medical examinations: Who may give.

(a) First-class. Any aviation medical examiner who is specifically designated for the purpose may give the examination for the first-class medical certificate. Any interested person may obtain a list of these aviation medical examiners, in any area, from the FAA Regional Flight Surgeon of the region in which the area is located.
(b) Second- and third-class. Any aviation medical examiner may give the examination for the second- or third-class medical certificate. Any interested person may obtain a list of aviation medical examiners, in any area, from the FAA Regional Flight Surgeon of

the region in which the area is located.

Sec. 67.407 Delegation of authority.

(a) The authority of the Administrator under 49 U.S.C. 44703 to issue or deny medical certificates is delegated to the Federal Air Surgeon to the extent necessary to--
  (1) Examine applicants for and holders of medical certificates to determine whether they meet applicable medical standards; and
  (2) Issue, renew, and deny medical certificates, and issue, renew, deny, and withdraw Authorizations for Special Issuance of a Medical Certificate and Statements of Demonstrated Ability to a person based upon meeting or failing to meet applicable medical standards.

(b) Subject to limitations in this chapter, the delegated functions of the Federal Air Surgeon to examine applicants for and holders of medical certificates for compliance with applicable medical standards and to issue, renew, and deny medical certificates are also delegated to aviation medical examiners and to authorized representatives of the Federal Air Surgeon within the FAA.

(c) The authority of the Administrator under 49 U.S.C. 44702, to reconsider the action of an aviation medical examiner is delegated to the Federal Air Surgeon; the Manager, Aeromedical Certification Division; and each Regional Flight Surgeon. Where the person does not meet the standards of Sec. Sec. 67.107(b)(3) and (c), 67.109(b), 67.113(b) and (c), 67.207(b)(3) and (c), 67.209(b), 67.213(b) and (c), 67.307(b)(3) and (c), 67.309(b), or 67.313(b) and (c), any action taken under this paragraph other than by the Federal Air Surgeon is subject to reconsideration by the Federal Air Surgeon. A certificate issued by an aviation medical examiner is considered to be affirmed as issued unless an FAA official named in this paragraph (authorized official) reverses that issuance within 60 days after the date of issuance. However, if within 60 days after the date of issuance an authorized official requests the certificate holder to submit additional medical information, an authorized official may reverse the issuance within 60 days after receipt of the requested information.

(d) The authority of the Administrator under 49 U.S.C. 44709 to re-examine any civil airman to the extent necessary to determine an airman's qualification to continue to hold an airman medical certificate, is delegated to the Federal Air Surgeon and his or her authorized representatives within the FAA.

Sec. 67.409 Denial of medical certificate.

(a) Any person who is denied a medical certificate by an aviation medical examiner may, within 30 days after the date of the denial, apply in writing and in duplicate to the Federal Air Surgeon, Attention: Manager, Aeromedical Certification Division, AAM-300, Federal Aviation Administration, P.O. Box 26080, Oklahoma City, Oklahoma 73126, for reconsideration of that denial. If the person does not ask for reconsideration during the 30-day period after the date of the denial, he or she is considered to have withdrawn the application for a medical certificate.

(b) The denial of a medical certificate--

(1) By an aviation medical examiner is not a denial by the Administrator under 49 U.S.C. 44703.
(2) By the Federal Air Surgeon is considered to be a denial by the Administrator under 49 U.S.C. 44703.
(3) By the Manager, Aeromedical Certification Division, or a Regional Flight Surgeon is considered to be a denial by the Administrator under 49 U.S.C. 44703 except where the person does not meet the standards of Sec. Sec. 67.107(b)(3) and (c), 67.109(b), or 67.113(b) and (c); 67.207(b)(3) and (c), 67.209(b), or 67.213(b) and (c); or 67.307(b)(3) and (c), 67.309(b), or 67.313(b) and (c).

(c) Any action taken under Sec. 67.407(c) that wholly or partly reverses the issue of a medical certificate by an aviation medical examiner is the denial of a medical certificate under paragraph (b) of this section.

(d) If the issue of a medical certificate is wholly or partly reversed by the Federal Air Surgeon; the Manager, Aeromedical Certification Division; or a Regional Flight Surgeon, the person holding that certificate shall surrender it, upon request of the FAA.

Sec. 67.411 Medical certificates by flight surgeons of Armed Forces.

(a) The FAA has designated flight surgeons of the Armed Forces on specified military posts, stations, and facilities, as aviation medical examiners.

(b) An aviation medical examiner described in paragraph (a) of this section may give physical examinations for the FAA medical certificates to persons who are on active duty or who are, under Department of Defense medical programs, eligible for FAA medical certification as civil airmen. In addition, such an examiner may issue or deny an appropriate FAA medical certificate in accordance with the regulations of this chapter and the policies of the FAA.

(c) Any interested person may obtain a list of the military posts, stations, and facilities at which a flight surgeon has been designated as an aviation medical examiner from the Surgeon General of the Armed Force concerned or from the Manager, Aeromedical Education Division, AAM-400, Federal Aviation Administration, P.O. Box 26082, Oklahoma City, Oklahoma 73125.

Sec. 67.413 Medical records.

(a) Whenever the Administrator finds that additional medical information or history is necessary to determine whether an applicant for or the holder of a medical certificate meets the medical standards for it, the Administrator requests that person to furnish that information or to authorize any clinic, hospital, physician, or other person to release to the Administrator all available information or records concerning that history. If the applicant or holder fails to provide the requested medical information or history or to authorize the release so requested, the Administrator may suspend, modify, or revoke all medical certificates the airman holds or may, in the case of an applicant, deny the application for an airman medical certificate.

(b) If an airman medical certificate is suspended or modified under paragraph (a) of this

section, that suspension or modification remains in effect until the requested information, history, or authorization is provided to the FAA and until the Federal Air Surgeon determines whether the person meets the medical standards under this part.

Sec. 67.415 Return of medical certificate after suspension or revocation.

The holder of any medical certificate issued under this part that is suspended or revoked shall, upon the Administrator's request, return it to the Administrator.

SAMPLE MEDICAL STANDARDS

And Review Criteria for Agency Medical Officers

These Standards Are Applicable to the Following Function:
TOWER CLIMBERS

Under 5 CFR Part 339 Medical Qualifications Determinations, medical standards may be established for functions with duties that are arduous or hazardous in nature. The medical standards described in this section are required because of the hazardous occupational and environmental aspects of the function of tower climber [hereinafter referred to as "climber"] (please refer to the table beginning on page 3). The medical standards are provided to aid the examining physician, the designated agency medical officer(s), and officials of other involved government agencies (e.g., the Office of Personnel Management, or OPM). They are to be used when determining whether there are medical conditions present that may affect an individual's ability to safely and efficiently perform the requirements of a climber without undue risk to himself/herself or others. The results of such determinations are to be used by an agency-based team (e.g., safety, personnel, management, peers, and medical) to consider whether waivers or reasonable accommodation may be appropriate when an individual is found to not meet a specified standard. In this way, the standards are intended to help insure consistency and uniformity in the medical evaluation of all applicants and incumbents.

Each of the medical standards listed in this document are subject to clinical interpretation by an appropriate agency medical officer (AMO) who will incorporate his/her knowledge of the essential job functions and the environmental conditions under which an employee may work. Listed with the standards are examples of medical conditions and/or physical impairments that may be incompatible with safe and efficient performance of duties, or that may be aggravated by performing those duties. Individualized assessments will be made on a case-by-case basis to determine the individual's ability to meet the performance-related requirements of the climber's job. Final consideration and medical determination may require additional medical information and/or testing that is not routinely required during either the pre-placement or periodic medical examination process.

Rationale for Medical Evaluation and Review of Climbers

The essential functions of climbers in supporting departmental and bureau missions are by nature hazardous. Also, these functions are performed under variable and unpredictable working conditions. In response, an interagency team has developed these standards in order to help insure the following:

1. Climbers will be able to perform the full range of essential functions of their jobs under the conditions under which those functions may be performed.

2. Existing/preexisting medical conditions of climbers and applicants will not be aggravated, accelerated, exacerbated, or permanently worsened as a result of carrying out the functions of the job.

3. Demonstration of the strong commitment of the agency to public and employee health and safety, and a strong commitment to maintaining the integrity of mission accomplishment.

Medical Evaluations

Medical evaluations are to be conducted both as a *pre-placement* exam for all individuals who are to be assigned to roles that involve the duties of climbers, and every three years thereafter. The AMO may determine that, due to health and safety risks, interval changes in health status, and possible medically-related performance concerns, the medical evaluation of individual climbers should be conducted more frequently.

The medical evaluation is to consist of those services summarized in the table on page 4. The evaluation is to be conducted by a qualified health care provider using the DOI Standard Medical History and Examination Form (or an alternative form that provides similar information). For assistance in arranging for physician services, please refer to Tab 5, "*Medical Services Providers*". The AMO will review the results of all examinations, and provide the final medical recommendation to the agency.

Please note: Consistent with the above discussion, these medical standards do not address *physical fitness* or *job performance*. Assessment of these factors would involve separate procedures, and are governed by separate regulations.

ESSENTIAL FUNCTIONS AND WORK CONDITIONS FOR THE JOB OF TOWER CLIMBER

Time/Work Volume	Physical Requirements	Environment	Physical Exposures
May include:			
• up to 10 climbs per day • climbs conducted up to 100 days per year • may be expected to make climbs every day • 75% of climbing trips are out and back in one day • work conducted during daylight hours; no climbing at night) • routine climbs allow resting as needed • climbs in support of fire suppression activities may limit the opportunity for rests • climbs to conduct personnel rescue work require rapid ascent and descent	• read documents and maps • drive to work sites or trail heads, 30 minutes to 2 hours • operate crane, trucks, or other motor vehicles • lift and carry gear bags and safety equipment (up to #45 or more) • put on and use personal protective, fall prevention, and fall arrest equipment • manipulate small and large devices, including 2-step carabiners and hooks, plus buckles and other small items • climb and descend ladders and tower structures, with 10-21+ inch risers • work at extreme heights (towers/ladders 10-1000+ feet tall) • be continuously and clearly aware of surroundings • walk, stand, kneel, stoop, and bend • use small and large hand and power tools • reach and use tools above shoulders and head • push and pull objects • read gauges, dials, and equipment	• slippery surfaces • uneven surfaces • heights (up to 1000 feet or more on structures) • altitudes (up to 12000 feet) • heat, cold, wet, dry (all with extremes) • wind • fog • high noise levels • variable lighting conditions • moving and stationery heavy equipment, machines, vehicles • wildlife (e.g., birds, bears, insects) • long distances from support or medical help • isolated, remote sites • hostile personnel/public • close living/working quarters • exposed, protruding bolts, braces • sharp metal objects	• high voltages • extreme heat and cold • noise • wildlife (e.g., birds, bears, insects) • gases, particulates, fumes • sleep disruption • falling objects, including bird droppings, tools, equipment • combustibles, corrosives, solvents, and other chemicals • bright sun, high UV light • welding fumes and light • open flame • dehydration • vibration

ESSENTIAL FUNCTIONS AND WORK CONDITIONS FOR THE JOB OF TOWER CLIMBER (continued)			
Time/Work Volume	**Physical Requirements**	**Environment**	**Physical Exposures**
	• tie and untie small and large ropes • work independently as well as on small teams • use writing implements, as well as computer keyboard and personal computer • communicate clearly with public and co-workers		

Medical Examination Services to be Provided for Tower Climbers

HISTORIES

- General Medical History
- Occupational History

EXAMINATION ITEMS

- General Appearance and Vital Signs (height, weight, blood pressure, heart rate)
- General Physical Examination, with Special Attention To:
    - Skin
    - Eyes, Ears (including TM mobility), Nose, Mouth, and Throat
    - Neck (including flexibility and rotation)
    - Thyroid
    - Respiratory System
    - Cardiovascular System
    - Back & Musculoskeletal System (including flexibility)
    - Extremities (including strength, range of motion, and joint stability)
    - Peripheral Vascular System
    - Abdomen
    - Gastrointestinal System
    - Genitourinary System
    - Central Nervous System (including cranial nerves I-XII, and cerebellar function)
    - Peripheral Nervous System (including reflexes, sensation, and position sense)
    - Mental Status Evaluation

DIAGNOSTIC TESTS/PROCEDURES

- Audiogram (including 500, 1000, 2000, 3000, 4000, 6000, 8000 Hertz in both ears)
- Visual Acuity, best near and far vision, corrected or uncorrected
- Peripheral Vision
- Depth perception
- Color Discrimination (including red, green, and yellow) (baseline/exit exam)
- Pulmonary Function Test-Spirometry (baseline/exit exam)
- Chest X-Ray, PA & Lateral (baseline/exit exam)
- Electrocardiogram-Resting (baseline/exit exam)
- TB (Mantoux) skin test (baseline/exit exam)
- Tetanus vaccination (to maintain as current)

LABORATORY

- CBC (hemoglobin, hematocrit, platelets, white blood count with differential)
- Dipstick urinalysis (baseline/exit exam only)
- Blood chemistries:
    - LDH, SGOT/AST, SGPT/ALT, GGT, bilirubin [baseline/exit exam only]
    - Total cholesterol, LDL-C, HDL-C, triglycerides, blood sugar [each exam]

CLEARANCES

- Medical Clearance for Climbers

PSYCHIATRIC/PSYCHOLOGIC STANDARD

The applicant/incumbent must have judgement, mental functioning, and social interaction/behavior that will provide for the safe and efficient conduct of the essential functions of the job. This may be demonstrated by:

- No evidence by physical examination and medical history of psychiatric conditions (including alcohol or substance abuse) likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

  CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

  (All diagnoses must be consistent with the diagnostic criteria as established by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, DSM-IV.)

  1. **AMNESTIC** disorders
  2. **DELIRIUM** (depending upon etiology and duration)
  3. **DEMENTIAS** (depending upon etiology and duration)
  4. **DISSOCIATIVE DISORDERS**
  5. **KLEPTOMANIA**
  6. **PANIC DISORDER** and **OTHER ANXIETY DISORDERS** (including claustrophobia and acrophobia, depending upon etiology, duration and severity of clinical expression)
  7. **DEPRESSIVE, BIPOLAR,** or **OTHER MOOD DISORDERS** (depending upon clinical course and status of current treatment and response)
  8. **PYROMANIA**
  9. **SCHIZOPHRENIA** (Exceptions may be may in cases of a single episode of schizophrenic reactions associated with an acute illness or toxic exposure capable of causing such reaction.)
  10. **ANTISOCIAL, PARANOID,** or **SCHIZOID PERSONALITY DISORDER**
  11. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

PROSTHETICS, TRANSPLANTS, AND IMPLANTS STANDARD

The presence or history of organ transplantation or use of prosthetics or implants are not of themselves disqualifying. However, the applicant/incumbent must be able to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- No evidence by physical examination and medical history that the transplant, the prosthesis, the implant, or the conditions that led to the need for these treatments are likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

  Note: In general, hand or arm amputations (with or without a prosthesis) are incompatible with the functional requirements of the job. For individuals with

any transplant, prosthetic, or implanted pump or electrical device, the examinee will have to provide documentation ***for agency review*** from his/her surgeon or physician that the examinee (and, if applicable, his/her prosthetic or implanted device) is considered to be fully compatible with the specified essential functions of the job.

IMMUNE SYSTEM/ALLERGIC DISORDERS STANDARD

The applicant/incumbent must be free of communicable diseases, have a healthy immune system, and be free of significant allergic conditions in order to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A general physical exam of all major body systems that is within the range of normal variation, including:
  - no evidence of current communicable disease that would be expected to interfere with the safe and effective performance of the essential functions of the job; and
  - no evidence of current communicable disease that would be expected to pose a threat to the health of any co-workers or the public; and
  - normal nasopharynx, major sinuses, Eustachian tube, and pulmonary exam
- Normal complete blood count, including white blood count and differential; and
- Current vaccination status for tetanus; and
- No evidence by physical examination and medical history of infectious disease, immune system, or allergy conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3). Individuals with a history of anaphylaxis or major allergy problems may be required to carry a personal anaphylaxis kit (injectable epinephrine).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. Myasthenia gravis
2. Systemic lupus erythematosis
3. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

MEDICATION STANDARD

The need for and use of prescribed or over-the-counter medications are not of themselves disqualifying. However, there must be no evidence by physical examination, laboratory tests, or medical history of any impairment of body function or mental function and attention due to medications if that impairment is likely to present a safety risk or to worsen as a result of carrying out the specified essential functions of the job, under the conditions in which those functions must be carried out (see page 3). Each of the following points should be considered:

1. Medication(s) (type and dosage requirements)
2. Potential drug side effects
3. Drug-drug interactions
4. Adverse drug reactions
5. Drug toxicity or medical complications from long-term use
6. Drug-environmental interactions
7. Drug-food interactions
8. History of patient compliance

EYE / VISION STANDARD

The applicant/incumbent must be able to see well enough to safely and efficiently carry out the essential functions of the job (see page 3). This requires binocular vision, near and far visual acuity, depth perception, peripheral vision, and color vision, which may be demonstrated by:

- Far visual acuity of at least 20/20 in each eye; this may be achieved with corrective lenses (if necessary), including contact lenses or spectacles; and
- Near visual acuity of at least 20/25 (Snellen equivalent) at 16 inches; this may be achieved with corrective lenses (if necessary), including contact lenses or spectacles; and
- Color vision sufficient to distinguish at least red, green, and amber (yellow); and
- Peripheral vision of at least 70° laterally in each eye; and
- Normal depth perception; and
- No ophthalmologic condition that would increase ophthalmic sensitivity to bright light, fumes, or airborne particulates, or susceptibility to sudden incapacitation.

Note: Contact lenses are acceptable for correction of visual acuity, but the user must be able to demonstrate that the corrective device(s) can be worn safely and for extended periods of time without significant maintenance.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **CHRONIC CONJUNCTIVITIS**
2. **CORNEAL ULCERS** This condition must be treated and cleared by an Ophthalmologist before a medical clearance can be granted.
3. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

HEAD, NOSE, MOUTH, THROAT AND NECK STANDARD

The applicant/incumbent must have structures and functions of the head, nose, mouth, throat, and neck that are sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the head, nose, mouth, throat, and neck that is within the range of normal variation, including:
  - normal flexion, extension, and rotation of the neck; and
  - open nasal and oral airways; and
  - unobstructed Eustachian tubes; and

- o no structural abnormalities that would prevent the normal use of a hard hat and protective eyewear; and
- Normal conversational speech; and
- No evidence by physical examination and medical history of head, nose, mouth, throat, or neck conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **MUTISM/APHONIA**
2. **NASAL POLYPS THAT SIGNIFICANTLY OBSTRUCT BREATHING**
3. **RESTRICTED RANGE OF MOTION IN THE NECK**
4. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

EAR / HEARING STANDARD

The applicant/incumbent must be able to hear well enough to safely and efficiently carry out the essential functions of the job. This requires binaural hearing (to localize sounds) and auditory acuity, which may be demonstrated by:

- A current pure tone, air conduction audiogram, using equipment and a test setting which meet the standards of the American National Standards Institute (see 29 CFR 1910.95); and
- Documentation of hearing thresholds of no greater than 40 dB at 500, 1000, 2000, and 3000 Hz in each ear; and
- No evidence by physical examination and medical history of ear conditions (external, middle, or internal) likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

Note: The use of a hearing aid(s) to meet this standard is permitted.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **MENIERE'S DISEASE**
2. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

DERMATOLOGY STANDARD

The applicant/incumbent must have skin that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the skin that is within the range of normal variation; and

- No evidence by physical examination and medical history of dermatologic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ALBINISM**
2. **XERODERMA PIGMENTOSUM**
3. **CHRONIC DERMATITIS** (if it affects ability to use PPE and fall prevention and fall arrest gear)
4. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

VASCULAR SYSTEM STANDARD

The applicant/incumbent must have a vascular system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the vasculature of the upper and lower extremities that is within the range of normal variation, including:
  - no evidence of phlebitis or thrombosis; and
  - no evidence of venous stasis; and
  - no evidence of arterial insufficiency; and
- No evidence by physical examination and medical history of peripheral vasculature conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **CHRONIC VENOUS INSUFFICIENCY**
2. **DEEP VEIN THROMBOSIS**
3. **CHRONIC THROMBOPHLEBITIS**
4. **INTERMITTENT CLAUDICATION**
5. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

CARDIAC STANDARD

The applicant/incumbent must have a cardiovascular system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the cardiovascular system that is within the range of normal variation, including:

- o blood pressure of less than or equal to 140 mmHg systolic and 90 mmHg diastolic; and
- o a normal baseline electrocardiogram (minor, asymptomatic arrhythmias may be acceptable); and
- o no pitting edema in the lower extremities, and
- o normal cardiac exam.

- No evidence by physical examination and medical history of cardiovascular conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **PACEMAKERS or PROSTHETIC VALVES** may be disqualifying. Documentation from the individual's cardiologist, stating that the individual is stable and can safely carry out the specified essential functions of the job, under the specified work conditions, will be necessary before a clearance can be granted.
2. **CORONARY ARTERY DISEASE**
3. **HYPERTENSION** that cannot be controlled to a level of 160/90 or less, or requires the use of any medication that affects the ability of the individual to safely carry out the essential functions of the job, may be disqualifying.
4. History of **MYOCARDIAL INFARCTION**
5. **VALVULAR HEART DISEASE** such as mitral valve stenosis, symptomatic mitral valve regurgitation, aortic stenosis etc.
6. **DYSRHYTHMIAS:** Documentation from the individual's cardiologist, stating that the individual is stable and can safely carry out the specified essential functions of the job, under the specified work conditions and without aggravating the condition, will be necessary before a clearance can be considered.
7. **ANGINA PECTORIS** or chest pain of unknown etiology.
8. **CONGESTIVE HEART FAILURE**
9. **CARDIOMYOPATHY**
10. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

CHEST AND RESPIRATORY SYSTEM STANDARD

The applicant/incumbent must have a respiratory system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the respiratory system that is within the range of normal variation; and
- A pulmonary function test (baseline exam) showing:
  - o forced vital capacity (FVC) of at least 70% of the predicted value; and

- o forced expiratory volume at 1 second (FEV1) of at least 70% of the predicted value; and
- o the ratio FEV1/FVC of at least 70%; and

- No evidence by physical examination and medical history of respiratory conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **SIGNIFICANT OBSTRUCTIVE** or **RESTRICTIVE PULMONARY DISEASE.**
2. **ASTHMA**
3. **ACTIVE PULMONARY TUBERCULOSIS (TB)**
4. **HISTORY OF CHRONIC BRONCHITIS ASSOCIATED WITH DECREASED PULMONARY FUNCTION**
5. **SPONTANEOUS PNEUMOTHORAX** (if recurrent)
6. **PNEUMONECTOMY** (if associated with impaired pulmonary function)
7. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

ENDOCRINE AND METABOLIC SYSTEM STANDARD

Any excess or deficiency in hormonal production can produce metabolic disturbances affecting weight, stress adaptation, energy production, and a variety of symptoms or pathology such as elevated blood pressure, weakness, fatigue and collapse. The applicant/incumbent must have endocrine and metabolic functions that are sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the skin, thyroid, and eyes that is within the range of normal variation; and
- Normal fasting blood sugar level; and
- No evidence by physical examination (including laboratory testing) and history of endocrine/metabolic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ADRENAL DYSFUNCTION** (e.g., Addison's Disease or Cushing's Syndrome).
2. **THYROID DISEASE** (uncontrolled or associated with current complications).
3. **INSULIN DEPENDENT DIABETES MELLITUS**
4. **HYPERGLYCEMIA** without a history of diabetes will require additional tests, including but not limited to a glycohemoglobin (or hemoglobin A_{1C})

and fasting glucose before a final medical determination is made.

5. **DIABETES INSIPIDUS**.
6. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

THE CONDITION OF PREGNANCY

If an applicant or incumbent is a woman, and she raises the issue of pregnancy as the basis for a request for a special benefit, a change in duty status, or job restrictions, then justification and clarifying information for that request must be provided by the applicant's obstetrician or primary care physician, along with the estimated time period the special conditions are expected to apply.

HEMATOPOIETIC SYSTEM STANDARD

The applicant/incumbent must have a hematopoietic (blood and blood-producing) system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the skin that is within the range of normal variation; and
- A complete blood count (including hemoglobin, hematocrit, platelets, and white blood count, with differential) that is within the normal range; and
- No evidence by physical examination (including laboratory testing) and medical history of hematopoietic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ANEMIA**
2. **THROMBOCYTOPENIA** or **CLOTTING DISORDER**
3. **HEMOPHILIA**
4. **CHRONIC LYMPHANGITIS**
5. **SICKLE CELL ANEMIA**
6. **SPENOMEGALY**
7. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

MUSCULOSKELETAL SYSTEM STANDARD

The applicant/incumbent must have a musculoskeletal system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the upper and lower extremities, neck, and back that is within the range of normal variation for strength (including grip strength), flexibility, range of motion, and joint stability; and
- No evidence by physical examination and medical history of musculoskeletal

conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ARTHRITIS** (any etiology) if there is a limitation of major joint motion, and/or pain that prevents the full range of required activities.
2. **AMPUTATIONS** (loss of digits will be evaluated on a case-by-case basis)
3. **ANKYLOSING SPONDYLITIS**.
4. **LUMBOSACRAL INSTABILITY**: pain or limitation of flexibility and/or strength adversely affecting the ability to stand, bend, stoop, carry heavy objects or sit for long periods of time.
5. **SCIATICA OR OTHER NEUROPATHIES**
6. **CHRONIC LOW BACK PAIN** (by medical history) without demonstrable pathology must be considered on a case-by-case basis. Each case will be reviewed in context of the original history or etiology, the response to therapeutic regimes, frequency of recurrence, exacerbating factors, and lengths of disability associated with the recurrences combined with the current clinical presentation.
7. A history of a **CHRONIC SPRAIN OR STRAIN OF THE NECK** limiting mobility or causing recurring cephalgia (headaches)
8. Any evidence of a **CERVICAL NEUROPATHY**, including numbness, tingling or loss of motor strength in the upper extremities
9. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

CENTRAL AND PERIPHERAL NERVOUS SYSTEM STANDARD, AND VESTIBULAR SYSTEM STANDARD

The applicant/incumbent must have a nervous system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the cranial and peripheral nerves and the vestibular and cerebellar system that is within the range of normal variation, including:
  - intact cranial nerves, I-XII; and
  - normal proprioception of the major joints; and
  - normal sense of touch in the hands and feet; and
  - normal reflexes of the upper and lower extremities; and
  - normal balance (e.g., heel-toe walk; Romberg; balance on one foot); and
- Normal basic mental status evaluation (e.g., person, place, time, current events); and
- No evidence by physical examination and medical history of nervous, cerebellar, or vestibular system conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ATAXIA** from any etiology
2. **VESTIBULAR NEURONITIS**
3. **VERTIGO**
4. **PHYSIOLOGIC VERTIGO (MOTION SICKNESS)**
5. **CEREBROVASCULAR ACCIDENT** or **TRANSIENT ISCHEMIC ATTACKS**.
6. **EPILEPSY** (See the seizure standard, below)
7. **NARCOLEPSY**
8. **SENSORY DYSFUNCTION** (smell, touch, proprioception)
9. **MIGRAINE**
10. **SEIZURES***
11. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

** In order to be considered for a medical clearance to perform tower climbing, an individual with a history of one or more seizures must provide the following written information from a physician who is board certified in neurology. This information is to be provided on the physician's own letterhead, and must include:*

1) *the physician's printed or typed name (i.e., legible), signature, and date;*
2) *confirmation that the physician has reviewed and is familiar with the Essential Functions And Work Conditions Of A Tower Climber;*
3) *a summary of all current medications, along with any known side effects experienced or expected to be experienced by the tower climber;*
4) *the known or suspected triggers or factors that may lead to seizure activity for the firefighter;*
5) *the results of the most recent diagnostic testing, such as an EEG*
6) *the tower climber's overall medical prognosis, related to his/her seizure disorder; and*
7) *the estimated risk or likelihood of future seizure activity the tower climber might experience, of any degree of severity.*

GASTROINTESTINAL SYSTEM STANDARD

The applicant/incumbent must have a gastrointestinal tract that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the abdomen that is within the range of normal variation; and
- Normal liver function tests (baseline exam); and

- No evidence by physical examination (including laboratory testing) and medical history of gastrointestinal conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ACUTE AND CHRONIC ACTIVE HEPATITIS**.
2. **CROHN'S DISEASE / ULCERATIVE COLITIS / REGIONAL ENTERITIS / SPRUE / IRRITABLE BOWEL SYNDROME** (these conditions, if controlled with surgical, dietary, and/or medical treatments, may be compatible with the job, and will be reviewed on a case-by-case basis.)
3. **COLOSTOMIES**, unless the precipitating condition has stabilized and the applicant/incumbent demonstrates successful management of the colostomy, considering the requirements of the function and the work conditions.
4. **ILEITIS** (chronic or recurring).
5. **CHOLECYSTITIS** (chronic or recurring).
6. **DIVERTICULITIS** (symptomatic).
7. **CIRRHOSIS OF THE LIVER** (depending upon the degree of severity and the etiology).
8. **INTESTINAL OBSTRUCTION** from any cause.
9. **ESOPHAGEAL VARICES**
10. **PANCREATITIS**
11. **UNTREATED (OR UNSUCCESSFULLY TREATED) INGUINAL, INCISIONAL OR VENTRAL HERNIA** that is associated with symptoms
12. **ACTIVE GASTRIC OR DUODENAL ULCER**
13. **GASTRIC OR BOWEL RESECTION**, if there is any evidence (historical or physical) of post-treatment (current) pain, hemorrhage, fainting episodes or dietary restrictions that could interfere with the performance of the job.
14. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

GENITOURINARY SYSTEM STANDARD

The applicant/incumbent must have a genitourinary system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A normal clean catch urinalysis (baseline exam); and
- No evidence by physical examination and medical history of genitourinary conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job (see page 3).

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **POLYCYSTIC KIDNEY DISEASE**
2. **ACUTE** or **CHRONIC RENAL FAILURE**
3. **NEPHROTIC SYNDROME**
4. **SYMPTOMATIC URINARY CALCULI**
5. **NEUROGENIC BLADDER**
6. **UNCORRECTED OBSTRUCTIVE UROPATHIES**
7. **RENAL TOXICITY FROM ANY CAUSE**
8. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

SAMPLE ***DRAFT*** MEDICAL STANDARDS

And Review Criteria for Agency Medical Officers

These Standards Are Applicable to the Following Function:
CRANE OPERATORS

Under 5 CFR Part 339 Medical Qualifications Determinations, medical standards may be established for functions with duties that are arduous or hazardous in nature. The medical standards described in this section were established because of the hazardous occupational and environmental aspects of the function of crane operator. The medical standards are provided to aid the examining physician, the designated agency medical officer(s), and officials of other involved government agencies (e.g., the Office of Personnel Management, or OPM). They are to be used when determining whether there are medical conditions present that may affect an individual's ability to safely and efficiently perform the requirements of a crane operator without undue risk to himself/herself or others. The results of such determinations are to be used by an agency-based team (e.g., safety, personnel, management, peers, and medical) to consider whether waivers or reasonable accommodation may be appropriate when an individual is found to not meet a specified standard. In this way, the standards are intended to help insure consistency and uniformity in the medical evaluation of all applicants and incumbents.

These standards are based on those used by the U.S. Navy, and the State of Washington. They are to be considered drafts or working models by agencies wishing to establish formal standards for use in that agency. Each of the medical standards listed in this document are subject to clinical interpretation by an appropriate agency medical officer (AMO) who will incorporate his/her knowledge of the essential job functions and the environmental conditions under which an employee may work. Listed with the standards are examples of medical conditions and/or physical impairments that may be incompatible with safe and efficient performance of duties, or that may be aggravated by performing those duties. Individualized assessments will be made on a case-by-case basis to determine the individual's ability to meet the performance-related requirements of the crane operator's job. Final consideration and medical determination may require additional medical information and/or testing that is not routinely required during either the pre-placement or periodic medical examination process.

Rationale for Medical Evaluation and Review of Crane Operators

The essential functions of crane operators in supporting departmental and bureau missions are by nature hazardous, both for the worker directly, as well as co-workers and possibly the public. The intent of these standards is to help insure the following:

1. Crane operators will be able to perform the full range of essential functions of their jobs under the conditions under which those functions may be performed.

2. Existing/preexisting medical conditions of crane operators and applicants will not be aggravated, accelerated, exacerbated, or permanently worsened as a result of carrying out the functions of the job.

3. Demonstration of the strong commitment of the agency to public and employee health and safety, and a strong commitment to maintaining the integrity of mission accomplishment.

Medical Evaluations

Medical evaluations are to be conducted both as a *pre-placement* exam for all individuals who are to be assigned to roles that involve the duties of crane operators, and every three years thereafter. The AMO may determine that, due to health and safety risks, interval changes in health status, and possible medically-related performance concerns, the medical evaluation of individual crane operators should be conducted more frequently.

The medical evaluation is to consist of those services summarized in the table on page 3. The evaluation is to be conducted by a qualified health care provider using the DOI Standard Medical History and Examination Form (or an alternative form that provides similar information). For assistance in arranging for physician services, please refer to Tab 5, "*Medical Services Providers*". The AMO will review the results of all examinations, and provide the final medical recommendation to the agency.

Medical Examination Services to be Provided for Crane Operators

HISTORIES

- General Medical History
- Occupational History

EXAMINATION ITEMS

- General Appearance and Vital Signs (height, weight, blood pressure, heart rate)
- General Physical Examination, with Special Attention To:
    - Eyes, Ears, Nose, Mouth, and Throat
    - Neck (including flexibility and rotation)
    - Respiratory System
    - Cardiovascular System
    - Back & Musculoskeletal System (including flexibility)
    - Extremities (including strength, range of motion, and joint stability)
    - Peripheral Vascular System
    - Central Nervous System (including cranial nerves I-XII, and cerebellar function)
    - Peripheral Nervous System (including reflexes, sensation, and position sense)
    - Mental Status Evaluation

DIAGNOSTIC TESTS/PROCEDURES

- Audiogram (including 500, 1000, 2000, 3000, 4000, 6000, 8000 Hertz in both ears)
- Visual Acuity, best near and far vision, corrected or uncorrected
- Peripheral Vision
- Depth perception
- Color Discrimination (including red, green, and yellow) (baseline/exit exam)

LABORATORY

- CBC (hemoglobin, hematocrit, platelets, white blood count with differential)
- Dipstick urinalysis (baseline/exit exam only)
- Blood chemistries:
  LDH, SGOT/AST, SGPT/ALT, GGT, bilirubin [baseline/exit exam only]
  Total cholesterol, LDL-C, HDL-C, triglycerides, blood sugar [each exam]

CLEARANCES

- Medical Clearance for Crane Operators

PSYCHIATRIC / PSYCHOLOGIC STANDARD

The applicant/incumbent must have judgement, mental functioning, and social interaction/behavior that will provide for the safe and efficient conduct of the essential functions of the job. This may be demonstrated by:

- No evidence by physical examination and medical history of psychiatric conditions (including alcohol or substance abuse) likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

  CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

  (All diagnoses must be consistent with the diagnostic criteria as established by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, DSM-IV.)

  1. **AMNESTIC** disorders
  2. **DELIRIUM** (depending upon etiology and duration)
  3. **DEMENTIAS** (depending upon etiology and duration)
  4. **DISSOCIATIVE DISORDERS**
  5. **PANIC DISORDER** and **OTHER ANXIETY DISORDERS** (including claustrophobia and acrophobia, depending upon etiology, duration and severity of clinical expression)
  6. **DEPRESSIVE, BIPOLAR,** or **OTHER MOOD DISORDERS** (depending upon clinical course and status of current treatment and response)
  7. **SCHIZOPHRENIA** (Exceptions may be may in cases of a single episode of schizophrenic reactions associated with an acute illness or toxic exposure capable of causing such reaction.)
  8. **ANTISOCIAL, PARANOID,** or **SCHIZOID PERSONALITY DISORDER**
  9. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

PROSTHETICS, TRANSPLANTS, AND IMPLANTS STANDARD

The presence or history of organ transplantation or use of prosthetics or implants are not of themselves disqualifying. However, the applicant/incumbent must be able to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- No evidence by physical examination and medical history that the transplant, the prosthesis, the implant, or the conditions that led to the need for these treatments are likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

  Note: For individuals with any transplant, prosthetic, or implanted pump or electrical device, the examinee will have to provide documentation ***for agency review*** from his/her surgeon or physician that the examinee (and, if applicable,

his/her prosthetic or implanted device) is considered to be fully compatible with the specified essential functions of the job.

MEDICATION STANDARD

The need for and use of prescribed or over-the-counter medications are not of themselves disqualifying. However, there must be no evidence by physical examination, laboratory tests, or medical history of any impairment of body function or mental function and attention due to medications if that impairment is likely to present a safety risk or to worsen as a result of carrying out the specified essential functions of the job, under the conditions in which those functions must be carried out. Each of the following points should be considered:

1. Medication(s) (type and dosage requirements)
2. Potential drug side effects
3. Drug-drug interactions
4. Adverse drug reactions
5. Drug toxicity or medical complications from long-term use
6. Drug-environmental interactions
7. Drug-food interactions
8. History of patient compliance

EYE / VISION STANDARD

The applicant/incumbent must be able to see well enough to safely and efficiently carry out the essential functions of the job. This requires binocular vision, visual acuity, depth perception, peripheral vision, and color vision, which may be demonstrated by:

- Far visual acuity of at least 20/30 in one eye, and 20/50 in the other eye; this may be achieved with corrective lenses (if necessary), including contact lenses or spectacles; and
- Color vision sufficient to distinguish at least red, green, and amber (yellow); and
- Peripheral vision of at least 70° laterally in each eye; and
- Normal depth perception.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **CHRONIC CONJUNCTIVITIS**
2. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

HEAD, NOSE, MOUTH, THROAT AND NECK STANDARD

The applicant/incumbent must have structures and functions of the head, nose, mouth, throat, and neck that are sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the head, nose, mouth, throat, and neck that is within the range of normal variation, including:

- o normal flexion, extension, and rotation of the neck; and
- o no structural abnormalities that would prevent the normal use of a hard hat and protective eyewear; and
- Normal conversational speech; and
- No evidence by physical examination and medical history of head, nose, mouth, throat, or neck conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **MUTISM/APHONIA**
2. **RESTRICTED RANGE OF MOTION IN THE NECK**
3. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

EAR / HEARING STANDARD

The applicant/incumbent must be able to hear well enough to safely and efficiently carry out the essential functions of the job. This requires binaural hearing (to localize sounds) and auditory acuity, which may be demonstrated by:

- Documentation of hearing thresholds of no greater than 40 dB at 500, 1000, and 2000 Hz in each ear, based on a pure tone, air conduction audiogram, using equipment and a test setting which meet the standards of the American National Standards Institute (see 29 CFR 1910.95).

Note: The use of a hearing aid(s) to meet this standard is permitted.

DERMATOLOGY STANDARD

The applicant/incumbent must have skin that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the skin that is within the range of normal variation; and
- No evidence by physical examination and medical history of dermatologic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **CHRONIC DERMATITIS** (if it affects ability to use PPE)
2. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

VASCULAR SYSTEM STANDARD

The applicant/incumbent must have a vascular system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the vasculature of the upper and lower extremities that is within the range of normal variation, including:
  - no evidence of phlebitis or thrombosis; and
  - no evidence of venous stasis; and
  - no evidence of arterial insufficiency; and
- No evidence by physical examination and medical history of peripheral vasculature conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **CHRONIC VENOUS INSUFFICIENCY**
2. **DEEP VEIN THROMBOSIS**
3. **CHRONIC THROMBOPHLEBITIS**
4. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

CARDIAC STANDARD

The applicant/incumbent must have a cardiovascular system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the cardiovascular system that is within the range of normal variation, including:
  - blood pressure of less than or equal to 140 mmHg systolic and 90 mmHg diastolic; and
  - a normal baseline electrocardiogram (minor, asymptomatic arrhythmias may be acceptable); and
  - no pitting edema in the lower extremities, and
  - normal cardiac exam.
- No evidence by physical examination and medical history of cardiovascular conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **PACEMAKERS or PROSTHETIC VALVES** may be disqualifying. Documentation from the individual's cardiologist, stating that the individual is stable and can safely carry out the specified essential

functions of the job, under the specified work conditions, will be necessary before a clearance can be granted.

2. **HYPERTENSION** that cannot be controlled to a level of 140/90 or less, or requires the use of any medication that affects the ability of the individual to safely carry out the essential functions of the job, may be disqualifying.
3. History of **MYOCARDIAL INFARCTION** may be disqualifying. Documentation from the individual's cardiologist, stating that the individual is stable and can safely carry out the specified essential functions of the job, under the specified work conditions, will be necessary before a clearance can be granted.
4. **DYSRHYTHMIAS:** Documentation from the individual's cardiologist, stating that the individual is stable and can safely carry out the specified essential functions of the job, under the specified work conditions and without aggravating the condition, will be necessary before a clearance can be considered.
5. **ANGINA PECTORIS** or chest pain of unknown etiology.
6. **CONGESTIVE HEART FAILURE**
7. **CARDIOMYOPATHY**
8. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

CHEST AND RESPIRATORY SYSTEM STANDARD

The applicant/incumbent must have a respiratory system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the respiratory system that is within the range of normal variation; and
- No evidence by physical examination and medical history of respiratory conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **SIGNIFICANT OBSTRUCTIVE** or **RESTRICTIVE PULMONARY DISEASE.**
2. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

ENDOCRINE AND METABOLIC SYSTEM STANDARD

Any excess or deficiency in hormonal production can produce metabolic disturbances affecting weight, stress adaptation, energy production, and a variety of symptoms or pathology such as elevated blood pressure, weakness, fatigue and collapse. The applicant/incumbent must have endocrine and metabolic functions that are sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the skin, thyroid, and eyes that is within the range of normal variation; and
- Normal fasting blood sugar level; and
- No evidence by physical examination (including laboratory testing) and history of endocrine/metabolic conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **INSULIN DEPENDENT DIABETES MELLITUS**
2. **HYPERGLYCEMIA** without a history of diabetes will require additional tests, including but not limited to a glycohemoglobin (or hemoglobin A_{1C}) and fasting glucose before a final medical determination is made.
3. **DIABETES INSIPIDUS**.
4. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

THE CONDITION OF PREGNANCY

If an applicant or incumbent is a woman, and she raises the issue of pregnancy as the basis for a request for a special benefit, a change in duty status, or job restrictions, then justification and clarifying information for that request must be provided by the applicant's obstetrician or primary care physician, along with the estimated time period the special conditions are expected to apply.

MUSCULOSKELETAL SYSTEM STANDARD

The applicant/incumbent must have a musculoskeletal system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the upper and lower extremities, neck, and back that is within the range of normal variation for strength (including grip strength), flexibility, range of motion, and joint stability; and
- No evidence by physical examination and medical history of musculoskeletal conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ARTHRITIS** (any etiology) if there is a limitation of major joint motion, and/or pain that prevents the full range of required activities.
2. **AMPUTATIONS** (loss of digits will be evaluated on a case-by-case basis)
3. **LUMBOSACRAL INSTABILITY**: pain or limitation of flexibility and/or strength adversely affecting the ability to stand, bend, stoop, carry heavy objects or sit for long periods of time.
4. **SCIATICA OR OTHER NEUROPATHIES**
5. **CHRONIC LOW BACK PAIN** (by medical history) without demonstrable pathology must be considered on a case-by-case basis. Each case will be reviewed in context of the original history or etiology, the response to therapeutic regimes, frequency of recurrence, exacerbating factors, and lengths of disability associated with the recurrences combined with the current clinical presentation.
6. Any evidence of a **CERVICAL NEUROPATHY**, including numbness, tingling or loss of motor strength in the upper extremities
7. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

CENTRAL AND PERIPHERAL NERVOUS SYSTEM STANDARD, AND VESTIBULAR SYSTEM STANDARD

The applicant/incumbent must have a nervous system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the cranial and peripheral nerves and the vestibular and cerebellar system that is within the range of normal variation, including:
  - intact cranial nerves, I-XII; and
  - normal proprioception of the major joints; and
  - normal sense of touch in the hands and feet; and
  - normal reflexes of the upper and lower extremities; and
  - normal balance (e.g., heel-toe walk; Romberg; balance on one foot); and
- Normal basic mental status evaluation (e.g., person, place, time, current events); and
- No evidence by physical examination and medical history of nervous, cerebellar, or vestibular system conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ATAXIA** from any etiology

2. **VESTIBULAR NEURONITIS**
3. **VERTIGO**
4. **PHYSIOLOGIC VERTIGO (MOTION SICKNESS)**
5. **CEREBROVASCULAR ACCIDENT** or **TRANSIENT ISCHEMIC ATTACKS**.
6. **EPILEPSY** (See the seizure standard, below)
7. **NARCOLEPSY**
8. **SENSORY DYSFUNCTION** (smell, touch, proprioception)
9. **SEIZURES***
10. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

** In order to be considered for a medical clearance to perform crane operator duties, an individual with a history of one or more seizures must provide the following written information from a physician who is board certified in neurology. This information is to be provided on the physician's own letterhead, and must include:*

1) *the physician's printed or typed name (i.e., legible), signature, and date;*
2) *confirmation that the physician has reviewed and is familiar with a detailed description of the duties of a crane operator;*
3) *a summary of all current medications, along with any known side effects experienced or expected to be experienced by the crane operator;*
4) *the known or suspected triggers or factors that may lead to seizure activity for the crane operator;*
5) *the results of the most recent diagnostic testing, such as an EEG*
6) *the crane operator's overall medical prognosis, related to his/her seizure disorder; and*
7) *the estimated risk or likelihood of future seizure activity the crane operator might experience, of any degree of severity.*

GASTROINTESTINAL SYSTEM STANDARD

The applicant/incumbent must have a gastrointestinal tract that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A physical exam of the abdomen that is within the range of normal variation; and
- Normal liver function tests (baseline exam); and
- No evidence by physical examination (including laboratory testing) and medical history of gastrointestinal conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **CROHN'S DISEASE / ULCERATIVE COLITIS / REGIONAL ENTERITIS / SPRUE / IRRITABLE BOWEL SYNDROME** (these conditions, if controlled with surgical, dietary, and/or medical treatments, may be compatible with the job, and will be reviewed on a case-by-case basis.)
2. **ILEITIS** (chronic or recurring).
3. **CHOLECYSTITIS** (chronic or recurring).
4. **DIVERTICULITIS** (symptomatic).
5. **CIRRHOSIS OF THE LIVER** (depending upon the degree of severity and the etiology).
6. **INTESTINAL OBSTRUCTION** from any cause.
7. **PANCREATITIS**
8. **UNTREATED (OR UNSUCCESSFULLY TREATED) INGUINAL, INCISIONAL OR VENTRAL HERNIA** associated with symptoms
9. **ACTIVE GASTRIC OR DUODENAL ULCER**
10. **GASTRIC OR BOWEL RESECTION**, if there is any evidence (historical or physical) of post-treatment (current) pain, hemorrhage, or fainting episodes that could interfere with the performance of the job.
11. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

GENITOURINARY SYSTEM STANDARD

The applicant/incumbent must have a genitourinary system that is sufficient for the individual to safely and efficiently carry out the essential functions of the job. This may be demonstrated by:

- A normal clean catch urinalysis (baseline exam); and
- No evidence by physical examination and medical history of genitourinary conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.

CONDITIONS WHICH MAY RESULT IN DISQUALIFICATION INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING EXAMPLES:

1. **ACUTE** or **CHRONIC RENAL FAILURE**
2. **NEPHROTIC SYNDROME**
3. **SYMPTOMATIC URINARY CALCULI**
4. **NEUROGENIC BLADDER**
5. **UNCORRECTED OBSTRUCTIVE UROPATHIES**
6. **RENAL TOXICITY FROM ANY CAUSE**
7. Any other condition not otherwise listed that may adversely effect safe and efficient job performance will be evaluated on a case-by-base basis.

Laboratory Workers **Attachment - D 12**

The Department of the Interior has many settings, within many bureaus and offices, in which laboratory analyses of various kinds are carried out. While each laboratory has unique aspects, there are sufficient similarities to allow generalizations in the approach to services that should be considered for the protection of the involved employees.

Before any DOI organizational unit establishes a medical program for its laboratory workers, careful consideration should be given to the types of work that are carried out by employees, and the types of exposures that are possible. Managers also should be familiar with the provisions of applicable federal regulations regarding laboratory workers, and pertinent guidance that has been promulgated by other federal agencies for worker protection. This Attachment will assist in providing the manager with this important information.

While the possibility of exposure of laboratory employees to agents harmful to human health is real, in most DOI laboratory settings there are no industrial procedures or occupational exposures that are sufficiently repetitive or of an intensity, frequency, and duration to warrant a conventional medical surveillance program. In those settings where exposures may warrant medical surveillance services, please refer to Attachment D 2 of this *Handbook*. Significant, high-risk exposures in DOI laboratories are more likely to be related to sudden or unexpected incidents for which an urgent, medically-appropriate response may be necessary. Chronic, low-level exposures to known agents (e.g., solvents or noise), or exposures to agents that have not yet been identified by the lab, also may result in health effects for which an appropriate medical response may be necessary.

The work done in most laboratories does not fall within the scope of "arduous or hazardous," as defined by 5 CFR 339.202 (Medical Standards), which might call for a program of periodic clearance examinations. Also, the inherent screening process through which scientists and technicians demonstrate their ability to perform the requirements of their jobs, and the established quality assurance program involving regular performance appraisals and proficiency testing, may make a requirement for medical standards and a program of periodic medical clearances to perform laboratory jobs unnecessary.

While medical surveillance services, and a medical clearance program, may not be necessary for most DOI laboratory workers, the highly variable nature of potential exposure to a wide variety of potentially harmful agents makes it prudent to provide certain preventive measures for employees, and to have current medical information available to assist care-givers in the event an identifiable high risk exposure or an unexplained illness occurs. For these reasons, and to protect both the employees and the agency, it is recommended that safety and basic medical programs be implemented for all laboratory employees, and that the medical program should be considered mandatory for full-time employees. As part of this program, it is particularly important that employees

be appropriately informed of the potential hazards of the laboratory, and the information, emergency resources, and medical services available to them, as required by regulation (29 CFR 1910.1450 (f)).

What follows is an outline of a recommended program, including Safety Training, Hazardous Materials Documentation, Clinical Services, Community Emergency Medical Services Linkages, Medical Records Management, and Data Analysis. A list of applicable references is provided at the end of this Attachment.

RECOMMENDATIONS

1. SAFETY TRAINING:

A comprehensive safety training program should be in place, addressing such issues as fire safety, security, control of access to non-public areas, hazardous materials handling, food handling, personal hygiene, emergency notification and response within the facility, CPR and first aid training, and notification of local emergency services personnel (fire, police, medical, hazardous materials) and their access to the facility.

Excellent references for specific guidance in the area of laboratory safety may be found in section 7 of this Attachment.

2. HAZARDOUS MATERIALS DOCUMENTATION:

A complete set of Material Safety Data Sheets (MSDSs) for agents stored or in use at the laboratory must be readily available in the facility. It is recommended that summary lists of these MSDSs be prepared: a primary list with a summary of all chemicals used anywhere in the laboratory, plus secondary lists for each distinct area or section of the laboratory. These secondary lists should include all chemicals used in those specific areas or sections. These lists would facilitate the rapid identification of possible chemicals involved in exposure incidents so the appropriate MSDS forms can be identified and pertinent information can be provided to emergency response personnel and treating physicians. All employees must be made aware of the availability and location of the MSDSs and the summary lists.

Similarly, it is recommended that summary lists be prepared of any infectious agents known to have been encountered (or that have a reasonable risk of being encountered) in the laboratory, so that emergency response personnel and treating physicians are aware of potential agents, both to allow appropriate personal protective equipment to be used and to provide assistance when diagnoses are uncertain.

3. CLINICAL SERVICES:

Services to be provided to employees should consist of focused medical examinations, clinical procedures, and specified laboratory tests (see below). These services should be conducted for the primary purpose of assuring that current medical status information is readily available to both treating physicians and medical investigative personnel in the

event of exposure incidents or the development of unexplained medical conditions. This clinical program would provide periodically-updated "baseline" information for such comparison purposes. In order for health and laboratory information to be sufficiently current and of value for the purposes specified, the clinical services should be provided on a periodic basis of every three to five years. These periodic assessments could be done more frequently, depending on recommendations of the agency's reviewing physician and interim findings or significant laboratory events.

An additional purpose of these periodic clinical services is to provide clinical data for trend analysis and health effects pattern recognition, facilitating both therapeutic intervention for individual employees and modifications in laboratory operations, in case unanticipated health effects are experienced by laboratory personnel.

Clinical services may be provided by local, qualified medical and health care personnel under local or national agency contracts. Guidance for arranging for these services may be found in Tab 5 (Medical Service Providers) of this *Handbook*.

Baseline Clinical Services should be provided to all full time employees at the time of employment. The following services are recommended:

Histories
Medical History, using the ***DOI Standard Medical History and Examination Form***

Examination Items
General Physical Examination
General Appearance and Vital Signs
Special Attention To:

- Eyes, Ears, Nose, Mouth, and Throat
- Thyroid
- Central Nervous System (including cranial nerves II-XII and cerebellar function)
- Peripheral Nervous System (including reflexes, sensation, and position sense)
- Mental Status Evaluation
- Back & Musculoskeletal System
- Extremities (including strength and range of motion)
- Cardiovascular System
- Genitourinary System
- Gastrointestinal System
- Respiratory System
- Skin
- Lymphatics
- Endocrine and Metabolic System

Diagnostic Tests/Procedures

Audiogram – recorded for 500, 1000, 2000, 3000, 4000, 6000, and 8000 Hz, both ears
Vision - Far and Near Vision Acuity, (uncorrected and corrected, each eye separately, plus together)
Peripheral Vision (nasal and temporal, each eye separately measured)
Color Vision
Chest X-Ray, PA & Lateral
Pulmonary Function Test (Spirometry: FVC, FEV_1, FEV_1/FVC)
Electrocardiogram-Resting

Laboratory

Complete Blood Count, with differential WBC
Chemistry Panel (to include at least glucose, SGOT/AST, SGPT/ALT, GGT, bilirubin, creatinine, BUN)
Serum, 5cc, labeled, frozen, and stored
Urinalysis

Optional Laboratory (depending on exposure potential)

Blood Lead (for employees using or testing firearms)
Zinc Protoporphyrin (for employees using or testing firearms)
Cholinesterase, RBC and Plasma (baseline tests for pesticide exposure, i.e., averages of two sets of results, drawn approximately one week apart, during period of known non-exposure)

Immunizations and screens ***which may be offered to employees,*** *depending on the type of analyses done and the actual exposure potential* ***in the particular laboratory, and if not currently immune or contraindicated***

- **Anthrax** Vaccine: primary series given at 0, 2, and 4 weeks, and 6, 12, and 18 months, with annual booster
- **Tetanus** and Diphtheria Toxoid: booster doses every 10 years
- **Influenza** Vaccine: given annually
- **Botulinum** Toxoid (pentavalent): primary series given at 0, 2, and 12 weeks, and first booster at week 52, with boosters at 2 year intervals depending upon titers
- **Hepatitis A** Vaccine: series given at 0 and 6 or 12 months
- **Hepatitis B** Vaccine: series given at 0, 1, and 6 months
- **Rabies** Vaccine: primary series given at 0, 7, and 21 or 28 days, with booster schedule depending on level of risk
- **Plague** Vaccine: [not currently available]
- **Q Fever** vaccine: [not currently available]
- **TB** Testing (PPD)

Periodic Clinical Services should be provided to all full time employees every three to five years during the period of their employment, and upon retirement or separation from the laboratory, if the preceding examination was more than 6 months before retirement.

The following services are recommended:

Histories

Medical History, using the ***DOI Standard Medical History and Examination Form***

Examination Items

General Physical Examination
General Appearance and Vital Signs
Special Attention To:

- Eyes, Ears, Nose, Mouth, and Throat
- Thyroid
- Central Nervous System (including cranial nerves II-XII and cerebellar function)
- Peripheral Nervous System (including reflexes, sensation, and position sense)
- Mental Status Evaluation
- Back & Musculoskeletal System
- Extremities (including strength and range of motion)
- Cardiovascular System
- Genitourinary System
- Gastrointestinal System
- Respiratory System
- Skin
- Lymphatics
- Endocrine and Metabolic System

Diagnostic Tests/Procedures

Audiogram – recorded for 500, 1000, 2000, 3000, 4000, 6000, and 8000 Hz, both ears
Vision - Far and Near Vision Acuity, (uncorrected and corrected, each eye separately, plus together)
Peripheral Vision (nasal and temporal, each eye separately measured)
Pulmonary Function Test (Spirometry: FVC, FEV_1, FEV_1/FVC)

Laboratory

Complete Blood Count, with differential WBC
Chemistry Panel (to include at least glucose, SGOT/AST, SGPT/ALT, GGT, bilirubin, creatinine, BUN)
Serum, 5cc, labeled, frozen, and stored
Urinalysis

Optional Laboratory (depending on exposure potential)

Blood Lead (for employees using or testing firearms)
Zinc Protoporphyrin (for employees using or testing firearms)
Cholinesterase, RBC and Plasma (baseline tests for pesticide exposure, i.e., averages of two sets of results, drawn approximately one week apart, during period of known non-exposure)

Immunizations and screens ***which may be offered to employees,*** *depending on the type of analyses done and the actual exposure potential* ***in the particular laboratory, and if not currently immune or contraindicated)***

- **Anthrax** Vaccine: annual booster
- **Tetanus** and Diphtheria Toxoid: booster doses every 10 years
- **Influenza** Vaccine: given annually
- **Botulinum** Toxoid (pentavalent): boosters at 2 year intervals depending upon titers
- **Rabies** Vaccine: booster schedule depending on level of risk
- **Plague** Vaccine: [not currently available]
- **Q Fever** vaccine: [not currently available]
- **Other** vaccine from the "baseline" list, if not given previously and the need is subsequently determined to be appropriate
- **TB** Testing (PPD)

Incident- and Symptom-related Clinical Services should be available to any employee whenever that employee develops signs or symptoms that may be due to exposures, or when monitoring indicates that exposures exceed OSHA-established action levels or permissible exposure limits, or when there is a work place event in which a hazardous exposure is likely to have occurred. The specific clinical services to be provided will depend on the nature of the exposure and any symptoms or signs experienced by the employee(s), and should be determined by the responding physician(s), based on exposure information provided by the agency. OSHA regulations (29 CFR 1910.1450(g)(iii)(3)) require that the physician be provided "the identity of the hazardous chemical," "a description of the conditions under which the exposure occurred," and "a description of the signs and symptoms" experienced by the exposed employee(s). The agency is required to obtain from the physician "any recommendation for further medical follow-up," "the results of the medical examination and any associated tests," "any medical condition which may be revealed in the course of the examination which may place the employee at increased risk as a result of exposure to a hazardous chemical," and "a statement that the employee has been informed by the physician of the results of the consultation or medical examination and any medical condition that may require further examination or treatment."

4. COMMUNITY EMERGENCY MEDICAL SERVICES LINKAGES:

Because of the potential for both large scale and obscure medical emergencies involving laboratory employees, it is recommended that a relationship with the local hospital and emergency medical system (EMS) be established and/or maintained. This relationship should seek to assure that these second-line emergency services entities are prepared to respond, with the assistance of agency information resources, to individual cases of unusual medical conditions, outbreaks of unusual symptoms among staff, and potentially-hazardous incidents that could involve exposure of emergency services personnel to

biological agents. These service linkages should be documented and included in training provided to pertinent staff.

5. MEDICAL RECORDS MANAGEMENT:

Medical records created as a result of the clinical services provided (see section 3., above) should be reviewed by a competent medical authority, acting as an agent of the agency. The purpose of such a non-clearance, non-medical surveillance review is to assure that the quality of information gathered meets agency program needs, significant findings are managed appropriately, and trend and pattern analysis can be performed when appropriate.

All medical records obtained through this process are part of the DOI employee medical file system, which is governed by such laws and regulations as:

- Privacy Act of 1974 (5 USC 552a)
- 5 CFR Part 293 (Employee Medical File System)
- 5 CFR Part 297 (Privacy Provisions for Personnel Records)
- OPM/GOVT-10 (Office of Personnel Management EMFS Notice)
- 29 CFR 1910.1020, Access To Employee Exposure and Medical Records (previously codified at 29 CFR 1910.20)
- Freedom of Information Act (5 USC 552)
- 45 CFR Part 5 (Freedom of Information Regulations)

The records belong to the Office of Personnel Management, and are managed by the employing agency, but may be under the custodianship of a health care provider or organization on behalf of the agency when clinical services are provided by that health care entity. Records must be maintained in a manner that ensures their confidentiality, their safety and integrity, and their use only for official purposes. When records are stored by a non-agency custodian (e.g., a local medical clinic or hospital), the contract for services between the agency and that health care entity must specify that such records storage is custodial in nature only, and that the original records will be transferred to the custody of the agency upon termination of the service arrangements provided for by the contract.

Information contained in these medical records is to be considered highly confidential, and is to be used by the agency for official purposes only. Questions regarding the appropriate use or handling of these records may be directed to the DOI employee medical file system manager, Robert Garbe, MPH, CIH, Occupational Health Programs Manager, Office of Managing Risk and Public Safety, 303-236-7112.

6. DATA ANALYSIS:

In order to facilitate the recognition of significant changes or trends in individual employee health findings, or the findings for groups of employees carrying out similar

tasks or working in similar areas of the lab, it is recommended that medical history, examination, and laboratory test data be entered into a longitudinal data base. Data analysis should be conducted by individuals knowledgeable in occupational health, and familiar with the nature of the work carried out at the laboratory. Summary reports of this analysis should be made available to agency management, along with recommendations for any action that may be indicated.

7. REFERENCES:

Most of the following references are easily accessible through the Internet, and are representative of the variety of documents pertinent to laboratories that are readily available.

- 29 CFR 1910.1450 (Occupational exposure to hazardous chemicals in laboratories)

- 32 CFR 627.7 (Department of the Army, Biological Defense Safety Program "Goal of a laboratory safety program")

- Control of Communicable Diseases Manual, 16th ed. Benenson AS (ed.). American Public Health Association, Washington, D.C. 1995

- Medical Surveillance and the Biosafety Program - References - *ABSA Medical Surveillance Course – 10/25/98* (an excellent reference listing) **http://www.cdc.gov/od/ohs/biosfty/bioref.htm**

- Biosafety Documents (a Centers for Disease Control and Prevention (CDC) site, serving as a "home page" for biosafety, with multiple listings and hot links) **http://www.cdc.gov/od/ohs/biosfty/biosfty.htm**

- Biosafety in Microbiological and Biomedical Laboratories, Fourth Edition, April 1999 (from the CDC and the National Institutes of Health; a comprehensive guide) **http://www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4toc.htm**

Medical Clearance for Respirator Use **Attachment - E 1**

What follows is a comprehensive guide to the medical examination and review of information related to the use of respirators. It may be used for general reference on the subject, or the materials may be used to implement a full program acceptable to DOI.

Medical Clearance for Respirator Use - Clinical Protocol

1.0 Scope

This protocol covers medical evaluations of Department of the Interior (DOI) employees for activities involving the use of a respirator.

2.0 Frequency of Evaluation

2.1 Medical evaluations must be performed prior to beginning respirator fitting, use, or training, and thereafter according to the table in section 2.3, below.

2.2 If a new employee or new respirator user ***has not*** had a medical evaluation within the previous six months, such an evaluation must be performed by a licensed health care provider (ref. 29 CFR 1910.134; Respiratory Protection; Final Rule, Federal Register 63:1152-1300) before a medical clearance disposition is to be formulated regarding the use of a respiratory protective device.

If a new employee or new respirator user ***has*** had a medical evaluation within the previous six months, the results of that evaluation may be reviewed by a licensed health care provider so that a medical clearance disposition may be formulated regarding the use of a respiratory protective device.

2.3 Subsequent medical evaluations to support recommendations regarding the use of a respirator shall occur **periodically** per NIOSH recommendations, as follows:

	Employee Age (yrs)		
	<35	**35-45**	**>45**
Most work conditions requiring a respirator	Every 5 yrs	Every 2 years	1 - 2 years
Strenuous work conditions with an SCBA	Every 3 years	Every 2 years	Annually

2.4 Medical evaluations shall be performed **more frequently:**

- if required by OSHA standards for specific hazards; or

- for workers with medical conditions that do not preclude the use of a respirator, but for whom safe use is relatively more problematic (in such cases, the frequency of medical evaluations should be set according to prudent medical judgment); or
- if the employee reports signs or symptoms of problems related to the ability to wear and use a respirator; or
- if management determines it is necessary; or
- if a change in workplace conditions substantially increases the physiological burden placed on the employee; or
- if significant changes in health status occur, such as returning to work following prolonged absence due to serious illness or injury.

NOTE: If an employee is enrolled in another medical surveillance or clearance program, the medical evaluation for respirator use can occur concomitantly with physical examinations conducted for these other purposes.

3.0 Evaluation Steps

3.1 A signed and dated request, consistent with the "*Request for Respirator Clearance*" form (see Attachment E 1 (b)), is to be prepared by the employee's supervisor or higher manager. Other forms may be used as long as the following items are covered. This information is to be provided to the examining facility or licensed health care provider at the time of the medical examination, or the review of the Respirator Medical Evaluation Questionnaire:

- the name and social security number (or other identifying number) of the employee to be evaluated
- the employee's phone number and the best time to call at that number
- the job title of the employee to be evaluated
- the type of respirator to be worn
- the duration and frequency of respirator use
- other personal protective equipment to be used concurrent with respiratory protection
- the job activity in which the respirator is to be worn, including the reason(s) for its use
- known or anticipated toxic substances to which the employee may be exposed and for which the protective device is to be worn

Please refer to Tab 12, Attachment E 1 (a) for a description of the various types of respirators, their uses, and the physiological effects of their use. *Examiners and reviewing health care professionals should read and be familiar with this material.*

3.2 A copy of the *DOI Respirator Medical Evaluation Questionnaire* (see Appendix E 1 (c)) is to be completed by the employee and reviewed by the AMO or other licensed health care professional prior to initial use of a respirator IF the medical evaluation does not include a physical examination. Subsequently, either a physical examination, or the *Questionnaire* (plus a physical examination, if the *Questionnaire* indicates to the health care professional that this is necessary), are to be carried out periodically (see sections 2.3 and 2.4, above).

3.3 When a physical examination is to be conducted, a medical/occupational history questionnaire which addresses at least the following topics is to be completed by the employee, signed and dated, and then made available to the examining physician at or before that exam. The *DOI Standard Medical History and Examination Form* is appropriate for this purpose.

- smoking history
- general health status
- hearing or ear conditions or symptoms, including sense of smell
- cardiovascular or pulmonary conditions or symptoms
- diabetes, or impairment of visual or auditory function
- musculoskeletal, rheumatological (joint), or neurological conditions or symptoms
- skin condition that might interfere with wearing a respirator
- facial surgery or disfiguring illness or injury
- presence of dentures
- vision or eye conditions or symptoms
- requirement for corrective lenses and the type worn (contacts or glasses)
- current medications and allergies
- psychological (mental health) conditions or symptoms
- presence of or problems with claustrophobia
- past and present job duties, including potential and actual hazardous exposures and personal experience with respiratory protective devices

3.4 When a physical examination is to be conducted, it should be directed at the areas of concern to the health care professional upon review of the *Respirator Medical Evaluation Questionnaire*, or a general examination that that includes the following areas:

3.4.1 **vital signs** (blood pressure, pulse, height, and weight; also, temperature, if clinically indicated)

3.4.2 **visual acuity** (utilizing an automated vision screener, such as Titmus™ or Optec™ machines, if available); a clinical evaluation

by the examiner also may be conducted

3.4.3 **hearing** (audiogram); a clinical evaluation by the examiner also should be conducted

3.4.4 examination of the **head** (tympanic membranes, eyes, scalp, nose, oral cavity), **neck**, **lungs** and **heart**

3.4.5 **musculoskeletal** and **neurological** evaluation relevant to use of a respirator

3.4.6 **spirometry** (FEV1 and FVC, actual and % predicted) (baseline exam only, unless history other examination findings indicate further need)

3.4.7 **resting 12 lead electrocardiogram** if client is > 40 years of age (baseline only)

3.4.8 **additional testing** as warranted by the medical history and/or physical exam findings; examples of such testing are a serum chemistry profile, chest radiograph, or an exercise tolerance test (e.g., a treadmill ECG).
(NOTE: performance of exercise tolerance testing is to be approved by a DOI occupational medicine consultant.)

3.4.9 a **respirator use test**, if clinically indicated, e.g., the examiner has reservations regarding the examinee using a respirator due to physical and/or psychological conditions

Definition of a Respirator Use Test: a procedure in which the examinee dons the respirator that is to be used at the worksite, and wears it in a safe environment for 15 - 30 minutes. During this interval, exertional efforts approximating actual work tasks are simulated and observed by the examiner.

Procedure: Once the examinee dons the respirator, a health care professional should carefully monitor the examinee for signs of distress. Monitoring should include serial measurements (every 5 - 10 minutes) and recordings of pulse, blood pressure, respiratory rate, and, as appropriate, auscultation of the lungs and heart, and observation for signs of claustrophobia. A progress note describing the results of the Use Test should be placed in the medical record.

3.4.10 the **printed name** and **signature** of the **examiner**, the **date** of the evaluation, and the **location** of the facility in which the evaluation occurred shall appear on the examination form.

3.5 A **written disposition** based on available information (signed and dated by the examiner) shall be provided to the designated DOI supervisor or manager regarding the medical clearance for respirator use by the

examinee (see Section 7.0 of this document).

4.0 Clinical Considerations

4.1 General Job Duties

The proper approach to medical evaluation of a respirator user includes initial verification that, from a physical/cognitive/emotional perspective, the examinee is physically qualified to perform assigned duties without the respirator in place. Therefore, as a general rule, and with the exception of using respiratory protection during heavy exertion (particularly with an SCBA), an employee who physically can perform assigned duties without donning a respirator likely will be able from a functional perspective to do the work with a respirator in place.

If such a conclusion has not been properly reached, then the scope of the evaluation to evaluate the examinee for the potential for safe/unsafe use of a respirator should be appropriately expanded.

4.2 Medical Conditions - Stable

A variety of medical disorders, if sufficiently severe, may limit or contraindicate safe and effective use of a respiratory protective device. However, if the various medical conditions/diagnoses have not limited the respirator candidate in the past in jobs at least as taxing as the proposed/existing position, then such conditions usually will not preclude respirator use for the proposed duties.

Consistent with this concept is the corollary that during periodic evaluations of respirator users, disorders which have remained stable and heretofore have not interfered with safe and effective respirator use will likely not do so in the near term future.

4.3 Medical Conditions - New, Evolving or Intermittent

Medical conditions can change, and new diagnoses which are not documented in the medical record and which can impact respirator use may appear. Thus, the examining physician must be familiar with and consider those medical conditions that are relevant to respirator use (and other job functions).

Another important issue is the approach to disorders which become symptomatic or which are exacerbated on an intermittent basis (e.g., asthma, diabetes, seizure disorders, etc.). Obviously, the clinical evaluation of individuals with such conditions depends heavily on a detailed medical and work history to address the frequency and severity of symptoms. At the time of the medical evaluation, the clinical

manifestations of these conditions may underestimate (or overestimate!) the functional limitations and risks imposed on the examinee when using a respirator.

A closely-related consideration is the nature of the worksite at which respiratory protection is needed. If a worker becomes ill while using a respirator and must exit the work area, he/she must be able to leave quickly enough to avoid personal injury. Also, the health and safety of fellow workers must not be jeopardized by the respirator user's absence or need for evacuation, and all of these factors must be taken into consideration by the examiner.

4.4 Target Organ Damage

Under most circumstances, a respirator is a form of worker protection resorted to when airborne hazards cannot be sufficiently controlled by engineering, work practices, and/or administrative controls. Thus, it is often appropriate in such environments to monitor respirator users for evidence of target organ damage or indicator-organ response, both as a backup to industrial hygiene techniques as well as an indication of the effectiveness of respiratory protection. Thus, the hospital worker who wears a HEPA respirator for protection against exposure to tuberculosis will also undergo periodic PPD testing, or the lead exposed worker will undergo blood lead monitoring, or the asbestos worker will receive periodic chest x-rays and pulmonary function tests. Therefore, the examiner who evaluates the respirator user should utilize such information and, if it is not being collected, recommend surveillance testing as appropriate.

4.5 Use Test

Occasionally, even after a complete and appropriate medical evaluation a question may remain as to whether or not a particular examinee is able to utilize a form of respiratory protection safely and effectively. In such circumstances, it is appropriate for the medical evaluation to include a respirator use test. A use test not only represents an individualized assessment of the appropriateness of use of a particular respirator when a concern has arisen, but it also provides the opportunity to observe the examinee for claustrophobia not otherwise uncovered.

NOTE: A Use Test **does not** substitute for a required, formal Fit Test as defined in various OSHA regulations.

5.0 Responsibilities

5.1 It is the responsibility of **DOI** to provide the examiner with job and respirator use information, such as that indicated on the Request for Respirator Clearance form.

5.2 It is the responsibility of the **examinee** to provide the historical data requested in an occupational and medical questionnaire.

5.3 It is the responsibility of the **examiner** to review the historical medical and occupational data and conduct the clinical evaluation according to generally accepted community medical standards.

5.4 Unless **DOI** requests an occupational medical consultant to make a medical disposition, or the employee being examined is enrolled in a medical surveillance program (such that a second-level review is to be conducted by an AMO), it is the responsibility of the **examiner** at the service provision site to render a written medical disposition regarding the use of a respirator if an adequate basis for doing so has been developed during the evaluation. (See Section 6.1 below.)

5.5 It is the responsibility of **DOI** or its occupational medicine consultant to review this protocol annually and make changes if warranted.

6.0 Communication with DOI, the Employer

6.1 If the examiner determines that additional information is needed prior to issuing a medical disposition, then this request should be forwarded in writing to the agency safety office or other designated agency official. In such cases, the health record should be flagged for review in a few weeks by the requesting examiner, such that if the requested information is not received a written report can be issued noting that a recommendation can not be made due to lack of sufficient information.

6.2 Following completion of the written medical disposition by either the examiner or the occupational medicine consultant, the original of the written disposition should be forward to the agency.

6.3 Guidelines Regarding Content of the Disposition

6.3.1 The disposition should not contain specific examination findings (including laboratory results) or specific medical diagnoses.

6.3.2 The disposition should contain information in the form of a *recommendation***.**

6.3.3 Information forwarded to DOI should answer the following question: "*Is it the recommendation of the examiner that the employee be considered capable of safely wearing the indicated respirator while performing the indicated job duties?"*

6.3.4 The response to the question, i.e., the recommendation, should either be

- to place **no limitation** on respirator use **-OR-**
- to **limit respirator use** according to specifically stated circumstances (if respirator use is limited, the specific limitation is to be addressed in the recommendation) **-OR-**
- to **preclude any respirator use** at the worksite **-OR-**
- to state that **no disposition** can be issued due to lack of information (e.g., non-compliant employee, inability to obtain information from employee or DOI, etc.; see Sections 6.1 and 7.3).

6.3.5 If suggested by the results of the medical examination, a **restriction** is recommended that would allow the examinee to function more safely and/or effectively while using respiratory protection, such a recommendation is to be included in the summary.

Example: "The employee is not medically cleared to wear a negative pressure respirator; a PAPR is recommended."

7.0 Communication with the Employee

7.1 If the employee requests copies of all or part of the physical evaluation (copies to be given directly to the examinee), this request is to be honored; a consent form generally is not required for this transaction (the policies of the individual examining facility may vary).

7.2 Communication with the employee is required to explain fully any abnormal findings of an examination.

7.3 If additional medical information is needed from the employee for adequate evaluation of a medical condition, a letter requesting the needed information can be issued to the examinee for completion by the employee's personal physician or health care provider.

In such cases, the health record should be flagged for review in a few weeks by the requesting examiner, such that if the requested information is not received, a written report can be issued noting that a recommendation can not be made due to lack of sufficient information.

Attachment E 1 (a)
Types of Respirators

The following information should be provided to the servicing examination site to assist the health care providers as they conduct the respirator medical clearance examinations. Engineering descriptions of the various types of respiratory protective devices are inadequate by themselves for guiding examining providers who conduct respirator medical clearance examinations. Factors related to the physiologic effects and consequences of the various devices for the wearer are more important considerations than are the internal mechanical characteristics of the device in use or to be used. All respirators used at Federal worksites should be NIOSH/MSHA approved.

A1 Air-Purifying, Negative Pressure (non-powered) Respirator

This category includes several types of devices. All have a **face piece (either full or partial)** which provides a tight seal against the face. Inhalation of toxic substances is prevented either by direct filtration through the face piece material, through filters/cartridges attached to the face piece, or by a remote assembly typically worn on the belt and involving a chemical reaction. An **air-purifying** respirator, as the name implies, can only be used in an environment with an adequate supply of oxygen, since the respirator only filters/ purifies and, to some extent, prevents physical contact with ambient gas. The **negative pressure** designation relates to the method of air delivery and removal, i.e., the wearer creates a negative pressure inside the face piece in order to inhale. This type of device may be completely disposable or may contain replaceable parts.

The hazard eliminating mechanism is specific for the physical state of the hazard, i.e., some devices protect only against particulates while others protect only against gases or vapors. (Some devices protect against both.)

A negative pressure respirator is not appropriate for certain hazards and for concentrations of hazards exceeding its protective capacity. If the means of respiratory protection is via particulate filtration, the resistance to breath will increase as the filter becomes saturated. Since the major limiting factor to using this type of device is breathing resistance, particularly for workers with obstructive airway conditions (predominately on inhalation if there is an exhalation valve), this factor should be considered during medical clearance examinations, especially if a “use test” is conducted with a “clean” respirator. The cloth **h**igh **e**fficiency **p**articulate **a**ir (HEPA) filter mask, commonly used for `protection against exposure to tuberculosis, is an example of this type of respiratory protective device.

A2 Air-Purifying, Positive Pressure (powered) Respirator (PAPR)

This variant of the air-purifying type of respirator utilizes a **blower** worn on a belt at the waist to move ambient air through the filtering mechanism. Consequently, respirable air

is presented to the wearer under slightly positive pressure. Because the blower operates continuously, i.e., air is constantly flowing into and out of the face piece, resistance both to inhalation and exhalation is negligible as is the physiologic dead space. This feature may be helpful to workers with mild to moderate disease who are otherwise able to meet their job requirements.

Some PAPRs rely on high air flow rates to prevent toxic substances from entering the mask rather than forming a seal against the face. Variants of these devices utilize a hood or helmet which fits over the entire head with respirable air supplied to the entire space beneath the hood/helmet. This alternative is particularly useful for workers with beards or other facial features that interfere with forming a tight seal with a face piece. A PAPR is not appropriate for IDLH (**i**mmediately **d**angerous to **l**ife and **h**ealth) environments or other situations requiring a high level of respiratory protection.

A3 Self-Contained Breathing Apparatus (SCBA)

An SCBA is a device for which the wearer carries his/her source of respirable air in a compressed gas cylinder typically positioned in a back harness. The gas flow path conforms to either an open or closed circuit, i.e., expired air is either exhausted through a valve to the ambient environment or returned to a bag of pooled gas at ambient pressure, respectively. Carbon dioxide is scrubbed in the closed circuit and inhalations are drawn directly from the bag.

An SCBA is worn with a mask (usually a full face piece) which is supposed to provide a tight seal against the face. If the wearer uses lenses, specially configured lenses that can fit entirely within the face piece must be worn, i.e., temples (sidebars) cannot penetrate the seal between the mask and the face.

SCBAs provide air to the wearer under positive pressure. They usually operate in demand or pressure demand mode. In the demand mode, respirable air is available when inspiratory effort lowers the pressure in the face piece below ambient pressure. In the pressure demand mode, positive pressure is in the face piece throughout the respiratory cycle, i.e., gas is supplied when inspiratory effort lowers mask pressure, but not all the way to ambient pressure. Consequently, in a pressure demand device, exhalation is accomplished against greater resistance than in a demand device. (This drawback is counterbalanced by the greater protection offered by a pressure demand device, since continuously positive mask pressure suppresses inward leaking during the entire respiratory cycle.)

The **considerable weight of an SCBA (up to 35 pounds) may limit functional (exertional) capacity during performance of heavy work, especially for workers with certain cardiovascular conditions.** Exertional capacity while wearing an SCBA may also be limited by the inability of the device to support very high ventilatory rates, either through limited maximal air supply rates or, in the case of the pressure demand device,

working against increased exhalation resistance. It is also noteworthy that attempts to breathe at ventilation rates greater than the device's maximal flow rates may lead to inward air/gas leakage from the ambient environment (mask pressure can be forcefully driven below ambient pressure by extreme ventilatory efforts).

SCBAs can operate in a continuous mode (air is flowing regardless of inspiratory effort). In this type of device, resistance during exhalation is less than with demand mode devices, since the exhalation valve essentially is held open. SCBAs with pressure demand regulators are used in oxygen deficient atmospheres (< 19.5% O_2) or other environments which are immediately dangerous to life or health (IDLH), i.e., they require a high level of respiratory protection (e.g., fire fighting).

A4 Supplied Air Respirator

Some respirators are designed to provide the wearer with non-ambient, respirable air from a remote source. The air/gas reaches the user's breathing apparatus through a flexible pressurized hose, which usually is tethered at the waist. Air is delivered to the wearer's face piece either through a demand or pressure demand type regulator, similar to an SCBA, or through a flow system, similar to a PAPR.

Other Respirators

In addition, agencies and their employees may use respirators, such as simple dust masks, and emergency escape respirators, which do not require a medical clearance in order for them to be used. N95 masks, which require a tight fit to be effective, do require a medical clearance, which generally requires only the medical review of a screening questionnaire (see Attachment E 1 (c)). For more information, contact your safety officer.

Attachment E 1 (b)

Sample of Request for Respirator Clearance form

DEPARTMENT OF THE INTERIOR

REQUEST FOR RESPIRATOR CLEARANCE

Employee Name:_____ **SS#:**_____
Job Title:_____ **Work Phone Extension:**_____
Best Time to Phone:_____

Instructions to Safety Officer or Supervisor: Please check all respirators and other applicable items which apply to the employee's job functions, sign and print your name and the date of the request. **Forward** this form to the servicing examination facility such that a medical evaluation of the employee can be scheduled.

Request for NIOSH-approved respirator:

☐ single use, filter mask (four attachment points)	☐ half-faced cartridge-type, negative pressure
☐ full-faced cartridge-type, negative pressure	☐ half-faced powered cartridge-type (PAPR)
☐ full-faced powered cartridge-type (PAPR)	☐ self-contained breathing apparatus (SCBA)
☐ hood/helmet powered cartridge-type (PAPR) (not positive pressure)	☐ half faced/full faced/hood/helmet positive pressure airline respirator

Frequency of Use:

☐ daily ☐ weekly
☐ monthly ☐ yearly
☐ emergency use only
☐ other:_____

Duration of Use:

☐ < 30 min per work day
☐ 30 - 60 min per work day
☐ 1 - 4 hours per work day
☐ 4 - 8 hours per work day, or more

Other Personal Protective Equipment (PPE) to be Used:

☐ barrier clothing (Tyvek´, etc., coveralls, chemical splash suit) ☐ fully encapsulated suit
☐ safety glasses/splash goggles ☐ other:_____

Job Functions While the Employee Will be Wearing the Respirator (check all that apply) :

☐ **regular job duties** require use of respirator; please refer to position description for these activities
☐ **light** physical activity (sitting or standing to control machines, performing hand or arm work)
☐ **moderate** physical activity (walking about with moderate lifting/carrying/pushing)
☐ **heavy** physical activities
(lifting/carrying greater than 25 lbs, sustained effort requiring whole body movements)
☐ **HAZMAT** Team Activities: Level: ☐ A ☐ B ☐ C ☐ D (as per 29 CFR 1910.120)
☐ **confined space** activities or work in awkward small spaces
☐ **solitary/isolated** duty
☐ **unusual environmental conditions** (excessive heat, cold, humidity, high altitude, etc.)
☐ **toxic substances** (describe substance(s), and the exposure level, frequency, and duration):

_____

_____

_____
Signature of Requesting Safety Officer or Supervisor Date

_____
Printed Name of Requesting Safety Officer or Supervisor (phone # with area code)

Original of this document to remain with employee's occupational health record.
2-1-2000

Attachment E 1 (c)

DOI Respirator Medical Evaluation Questionnaire form

U.S. DEPARTMENT OF THE INTERIOR

Respirator Medical Evaluation Questionnaire

(Reflects OSHA's Mandatory Questionnaire in Appendix C to 29 CFR 1910.134)

To the employer: Employees who are to use a respirator in the course of their official duties are to have an annual medical evaluation. The evaluation must either include a physical examination by a licensed health professional, or completion of this form by the employee and its review by an agency health care professional (see "Medical Clearance for Respirator Use – Clinical Protocol" in the DOI Occupational Medicine Program Handbook). Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination. However, certain responses, or patterns of response, may lead the reviewer to request further information, or a medical examination, in order to reach a conclusion regarding the employee's ability to safely use a respirator.

To the employee: Can you read? (select one): Yes ☐ No ☐

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

Part A. Section 1. (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's date _____

2. Your name:_____

3. Your age (to nearest year):_____

4. Sex (circle one): Male/Female

5. Your height: _____ ft. _____ in.

6. Your weight: _____ lbs.

7. Your job title:_____

8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): _____

9. The best time to phone you at this number: _____

10. Has your employer told you how to contact the health care professional who will review this questionnaire? (select one) Yes ☐ No ☐

11. Check the type of respirator you will use (you can check more than one category; check all that apply):

a. _____ N, R, or P disposable respirator (filter-mask, non-cartridge type only).

b. _____ Other types: ____ half- or full-facepiece type; ____ powered-air purifying; ____ supplied-air; ____ self-contained breathing apparatus (SCBA).

12. Have you worn a respirator? (select one) Yes ☐ No ☐

If "yes," what type(s):_____

Part A. Section 2. (Mandatory) Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator (please select "yes"' or "no").

1. **Do you currently smoke tobacco, or have you smoked tobacco in the last month?** Yes ☐ No ☐

2. **Have you ever had any of the following conditions?**
   a. Seizures (fits): Yes ☐ No ☐
   b. Diabetes (sugar disease): Yes ☐ No ☐
   c. Allergic reactions that interfere with your breathing: Yes ☐ No ☐
   d. Claustrophobia (fear of closed-in places): Yes ☐ No ☐
   e. Trouble smelling odors: Yes ☐ No ☐

3. **Have you ever had any of the following pulmonary or lung problems?**
   a. Asbestosis: Yes ☐ No ☐
   b. Asthma: Yes ☐ No ☐
   c. Chronic bronchitis: Yes ☐ No ☐
   d. Emphysema: Yes ☐ No ☐
   e. Pneumonia: Yes ☐ No ☐
   f. Tuberculosis: Yes ☐ No ☐
   g. Silicosis: Yes ☐ No ☐
   h. Pneumothorax (collapsed lung): Yes ☐ No ☐
   i. Lung cancer: Yes ☐ No ☐
   j. Broken ribs: Yes ☐ No ☐
   k. Any chest injuries or surgeries: Yes ☐ No ☐
   l. Any other lung problem that you've been told about: Yes ☐ No ☐

4. **Do you currently have any of the following symptoms of pulmonary or lung illness?**
   a. Shortness of breath: Yes ☐ No ☐
   b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes ☐ No ☐
   c. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes ☐ No ☐
   d. Have to stop for breath when walking at your own pace on level ground: Yes ☐ No ☐
   e. Shortness of breath when washing or dressing yourself: Yes ☐ No ☐
   f. Shortness of breath that interferes with your job: Yes ☐ No ☐
   g. Coughing that produces phlegm (thick sputum): Yes ☐ No ☐
   h. Coughing that wakes you early in the morning: Yes ☐ No ☐
   i. Coughing that occurs mostly when you are lying down: Yes ☐ No ☐
   j. Coughing up blood in the last month: Yes ☐ No ☐
   k. Wheezing: Yes ☐ No ☐
   l. Wheezing that interferes with your job: Yes ☐ No ☐
   m. Chest pain when you breathe deeply: Yes ☐ No ☐
   n. Any other symptoms that you think may be related to lung problems: Yes ☐ No ☐

5. **Have you ever had any of the following cardiovascular or heart problems?**
   a. Heart attack: Yes ☐ No ☐
   b. Stroke: Yes ☐ No ☐
   c. Angina: Yes ☐ No ☐
   d. Heart failure: Yes ☐ No ☐
   e. Swelling in your legs or feet (not caused by walking): Yes ☐ No ☐
   f. Heart arrhythmia (heart beating irregularly): Yes ☐ No ☐
   g. High blood pressure: Yes ☐ No ☐
   h. Any other heart problem that you've been told about: Yes ☐ No ☐

6. **Have you ever had any of the following cardiovascular or heart symptoms?**
   a. Frequent pain or tightness in your chest: Yes ☐ No ☐
   b. Pain or tightness in your chest during physical activity: Yes ☐ No ☐
   c. Pain or tightness in your chest that interferes with your job: Yes ☐ No ☐

Employee Name:_____

d. In the past two years, have you noticed your heart skipping or missing a beat: Yes ☐ No ☐
e. Heartburn or indigestion that is not related to eating: Yes ☐ No ☐
f. Any other symptoms that you think may be related to heart or circulation problems: Yes ☐ No ☐

7. **Do you currently take medication for any of the following problems?**
a. Breathing or lung problems:
b. Heart trouble: Yes ☐ No ☐
c. Blood pressure: Yes ☐ No ☐
d. Seizures (fits): Yes ☐ No ☐

8. **If you've used a respirator, have you ever had any of the following problems?** (If you've never used a respirator, check the following space and go to question 9:)
a. Eye irritation: Yes ☐ No ☐
b. Skin allergies or rashes: Yes ☐ No ☐
c. Anxiety: Yes ☐ No ☐
d. General weakness or fatigue: Yes ☐ No ☐
e. Any other problem that interferes with your use of a respirator: Yes ☐ No ☐

9. **Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire?** Yes ☐ No ☐

Questions 10 to 15 below must be answered by every employee who has been selected to use either a **full-facepiece** respirator *or* a **self-contained breathing apparatus (SCBA)**. For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. **Have you ever lost vision in either eye (temporarily or permanently)?** Yes ☐ No ☐

11. **Do you currently have any of the following vision problems?**
a. Wear contact lenses: Yes ☐ No ☐
b. Wear glasses: Yes ☐ No ☐
c. Color blind: Yes ☐ No ☐
e. Any other eye or vision problem: Yes ☐ No ☐

12. **Have you ever had an injury to your ears, including a broken ear drum?** Yes ☐ No ☐

13. **Do you currently have any of the following hearing problems?**
a. Difficulty hearing: Yes ☐ No ☐
b. Wear a hearing aid: Yes ☐ No ☐
c. Any other hearing or ear problem: Yes ☐ No ☐

14. **Have you ever had a back injury?** Yes ☐ No ☐

15. **Do you currently have any of the following musculoskeletal problems?**
a. Weakness in any of your arms, hands, legs, or feet: Yes ☐ No ☐
b. Back pain: Yes ☐ No ☐
c. Difficulty fully moving your arms and legs: Yes ☐ No ☐
d. Pain or stiffness when you lean forward or backward at the waist: Yes ☐ No ☐
e. Difficulty fully moving your head up or down: Yes ☐ No ☐
f. Difficulty fully moving your head side to side: Yes ☐ No ☐
g. Difficulty bending at your knees: Yes ☐ No ☐
h. Difficulty squatting to the ground: Yes ☐ No ☐
i. Climbing a flight of stairs or a ladder carrying more than 25 lbs: Yes ☐ No ☐
j. Any other muscle or skeletal problem that interferes with using a respirator: Yes ☐ No ☐

Employee Name:_____

Part B Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. **In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen?** Yes ☐ No ☐

If ``yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions: Yes ☐ No ☐

2. **At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals?** Yes ☐ No ☐

If ``yes," name the chemicals if you know them:_____

_____

3. **Have you ever worked with any of the materials, or under any of the conditions, listed below?**
   a. Asbestos: Yes ☐ No ☐
   b. Silica (e.g., in sandblasting): Yes ☐ No ☐
   c. Tungsten/cobalt (e.g., grinding or welding this material): Yes ☐ No ☐
   d. Beryllium: Yes ☐ No ☐
   e. Aluminum: Yes ☐ No ☐
   f. Coal (for example, mining): Yes ☐ No ☐
   g. Iron: Yes ☐ No ☐
   h. Tin: Yes ☐ No ☐
   i. Dusty environments: Yes ☐ No ☐
   j. Any other hazardous exposures: Yes ☐ No ☐

If ``yes," describe these exposures:_____

_____

4. **List any second jobs or side businesses you have:** _____

_____

5. **List your previous occupations:** _____

_____

6. **List your current and previous hobbies:** _____

_____

7. **Have you been in the military services?** Yes ☐ No ☐
   If ``yes," were you exposed to biological or chemical agents (either in training or combat): Yes ☐ No ☐

8. **Have you ever worked on a HAZMAT team?** Yes ☐ No ☐

9. **Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications)?** Yes ☐ No ☐

If ``yes," name the medications if you know them:_____

_____

Employee Name:_____

10. **Will you be using any of the following items with your respirator(s)?**

a. HEPA Filters: Yes ☐ No ☐
b. Canisters (for example, gas masks): Yes ☐ No ☐
c. Cartridges: Yes ☐ No ☐

11. **How often are you expected to use the respirator(s) (select "yes" or "no" for all answers that apply to you)?:**

a. Escape only (no rescue): Yes ☐ No ☐
b. Emergency rescue only: Yes ☐ No ☐
c. Less than 5 hours per week: Yes ☐ No ☐
d. Less than 2 hours per day: Yes ☐ No ☐
e. 2 to 4 hours per day: Yes ☐ No ☐
f. Over 4 hours per day: Yes ☐ No ☐

12. **During the period you are using the respirator(s), what is your work effort?**

Light (less than 200 kcal per hour): Yes ☐ No ☐

If ``yes," how long does this period last during the average shift:_____ hrs. _____ mins.
Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines

Moderate (200 to 350 kcal per hour): Yes ☐ No ☐

If ``yes," how long does this period last during the average shift:_____ hrs. _____ mins.
Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

Heavy (above 350 kcal per hour): Yes ☐ No ☐

If ``yes," how long does this period last during the average shift:_____ hrs. _____ mins.
Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. **Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator?** Yes ☐ No ☐

If ``yes," describe this protective clothing and/or equipment: _____

_____

14. **Will you be working under hot conditions (with the temperature exceeding 77 degrees F)?** Yes ☐ No ☐

15. **Will you be working under humid conditions?** Yes ☐ No ☐

16. **Describe the work you'll be doing while you're using your respirator(s):** _____

_____

17. **Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):**

_____

_____

Employee Name:_____

18. **Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):**

Name of Toxic Substance	**Estimated maximum exposure level per shift**	**Duration of exposure per shift**

Also list the name(s) of any other toxic substance(s) that you'll be exposed to while using your respirator:

_____

19. **Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):**

_____

_____

_____

To the best of my knowledge, the information I have provided is true and accurate.

_____ _____

Employee Name Date

_____

Employee Signature

Deliver this form to the examiner or the reviewer who has been designated to complete the Summary and Recommendations form.

Employee Name:_____

Department of the Interior
RESPIRATOR MEDICAL EVALUATION QUESTIONNAIRE
SUMMARY AND RECOMMENDATIONS

To Be Completed By The Examiner or Designated Reviewer:

Employee name:_____ Age____ Sex____ Date of birth:_____
Agency:_____ Work location:_____ Job Title:_____
Supervisor's name:_____ Supervisor's phone: _____ Fax:_____
Type of respirator use requested: __disposable, __ negative pressure (cartridge), __PAPR, __airline, __SCBA

I. The recommendations/clearances provided here are based on a review of (check all that apply)*:*
__ Mandatory OSHA-based Respirator Medical Evaluation Questionnaire
__ Records of a medical evaluation, including a physical exam, done on:_____
__ Additional information supplied by employee's personal physician.
__ Other information (specify):

II. Recommendations on medical clearance for respirator use: *(Choose A, B or C below)*

☐ **A. The employee is given medical clearance to use the following respirator(s) under the conditions noted** *(choose all that apply)*

___N, R or P disposable respirator (filter-mask, non-cartridge type only)	___Supplied air (air line) respirator
___Half face negative pressure air-purifying cartridge-type respirator	___Powered air purifying respirator (PAPR) -- either half or full face
___Full face negative pressure air-purifying cartridge-type respirator	___Self-contained breathing apparatus (SCBA)

When using respirators, the employee is approved to perform the following (Choose one)

__ Mild exertion /low heat stress
__ Moderate exertion
__ Heavy exertion
__ Escape only
__ Normal job duties
__Other Activity _____

Mild exertion *(2-3 mets) e.g. lifting up to 10 lbs, extended walking on a flat surface, extended standing*
Moderate exertion *(4-5 mets) e,g, lifting 10 lbs, 5 lifts per min, fast walking (4 mph), gardening/digging, pushing, pulling*
Heavy exertion *(5-10 mets) e.g. jogging (10 min/mi), chopping wood, climbing hills, life-saving activities, fire fighting*

This respirator clearance expires (circle one) *1 2 3 4 5 years from the date below (*If not marked, clearance expires in 1 year*)*

☐ **B. The employee is not given medical clearance for respirator use because more information is needed** *(Specify what is needed to make a decision)*

□1. A medical evaluation, including a physical exam, is needed to make a decision.
□.2. The following additional information is needed for review (*specify what):*
_____

☐ **C. The employee is not given medical clearance for respirator use because of the health problems as noted below** *(choose one below)*

□.1. A temporary health problem (which should be reevaluated in _____ months)
□.2. A health problem that appears permanent (routine re-evaluation is not needed)

_____ _____
Examiner / Reviewer Name (Print) Phone number for questions

_____ _____
Examiner / Reviewer Signature Date:

Hearing Conservation **Attachment - E 2**

The bulleted text that begins on the following page provides the regulation in 29 CFR 1910.95, *Occupational Noise Exposure*, without the appendices. The full pdf version of the regulation (with appendices) may be found at the Internet link in section (a) on page 2, below. This regulation establishes the legal basis and the guidelines for the manager who wishes to provide (or may be required to provide) a Hearing Conservation Program for his or her employees. Consult the Office of Occupational Safety and Health if you have questions about the adequacy of your program or about interpretations or appropriate responses to any findings that may emerge from your program.

It should be noted that the requirements for reporting hearing loss on the OSHA 300 Log have been changed by OSHA. Now, a hearing loss only must be recorded if:

1) there is an standard threshold shift (STS) from the baseline (or most recent revised baseline) of an average of 10 dB in either the right or left ear at 2000, 3000, and 4000 Hz, **and**
2) that average is 25 dB or higher.

For further information on the interpretation of results and recording of a hearing loss, please see the specific regulations:

http://edocket.access.gpo.gov/cfr_2005/julqtr/pdf/29cfr1910.95.pdf

and OSHA guidance on the Recording criteria for cases involving occupational hearing loss:

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9641 .

Age Correction: Under OSHA regulations, employers may continue to use age correction in determining if an STS has occurred, as provided for in Appendix F of 29 CFR 1910.95, but are not required to do so. However, age correction may not be used to determine if the 25 dB criteria has been met for recording the hearing loss on the OSHA 300 Log.

Please note: It is the practice of the Department of the Interior to NOT use age correction, even in the determination of standard threshold shifts. The American Medical Association Guides to the Evaluation of Permanent Impairment state that total hearing loss should not be age adjusted, and there is no recognized consensus method for age adjusting a single audiogram. Hearing loss due to "age" generally actually is considered due to the long-term effects of noise exposure, and would not occur otherwise.

29CFR1910.95 [Revised as of July 1, 2004]

Sec. 1910.95 Occupational noise exposure.

(a) Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table G-16 when measured on the A scale of a standard sound level meter at slow response. When noise levels are determined by octave band analysis, the equivalent A-weighted sound level may be determined as follows:

[To view the graphic, go to: http://edocket.access.gpo.gov/cfr_2005/julqtr/pdf/29cfr1910.95.pdf]

Equivalent sound level contours. Octave band sound pressure levels may be converted to the equivalent A-weighted sound level by plotting them on this graph and noting the A-weighted sound level corresponding to the point of highest penetration into the sound level contours. This equivalent A-weighted sound level, which may differ from the actual A-weighted sound level of the noise, is used to determine exposure limits from Table 1.G-16.

(b) (1) When employees are subjected to sound exceeding those listed in Table G-16, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of Table G-16, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.

(2) If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous.

Table G-16--Permissible Noise Exposures [1]

Duration per day, hours	Sound level dBA slow response
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115

[1] When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: C1/T1+C2/T2Cn/Tn exceeds unity, then, the mixed exposure should be considered to exceed the limit value. Cn indicates the total time of exposure at a specified noise level, and Tn indicates the total time of exposure permitted at that level. Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

(c) Hearing conservation program.

(1) The employer shall administer a continuing, effective hearing conservation program, as described in paragraphs (c) through (o) of this section, whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response) or, equivalently, a dose of fifty percent. For purposes of the hearing conservation program, employee noise exposures shall be computed in accordance with appendix A and Table G-16a, and without regard to any attenuation provided by the use of personal protective equipment.

(2) For purposes of paragraphs (c) through (n) of this section, an 8-hour time-weighted average of 85 decibels or a dose of fifty percent shall also be referred to as the action level.

(d) Monitoring.

(1) When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, the employer shall develop and implement a monitoring program.

(i) The sampling strategy shall be designed to identify employees for inclusion in the hearing conservation program and to enable the proper selection of hearing protectors.

(ii) Where circumstances such as high worker mobility, significant variations in sound level, or a significant component of impulse noise make area monitoring generally inappropriate, the employer shall use representative personal sampling to comply with the monitoring requirements of this paragraph unless the employer can show that area sampling produces equivalent results.

(2) (i) All continuous, intermittent and impulsive sound levels from 80 decibels to 130 decibels shall be integrated into the noise measurements.

(ii) Instruments used to measure employee noise exposure shall be calibrated to ensure measurement accuracy.

(3) Monitoring shall be repeated whenever a change in production, process, equipment or controls increases noise exposures to the extent that:

(i) Additional employees may be exposed at or above the action level; or

(ii) The attenuation provided by hearing protectors being used by employees may be rendered inadequate to meet the requirements of paragraph (j) of this section.

(e) Employee notification. The employer shall notify each employee exposed at or above an 8-hour time-weighted average of 85 decibels of the results of the monitoring.

(f) Observation of monitoring. The employer shall provide affected employees or their representatives with an opportunity to observe any noise measurements conducted pursuant to this section.

(g) Audiometric testing program. (1) The employer shall establish and maintain an audiometric testing program as provided in this paragraph by making audiometric testing available to all employees whose exposures equal or exceed an 8-hour time-weighted average of 85 decibels.

(2) The program shall be provided at no cost to employees.
(3) Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or other physician, or by a technician who is certified by the Council of Accreditation in Occupational Hearing Conservation, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining and checking calibration and proper functioning of the audiometers being used. A technician who operates microprocessor audiometers does not need to be certified. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist or physician.
(4) All audiograms obtained pursuant to this section shall meet the requirements of appendix C: Audiometric Measuring Instruments.
(5) Baseline audiogram.
(i) Within 6 months of an employee's first exposure at or above the action level, the employer shall establish a valid baseline audiogram against which subsequent audiograms can be compared.
(ii) Mobile test van exception. Where mobile test vans are used to meet the audiometric testing obligation, the employer shall obtain a valid baseline audiogram within 1 year of an employee's first exposure at or above the action level. Where baseline audiograms are obtained more than 6 months after the employee's first exposure at or above the action level, employees shall wearing hearing protectors for any period exceeding six months after first exposure until the baseline audiogram is obtained.
(iii) Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise.
(iv) The employer shall notify employees of the need to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination.
(6) Annual audiogram. At least annually after obtaining the baseline audiogram, the employer shall obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels.
(7) Evaluation of audiogram.
(i) Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift as defined in paragraph (g)(10) of this section has occurred. This comparison may be done by a technician.
(ii) If the annual audiogram shows that an employee has suffered a standard threshold shift, the employer may obtain a retest within 30 days and consider the results of the retest as the annual audiogram.
(iii) The audiologist, otolaryngologist, or physician shall review problem audiograms and shall determine whether there is a need for further evaluation. The employer shall provide to the person performing this evaluation the

following information:

(A) A copy of the requirements for hearing conservation as set forth in paragraphs (c) through (n) of this section;
(B) The baseline audiogram and most recent audiogram of the employee to be evaluated;
(C) Measurements of background sound pressure levels in the audiometric test room as required in appendix D: Audiometric Test Rooms.
(D) Records of audiometer calibrations required by paragraph (h)(5) of this section.

(8) Follow-up procedures.
(i) If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift as defined in paragraph (g)(10) of this section has occurred, the employee shall be informed of this fact in writing, within 21 days of the determination.
(ii) Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, the employer shall ensure that the following steps are taken when a standard threshold shift occurs:
(A) Employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them.
(B) Employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.
(C) The employee shall be referred for a clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary or if the employer suspects that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.
(D) The employee is informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.
(iii) If subsequent audiometric testing of an employee whose exposure to noise is less than an 8-hour TWA of 90 decibels indicates that a standard threshold shift is not persistent, the employer:
(A) Shall inform the employee of the new audiometric interpretation; and
(B) May discontinue the required use of hearing protectors for that employee.

(9) Revised baseline. An annual audiogram may be substituted for the baseline audiogram when, in the judgment of the audiologist, otolaryngologist or physician who is evaluating the audiogram:
(i) The standard threshold shift revealed by the audiogram is persistent; or
(ii) The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

(10) Standard threshold shift.
(i) As used in this section, a standard threshold shift is a change in hearing

threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

(ii) In determining whether a standard threshold shift has occurred, allowance may be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram according to the procedure described in appendix F: Calculation and Application of Age Correction to Audiograms.

(h) Audiometric test requirements.

(1) Audiometric tests shall be pure tone, air conduction, hearing threshold examinations, with test frequencies including as a minimum 500, 1000, 2000, 3000, 4000, and 6000 Hz. Tests at each frequency shall be taken separately for each ear.

(2) Audiometric tests shall be conducted with audiometers (including microprocessor audiometers) that meet the specifications of, and are maintained and used in accordance with, American National Standard Specification for Audiometers, S3.6-1969, which is incorporated by reference as specified in Sec. 1910.6.

(3) Pulsed-tone and self-recording audiometers, if used, shall meet the requirements specified in appendix C: Audiometric Measuring Instruments.

(4) Audiometric examinations shall be administered in a room meeting the requirements listed in appendix D: Audiometric Test Rooms.

(5) Audiometer calibration.

(i) The functional operation of the audiometer shall be checked before each day's use by testing a person with known, stable hearing thresholds, and by listening to the audiometer's output to make sure that the output is free from distorted or unwanted sounds. Deviations of 10 decibels or greater require an acoustic calibration.

(ii) Audiometer calibration shall be checked acoustically at least annually in accordance with appendix E: Acoustic Calibration of Audiometers. Test frequencies below 500 Hz and above 6000 Hz may be omitted from this check. Deviations of 15 decibels or greater require an exhaustive calibration.

(iii) An exhaustive calibration shall be performed at least every two years in accordance with sections 4.1.2; 4.1.3.; 4.1.4.3; 4.2; 4.4.1; 4.4.2; 4.4.3; and 4.5 of the American National Standard Specification for Audiometers, S3.6-1969. Test frequencies below 500 Hz and above 6000 Hz may be omitted from this calibration.

(i) Hearing protectors.

(1) Employers shall make hearing protectors available to all employees exposed to an 8-hour time-weighted average of 85 decibels or greater at no cost to the employees. Hearing protectors shall be replaced as necessary.

(2) Employers shall ensure that hearing protectors are worn:

(i) By an employee who is required by paragraph (b)(1) of this section to wear personal protective equipment; and

(ii) By any employee who is exposed to an 8-hour time-weighted average of 85 decibels or greater, and who:

(A) Has not yet had a baseline audiogram established pursuant to paragraph (g)(5)(ii); or

(B) Has experienced a standard threshold shift.

(3) Employees shall be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors provided by the employer.

(4) The employer shall provide training in the use and care of all hearing protectors provided to employees.

(5) The employer shall ensure proper initial fitting and supervise the correct use of all hearing protectors.

(j) Hearing protector attenuation.

(1) The employer shall evaluate hearing protector attenuation for the specific noise environments in which the protector will be used. The employer shall use one of the evaluation methods described in appendix B: Methods for Estimating the Adequacy of Hearing Protection Attenuation.

(2) Hearing protectors must attenuate employee exposure at least to an 8-hour time-weighted average of 90 decibels as required by paragraph (b) of this section.

(3) For employees who have experienced a standard threshold shift, hearing protectors must attenuate employee exposure to an 8-hour time-weighted average of 85 decibels or below.

(4) The adequacy of hearing protector attenuation shall be re-evaluated whenever employee noise exposures increase to the extent that the hearing protectors provided may no longer provide adequate attenuation. The employer shall provide more effective hearing protectors where necessary.

(k) Training program.

(1) The employer shall institute a training program for all employees who are exposed to noise at or above an 8-hour time-weighted average of 85 decibels, and shall ensure employee participation in such program.

(2) The training program shall be repeated annually for each employee included in the hearing conservation program. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.

(3) The employer shall ensure that each employee is informed of the following:

(i) The effects of noise on hearing;

(ii) The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and

(iii) The purpose of audiometric testing, and an explanation of the test procedures.

(l) Access to information and training materials.

(1) The employer shall make available to affected employees or their representatives copies of this standard and shall also post a copy in the workplace.

(2) The employer shall provide to affected employees any informational materials pertaining to the standard that are supplied to the employer by the Assistant Secretary.

(3) The employer shall provide, upon request, all materials related to the employer's training and education program pertaining to this standard to the Assistant Secretary and the Director.

(m) Recordkeeping

(1) Exposure measurements. The employer shall maintain an accurate record of all employee exposure measurements required by paragraph (d) of this section.

(2) Audiometric tests.

(i) The employer shall retain all employee audiometric test records obtained pursuant to paragraph (g) of this section:

(ii) This record shall include:

(A) Name and job classification of the employee;

(B) Date of the audiogram;

(C) The examiner's name;

(D) Date of the last acoustic or exhaustive calibration of the audiometer; and

(E) Employee's most recent noise exposure assessment.

(F) The employer shall maintain accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

(3) Record retention. The employer shall retain records required in this paragraph (m) for at least the following periods.

(i) Noise exposure measurement records shall be retained for two years.

(ii) Audiometric test records shall be retained for the duration of the affected employee's employment.

(4) Access to records. All records required by this section shall be provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary. The provisions of 29 CFR 1910.20 (a)-(e) and (g)-(i) apply to access to records under this section.

(5) Transfer of records. If the employer ceases to do business, the employer shall transfer to the successor employer all records required to be maintained by this section, and the successor employer shall retain them for the remainder of the period prescribed in paragraph (m)(3) of this section.

(n) Appendices.

(1) Appendices A, B, C, D, and E to this section are incorporated as part of this section and the contents of these appendices are mandatory.

(2) Appendices F and G to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

(o) Exemptions. Paragraphs (c) through (n) of this section shall not apply to employers engaged in oil and gas well drilling and servicing operations.

(p) Startup date. Baseline audiograms required by paragraph (g) of this section shall be completed by March 1, 1984.

Physical Stressors **Attachment - E 3**

The following physical stressors or threats to employee health have been addressed in this attachment:

Exertion and Heat Stress	Attachment E 3 (a)
Ultraviolet Light	Attachment E 3 (b)
Vermiculite	Attachment E 3 (c)
Exposure to Cold	Attachment E 3 (d)

Physical Exertion and Heat Stress **Attachment - E 3 (a)**

General Considerations

The following information is provided to assist DOI managers and employees when the examining physician, AMO, or DOI MO make recommendations for individual employees regarding exertion and heat stress. These recommendations are based on information gathered in the medical history, the physical examination, and other tests that may suggest an increased risk for health problems when engaging in certain physically stressful activities. It should be noted that, because of variations in individual responses to medical conditions and work tasks, the physician likely will err on the side of caution. Further, the examples presented below are intended to serve only as a general guide to types of activities and levels of stress that may be referenced in the recommendations provided following an evaluation. Other job tasks and activities may be compared to these examples when making specific adjustments in work activities for an individual employee.

Some factors that need to be considered when using these examples include: 1) **physical demands** of the job or tasks (both maximal exertion and endurance); 2) the total **length of time** an employee is engaged in the activity; 3) the **temperature and humidity** of the work environment; 4) type of **personal protective equipment** and clothing used (e.g., cartridge respirators, SCBA, Tyvek suits, etc.); 5) **other hazards** associated with the task (besides exertion and heat stress); 6) the **ergonomics** of the task (e.g., how much reaching or bending is necessary); 7) **other tasks** that are being conducted concurrently with the listed task; 8) the **skill and training** of the employee in carrying out the task in an energy-efficient manner; and 9) the **availability of assistance** from co-workers or mechanical devices to reduce the effort necessary to carry out the tasks, or if reserve capacity may be needed in emergencies.

Finally, the employee's own perception of how much strain or effort is necessary to carry out a task is also very important. If an employee feels that a task requires too much of a physical strain, or causes symptoms such as shortness of breath, rapid pulse, light-headedness, or pain or discomfort in the chest, that work activity (or the conditions under which the work is carried out) likely is too much for that employee. In these situations, the employee may need work restrictions or job modifications for doing these tasks, regardless of how the activity or heat factors are listed here.

Developed with the assistance of information provided in Ergonomic Design for People at Work, Suzanne Rogers, et.al., Van Nostrand Reinhold, New York, 1986

Physical Exertion Examples

The examples in the lists presented below are grouped as light, moderate, and arduous depending on the fitness and medical condition required of the person performing the task. To gauge physical fitness status, maximal oxygen consumption (Max VO2) may be measured or estimated. Max VO2 is expressed in milliliters of oxygen per kilogram of body weight per minute. This assessment may be done with a standard test of fitness, such as a "step test," or by the "pack test" (see Tab 12, Attachment D 5, for more detail on the pack test). For DOI purposes, Max VO2 levels for the specified levels of exertion are: 1) *arduous* (Max VO2 of 45); 2) *moderate* (Max VO2 of 40); and 3) *light, or low* (Max VO2 of 35).

The examples are intended to provide a general overview of the types of work activities that might be expected to fall within the specified groups, but they require the use of reasonable judgement in interpreting or applying them to specific work settings. For additional information, a rough *estimate* of the time that might be expected to be spent in "uninterrupted" performance of the activity is shown for each example. These time estimates include the usual breaks, such as for lunch (e.g., "full shift" of work at a given task would be expected to include a lunch break and two or more other brief rest periods).

Task	Usual Time Spent
I. Light	
Crouching, kneeling	15 minutes
Sitting; work involving feet and hands; desk work; typing; drafting	Full shift
Sitting in a vehicle	Full shift
Standing, work involving hands	2 or more hours
Light assembly or repair work	Full shift
Sitting, monitoring equipment	Full shift
Inspecting materials	Full shift
II. Moderate	
Driving a truck or other large equipment	Full shift
Finishing carpentry, woodworking	2 or more hours
Stocking, warehouse work	Full shift
Use of hand tools, chest high	15 minutes or more
Lifting 20 pounds, chest/head high	Up to an hour
Sign painting	2 or more hours
Gardening/lawn maintenance	Full shift
Painting/sandblasting with air hood and coveralls	2 or more hours
Walking, level ground, ~3 mph	2 or more hours
Operating a crane	Full shift

Moderate (continued):

Laying brick	2 or more hours
Sorting scrap	2 or more hours
Welding/cutting	2 or more hours
Pulling fish screens	2 or more hours

III. Arduous

Asbestos abatement	Up to 2 hours
Hazardous spill response	Up to 1 hour
Carpentry, building structures	2 or more hours
Emptying trash cans	2 or more hours
Digging with hand tools	Up to an hour
Painting buildings/structures	2 or more hours
Lifting 40 pounds, chest/head high	15 minutes or more
Climbing ladder, without load, 36 ft./min.	15 minutes or more
Overhead cleaning/scraping	Up to 2 hours
Use of a sledgehammer, 12 cycles/min.	15 minutes or more
Chopping wood	Up to an hour
Use of a jackhammer	15 minutes or more
Mixing cement	15 minutes or more
Shoveling; ditch digging	Up to 2 hours
Tree planting	Up to 2 hours

Heat Stress Factors

The recommendations below reflect estimates of lengths of time that may be spent working at the specified temperatures and the specified levels of exertion, for a healthy person who has no medical conditions that would be expected to place that individual at an increased risk of complications. Employees with certain medical conditions may be given a recommendation to limit their activity and heat stress to reduce the risk of problems. Please see the previous section for examples of work tasks that may fall within the levels of exertion used below.

It is important to remember when using the following information that humidity has a major impact on the ability of the body to cool itself. In periods of high humidity, or in work settings in which humidity cannot be lowered below approximately 60%, the length of time spent at given levels of exertion, or the level of exertion required, must be reduced to avoid potentially dangerous heat stress. This is particularly important for workers who have medical conditions that tend to reduce their ability to tolerate heat and exertion safely. Other important factors that will affect safe working times include the amount of occlusive or protective clothing that is worn (e.g., Tyvek, rubber, or other chemical-protective clothing), air movement over and around the worker, and the availability of assistance from co-workers or mechanical devices to reduce the effort necessary to carry out the tasks. These factors may increase or decrease the amount of

time that can be worked safely, depending on their presence or absence and the relative impact of each factor.

In general, the use of occlusive clothing (e.g., Tyvek, or heavy leathers, rubber suits) should lead to a further restriction by management of a person's activities. For example, someone otherwise cleared for heavy exertion generally should be limited to moderate exertion if using occlusive clothing under the various heat stress categories noted below. Similarly, if otherwise cleared for moderate exertion, an individual should be restricted to light exertion if using occlusive clothing.

Summary of Heat Stress Factors:

I. Low Heat Stress

Temperatures up to 75°F

- **Light** and **Moderate Exertion** for full shift or the usual period for the task
- **Arduous Exertion** for up to one to two hours

II. Moderate Heat Stress

Temperatures of 75°F to 85°F

- **Light Exertion** for full shift
- **Moderate Exertion** for 3/4 of the full shift or the usual period for the task
- **Arduous Exertion** for an hour or less

III. High Heat Stress

Temperatures of 86°F or more

- **Light Exertion** for up to a full shift or the usual period for the task, with less time for temperatures above 96°F
- **Moderate Exertion** for up to two hours, with less time for temperatures above 96°F
- **Arduous Exertion** for less than an hour, and severely restricted for temperatures above 96°F

Ultraviolet Light **Attachment - E 3 (b)**

Ultraviolet light primarily is of concern due to its link with skin cancer, the most common type of cancer in the United States. About 40 to 50 percent of Americans who live to age 65 will be diagnosed with it, at least once. It is found in more than 1 million Americans each year, and will kill nearly 8,000 people. And, it is largely preventable.

Skin cancer is an abnormal overgrowth (a tumor) of certain types of skin cells in the epidermis that began as normal skin structures. A tumor can be either benign (generally localized and not life-threatening) or malignant (invasive or spreading, and may be deadly). Skin cancer is a malignant tumor, able to invade surrounding tissues and metastasize (or spread) to other parts of the body, but whether or not it is deadly depends on the type of skin cancer, and how or if it's treated.

Solar ultraviolet (UV) radiation may be the main cause of skin cancer. Artificially-produced UV radiation, such as from sunlamps and tanning booths, also can cause skin cancer. Other causes of skin cancer include genetics, chemicals (e.g., trivalent inorganic arsenic), and ultraviolet radiation.

UVB rays (290-320 nm) are more likely than UVA rays (400-320 nm) to cause sunburn, but, UVA rays pass deeper into the skin. UVB radiation is thought to be the cause of melanoma and other types of skin cancer. UVA radiation may cause skin damage that can lead to skin cancer and cause premature aging of the skin. UV Exposure Varies by day, time of day, latitude, and weather.

The primary types of skin cancer or its predecessors include:

<u>Pre-cancerous</u>
- -Actinic keratosis

<u>Cancerous</u>
- -Basal cell carcinoma
- -Squamous cell carcinoma
- -Melanoma
- -Others (of the specialized structures of the skin)

Actinic keratosis is a pre-cancerous condition of thick, scaly patches of sun-damaged skin. It also is referred to as solar or senile keratosis.

Basal cell carcinoma is a type of skin cancer that arises from the basal cells, small round cells found in the lower part (or base) of the epidermis, the outer layer of the skin. This cancer accounts for more than 90 percent of all skin cancers in the United States. It is a slow-growing cancer that seldom spreads to other parts of the body, and generally is readily treatable, though it may erode into surrounding structures if not treated.

Squamous cell carcinoma is a type of skin cancer that begins in squamous cells, which are thin, flat cells that look like fish scales. These cells are found in the tissue that forms

the surface of the skin, and also is found on other internal and external body surfaces. More than 250,000 new cases of squamous cell carcinoma diagnosed each year, and it often develops from sun damaged areas called solar or actinic keratosis. This cancer may look similar to basal cell carcinoma, and even to actinic keratosis.

Melanoma is a form of skin cancer that arises in melanocytes, the cells that produce pigment and also are found in the epidermis. Melanomas usually begin in a mole, which is a benign cluster of melanocytes and other tissue. This cancer is the deadliest form of skin cancer, causing more than 75% of all skin cancer deaths. About 53,600 people in the United States were diagnosed with a melanoma skin cancer in 2002, and approximately 7,400 died from the disease.

Melanoma is evaluated by four or five common characteristics, using the mnemonic "A, B, C, D and E]). These stand for:

Asymmetry:	The shape of one half does not match the other.
Border:	The edges are often ragged, notched, blurred, or irregular in outline; the pigment may spread into the surrounding skin.
Color:	The color is uneven. Shades of black, brown, and tan may be present, and areas of white, grey, red, pink, or blue also may be seen.
Diameter:	The size commonly is greater than 6 mm, or about the size of a pencil eraser.
Evolving:	The lesion evolves over time, such as when a pre-existing mole changes in appearance. These changes might include a new black area, newly formed fine scales, itching in a mole, texture changes (becoming hard or lumpy), itching, oozing, or bleeding, but they usually do not cause pain.

People most at risk for skin cancer include those with light skin, hair, or eye color; a family history of skin cancer; a personal history of skin cancer; certain types and a large number of moles; freckles, which indicate sun sensitivity and sun damage; chronic exposure to the sun; and a history of sunburns early in life.

Sunburns are common. The Behavior Risk Factor Surveillance System provided data showing nearly 32% of all adults in the US report having had a sunburn in 1999; more than 57% of adults age 18 to 29 reported having had a sunburn, and over 40% of children are reported to have had sunburns over the preceding year.
Skin cancer mostly is found by self examination of the skin, by observations made by family members, and by skin examination during visits to the doctor. To catch it early, you have to LOOK for it, and then you have to DO something about it! In treating skin cancer, the physician will determine what type it is (medical history, examination, biopsy), and how localized or extensive it is, then treat it with one or more methods, including surgery (e.g., Moh's surgery, cryosurgery, laser surgery, curettage, and grafts), chemotherapy, and radiation.

Skin cancer primarily is prevented by avoiding overexposure to the ultraviolet rays in sunlight. This is important because ongoing, excessive UV light is harmful even for adults. Such exposure probably leads to more skin cancer, cataracts and other eye disorders, immune system suppression, plus other skin damage, such as actinic keratosis, thickening of the skin, wrinkles, atrophy (thinning skin), pigmented and non-pigmented spots, and sagging skin. In addition to cataracts, other eye disorders include pterygium (i.e., tissue growth that can block vision), other types of skin cancer around the eyes, and degeneration of the macula (the primary point of vision in the eye).

Avoidance of sun exposure involves wear protective clothing (sun hats, long sleeves, long pants), applying and regularly renewing sunscreens (those with an SPF of 15 to 30 block most of the sun's harmful rays), the use of UVA- and UVB-blocking sunglasses, and watching the UV Index for your area, to avoid the highest exposure times of the day.

Also, it's important that you don't try to self diagnose skin cancer. Be sure your physician does a skin examination when you have a physical, and see your physician if you find a new mole, or a sore that doesn't heal, or a change in the appearance of any skin feature.

For further information, please see:

National Cancer Institute (http://www.cancer.gov/cancerinfo/wyntk/skin#3)

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion (http://www.cdc.gov/cancer/skin/)

Fitzpatrick, Thomas B., et.al., Dermatology in Medicine, 1971, McGraw-Hill Book Company, St. Louis

Saraiya M, Hall HI, Uhler RJ, Sunburn prevalence among adults in the United States, 1999, Am J Prev Med 2002 Aug; 23(2):91-7

Environmental Protection Agency
(http://www.epa.gov/sunwise/uvindexcontour.html)

Vermiculite **Attachment - E 3 (c)**

The following information affects Bureaus with residents in government housing units containing vermiculite as attic insulation, facility maintenance employees performing work which may disturb vermiculite material in residential or any other type of DOI facility, and employees working with vermiculite in greenhouses.

As a result of asbestos exposures found from vermiculite mining activities in Libby Montana, EPA initiated a pilot study to estimate asbestos exposures from vermiculite in attic insulation commonly sold under the brand name Zonolite. The initial results confirm the position that the insulation material does not present a health risk as long as it's not disturbed. They evaluated various activities such as performing wiring and small renovations in an attic containing vermiculite insulation, using an attic containing vermiculite insulation as a storage space, and living in a house where the vermiculite insulation in the attic was disturbed. The results of the pilot study show that disturbance of vermiculite attic insulation resulted in the release of asbestos fibers - the more aggressive the disturbance, the more fibers detected. Conclusions of this pilot study include the following:

- Disturbed vermiculite attic insulation can create a potential asbestos exposure risk;
- Bulk samples of vermiculite attic insulation that tested negative for asbestos contamination (or less than 1% asbestos) are not reliable for determining whether there are asbestos fibers elsewhere in the attic or whether a disturbance of the material would result in the release of asbestos fibers above exposure limits; and
- Additional studies are needed to better understand any potential risks from asbestos contaminated vermiculite attic insulation and to develop more accurate analytical testing procedures.

The main areas of concern within DOI are:

- Residents in housing where vermiculite is present (informing residents of the possible hazard, and to not disturb vermiculite attic insulation);
- Facility maintenance employees who may come across vermiculite either in residential buildings or in any other DOI structure; and
- Horticulture employees who may work with vermiculite in bulk.

General Recommendations:

1. Consider taking inventory of existing facilities to determine the presence of vermiculite materials.
2. Include vermiculite in your facilities Asbestos Operations and Maintenance Plans. Like other forms of asbestos, it does not present a hazard unless it is disturbed. Therefore, it can be managed in place. If removal is necessary, it must be performed following the OSHA requirements.

Recommendations for facilities with vermiculite insulation material.

1. Treat all vermiculite insulation material as being contaminated with asbestos (unless it can be documented as not coming from the Libby, MT mine).
2. Do not disturb the vermiculite insulation material.

3. Inform residents of the presence of vermiculite and the possibility of asbestos contamination using the EPA fact sheet or similar handout (http://www.epa.gov/asbestos/pubs/oppt.pdf).
4. Consider engineering control measures, such as sealing holes or areas where vermiculite can fall into occupied spaces, and prohibit the use of items that would disturb the vermiculite such as "whole-house" fans.
5. Inform contractors who may work around the vermiculite.
6. Post signs warning of the potential for asbestos in areas where vermiculite may be directly accessed.
7. If contact with vermiculite material cannot be avoided, consult your local or regional safety and health manager to :
    a. evaluate the work being performed;
    b. develop work practices to minimize dust generation, (e.g. use wet methods by dampening area with water mist prior to work);
    c. train and educate employee(s);
    d. wear appropriate personal protective equipment *(this will be dependent on the task but, in most cases which involve disturbing the insulation, such as crawling through the material and clearing it from a wiring box or a ventilation duct, etc., this would require n-100 negative pressure respirators, and Tyvec coveralls with hood and shoe covers. According to the exposure levels found in the study, this level of protection is necessary. Consult your local or regional safety and health manager for PPE selection.);*
    e. ensure proper doffing, cleaning and disposal of PPE; and
    f. HEPA vacuum or clean (using wet methods) the area of donning and doffing PPE.

The recommendations for using vermiculite material in horticulture work.

1. Use vermiculite alternatives, such as:
    a. soil additives other than vermiculite, including peat, sawdust, perolite, and bark (recognizing that soil and other soil additives may have their own safety risks that must be guarded against, such as allergens [e.g., sawdust, bark] and infectious agents [e.g., *Clostridium botulinum*, *C. tetani*]); and
    b. premixed soils (which ordinarily contain more moisture and less vermiculite than pure vermiculite products, and are less likely to generate respirable dusts.
2. If vermiculite is used, it should be used only outdoors or in well-ventilated areas.
3. When possible, keep vermiculite and vermiculite-containing soils damp during use to avoid the production of dust.
4. Use a properly-fitted respirator with an n-100 filter when working with vermiculite if dust cannot be controlled.
5. Take measures to avoid bringing dust home on clothing, exposing family members and other personnel (e.g., use disposable coveralls; etc.).
6. Have Industrial Hygienists conduct assessments to look at working conditions, work practices, and potential types and levels of exposures.

7. Provide information to employees regarding the chance of asbestos contamination in the vermiculite, ways to limit their exposure, situations increasing the risk of exposure, and health risks of such exposures.

Consult OSHA asbestos standards for general industry and construction when work involves vermiculite presumed to be contaminated with asbestos.

For more information contact: Office Occupational Health and Safety (303)236-7130.

Exposure to Cold **Attachment - E 3 (d)**

The following information and summary of recommendations are drawn from the Centers for Disease Control and Prevention (CDC)'s and the Occupational Safety and Health Administration (OSHA)'s web sites, which are excellent resources that should be utilized for further information on this subject.[4,5]

Many DOI employees work in geographic locations, or under particular environmental conditions, that increase their risk of exposure to extremely cold temperatures. Those exposures may involve either dry or wet (damp) conditions, and with or without exposure to the additional cooling and drying effects of wind. These factors are combined in a tool prepared by OSHA:

THE COLD STRESS EQUATION

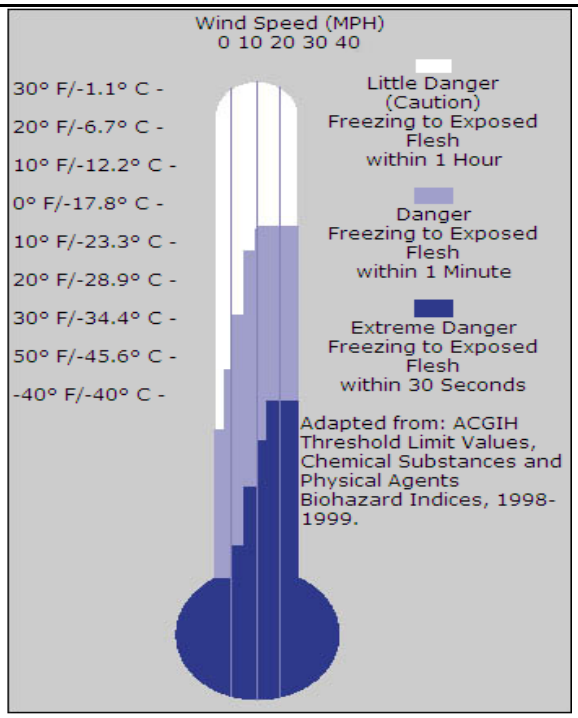
U.S. Department of Labor
Occupational Safety and Health Administration
OSHA 3156
1998

LOW TEMPERATURE + WIND SPEED + WETNESS = INJURIES & ILLNESS

When the body is unable to warm itself, serious cold related illnesses and injuries may occur, and permanent tissue damage and death may result.

Hypothermia can occur when *land temperatures* are **above** freezing or *water temperatures* are below 98.6°F/ 37°C.

Cold related illnesses can slowly overcome a person who has been chilled by low temperatures, brisk winds, or wet clothing.



4 http://www.cdc.gov/niosh/topics/coldstress/
5 http://www.osha.gov/Publications/coldcard/coldcard.html

There are four primary types of health effects of exposure to cold temperatures: hypothermia, frostbite, trench foot, and chilblains.

Hypothermia

When a person is exposed to cold for prolonged periods of time, they are at risk of exceeding their internal energy stores and their ability to keep themselves warm, which results in hypothermia, an abnormally low body temperature. Because of its effect on the brain, hypothermia may cause a person to not think clearly, which increases their risk of harm because they may not be able to take action to protect themselves or to resolve the problem of exposure.

Symptoms of hypothermia may include:

- Shivering
- Fatigue
- Loss of coordination
- Confusion and disorientation

And may progress to:

- An inability to shiver
- Blue skin
- Dilated pupils
- Slowed pulse and breathing
- Loss of consciousness

First aid for hypothermia includes:

- Alerting the supervisor and requesting medical assistance.
- Moving the victim into a warm room or shelter.
- Removing any wet clothing from the victim.
- Warming the center of the victim's body first -- chest, neck, head, and groin -- using an electric blanket, if available; or use skin-to-skin contact under loose, dry layers of blankets, clothing, towels, or sheets.
- Providing warm beverages, which may help to increase the body temperature; however, do not give alcoholic beverages, or try to give beverages to an unconscious person.
- After the victim's body temperature has increased, keep them dry and wrapped in a warm blanket, including the head and neck.
- If the victim has no pulse, begin cardiopulmonary resuscitation (CPR).

Frostbite

Frostbite occurs when skin or other tissues actually freeze. Frozen (or frostbitten) skin or other tissue loses feeling and normal color, and most commonly involves the nose, ears, cheeks, chin, fingers, or toes. Frozen tissue generally is permanently damaged and may need to be amputated. Individuals with poor blood circulation are at higher risk of frostbite and other forms of cold damage, since their self-warming capability is limited.

Symptoms of frostbite may include:

- Reduced blood flow to hands and feet (fingers or toes can freeze)
- Numbness
- Tingling or stinging
- Aching
- Bluish or pail, waxy skin

First aid for frostbite includes:

- Getting into a warm room as soon as possible.
- Unless absolutely necessary, not walking on frostbitten feet or toes, since this increases the damage.
- Immersing the affected area in warm (not hot) water (the temperature should be comfortable to the touch for unaffected parts of the body).
- Warming the affected area using body heat; for example, the heat of an armpit can be used to warm frostbitten fingers.
- Not rubbing or massaging the frostbitten area; doing so may cause more damage.
- Not using a heating pad, heat lamp, or the heat of a stove, fireplace, or radiator for warming frostbitten skin; affected areas are numb and can be burned easily.

Trench Foot

Trench foot results from the prolonged exposure of the feet to wet and cold conditions, which can cause injury to the skin. It can occur at temperatures as high as 60° F if the feet stay wet because wet feet lose heat about 25 times faster than dry feet. The body constricts blood vessels to the feet in an attempt to retain heat, and tissue dies because of the prolonged lack of oxygen and nutrients, and because of the buildup of toxic metabolic products, due to the poor circulation.

Symptoms of trench foot may include:

- Reddening of the skin
- Numbness
- Leg cramps
- Swelling
- Tingling pain
- Blisters or ulcers
- Bleeding under the skin
- Gangrene (the foot may turn dark purple, blue, or gray)

First aid for trench foot includes:

- Removing shoes or boots and wet socks.
- Drying the feet.

- Avoiding walking, as this may cause further damage to the skin and tissues.

Chilblains

Chilblains are caused by the repeated exposure of skin to cool temperatures without an opportunity to warm up for long enough, or often enough, to allow the skin to recover. Temperatures that may cause chilblains range from just above freezing to as high as 60° F. The repeated or prolonged exposure to these cooler-than-normal temperatures causes damage to the capillary beds (the groups of small blood vessels) in the skin. In chilblains, this damage is permanent and the redness and itching will return with additional exposure to the cold. The redness and itching typically occurs on cheeks, ears, fingers, and toes, which are most at risk of repeated exposure.

Symptoms of chilblains may include:

- Redness
- Itching
- Possible blistering
- Inflammation
- Possible ulceration in severe cases

First aid for chilblains includes:

- Avoiding scratching the itchy areas
- Slowly warming the skin
- Using corticosteroid creams to relieve itching and swelling
- Keeping blisters and ulcers clean and covered

Recommendations for Employers

Employers should take the following steps to protect workers from cold stress:

- Schedule maintenance and repair jobs in cold areas for warmer months.
- Schedule cold jobs for the warmer part of the day.
- Reduce the physical demands of workers.
- Use relief workers or assign extra workers for long, demanding jobs.
- Provide warm liquids to workers.
- Provide warm areas for use during break periods.
- Monitor workers who are at risk of cold stress.
- Provide cold stress training that includes information about:
    - Worker risk
    - Prevention
    - Symptoms
    - The importance of monitoring yourself and coworkers for symptoms
    - Treatment
    - Personal protective equipment

Recommendations for Workers

Workers should avoid exposure to extremely cold or prolonged low temperatures when possible. When cold environments or temperatures can not be avoided, workers should follow these recommendations to protect themselves from cold stress:

- Wear appropriate clothing.
- Wear several layers of loose clothing. Layering provides better insulation.
    - Tight clothing reduces blood circulation. Warm blood needs to be circulated to the extremities.
    - When choosing clothing, be aware that some clothing may restrict movement resulting in a hazardous situation.
- Make sure to protect the ears, face, hands and feet in extremely cold weather.
- Boots should be waterproof and insulated.
- Wear a hat; it will keep your whole body warmer (hats reduce the amount of body heat that escapes from your head).
- Move into warm locations during work breaks; limit the amount of time outside on extremely cold days.
- Carry cold weather gear, such as extra socks, gloves, hats, jacket, blankets, a change of clothes and a thermos of hot liquid.
- Include a thermometer and chemical hot packs in your first aid kit.
- Avoid touching cold metal surfaces with bare skin.
- Monitor your physical condition and that of your coworkers.

Biological Stressors **Attachment - E 4**

The following biological stressors or threats to employee health have been addressed in this attachment:

Lyme Disease	Attachment E 4 (a)
Vaccine-Preventable Diseases	Attachment E 4 (b)
Rabies	Attachment E 4 (c)
Hantavirus	Attachment E 4 (d)
Poisonous Plants	Attachment E 4 (e)
West Nile Virus	Attachment E 4 (f)
Indoor Air Quality – Mold	Attachment E 4 (g)

Lyme Disease **Attachment - E 4 (a)**

Lyme Disease is most common in the northeast and the Midwest states, with 95% of all U.S. cases from the states of Connecticut, Delaware, Rhode Island, Maine, Maryland, Massachusetts, Minnesota, New Jersey, New Hampshire, New York, Pennsylvania, and Wisconsin. However, the disease has been found in at least 47 states, and was diagnosed in over 27,444 people in 2007, mostly in the summer months when outdoor work and recreation activities are more common. The disease is caused by *Borrelia burgdorferi*, a spirochete bacteria that was first identified in 1982. The bacteria may be found in several species of small ticks, including *Ixodes dammini*, *I. pacificus*, *I. ricinus*, and *I. persulcatus*. The preferred host for most infected ticks is one of several species of animals, particularly rodents and deer. Humans may become infected when bitten by an infected tick, though the risk of infection usually is low and treatment for Lyme Disease at the time of a tick bite generally is not indicated (see the following sections for further information regarding treatment). The risk of contracting Lyme Disease is increased when individuals live or work in areas prone to tick infestation, especially when engaged in activities involving exposure to woods, brush, or tall grass.

To determine whether or not you or your employees work in a high-risk area, contact your State Health Department or Cooperative Extension Service to determine the number of confirmed cases in your area. Additional information can be obtained from the Centers for Disease Control and Prevention (CDC) (www.cdc.gov) or from your local, regional, and national bureau safety officers.

SYMPTOMS

A common symptom of Lyme Disease is the appearance of a characteristic rash, called erythema migrans. This target or bulls-eye shaped rash most commonly appears 7 to 14 days after the bite of an infected tick, but may appear as soon as 3 or as long as 30 days or more after a bite. It generally appears initially at the site of the bite, and then spreads out from there. Headache, fever, mild neck stiffness, and muscle aches and pains may follow the onset of the rash. Medical evaluation should be sought if these conditions occur, or if an employee has concern after a known tick bite. If an infection is diagnosed, prompt antibiotic treatment is important to avoid potentially-significant further complications of the infection.

PREVENTION

Prevention of tick bites should be attempted through such measures as avoiding known areas of tick infestation or, when this is not practical, the use of personal barriers and repellants. Wearing long pants (tucked in to socks or boots) and long sleeve shirts helps limit tick access to the skin. The correct use of an effective insect repellant (e.g., N,N□Diethyl□m□toluamide [DEET*]; picaridin [KBR 3023]; and oil of lemon eucalyptus [p-menthane 3,8-diol or PMD]) also will help prevent ticks from reaching the

skin. Pyrethroid insecticides may be used as appropriate in limited areas of known high tick infestation.

Careful examination of all areas of the skin (including exposed areas as well as those covered by clothing) should be carried out every 3 to 4 hours while in tick infested areas to detect and remove ticks. The small size of some tick species (some as small as the period at the end of this sentence) requires that such examinations be carried out carefully and completely. Ticks that have become embedded should be removed using fine-tipped tweezers (do not use petroleum jelly, a match, nail polish, or other methods). Ticks should be grasped firmly and as closely to the skin as possible, then pulled away from the skin with a steady, smooth motion.

TESTING

According to the Centers for Disease Control**, the "*diagnosis of Lyme disease is based primarily on clinical findings, and it is often appropriate to treat patients with early disease solely on the basis of objective signs and a known exposure. Serologic testing may, however, provide valuable supportive diagnostic information in patients with endemic exposure and objective clinical findings that suggest later stage disseminated Lyme disease. When serologic testing is indicated, CDC recommends testing initially with a sensitive first test, either an enzyme-linked immunosorbent assay (ELISA) or an indirect fluorescent antibody (IFA) test, followed by testing with the more specific Western immunoblot (WB) test to corroborate equivocal or positive results obtained with the first test.*" The tests must be interpreted with caution. False negative tests may be due to the frequently slow rise in the antibody titers following infection, and positive tests may reflect prior Lyme disease that is unrelated to current symptoms that may be due to other infectious agents. If a screening program is being considered, consultation should be sought first with local health authorities, infectious disease specialists, or occupational health physicians.

VACCINATION

Because of liability concerns, the only available vaccine to prevent Lyme Disease (LYMErix™) was taken off the market and is no longer available. Even when it was in use, however, the vaccine was not considered sufficient to prevent infection in all cases, and the use of basic preventive measures (see above paragraph) was strongly recommended despite vaccination status.

*According to studies sponsored by the Missoula Technology and Development Center (MTDC) and carried out by the Underwriters Laboratories, DEET may cause a reduction in the flame resistance of Nomex clothing, at least under certain circumstances, and must be used with caution where the fire resistance efficacy of Nomex clothing is important. Anderson, Leslie, and Petrilli, Tony, "DEET Mosquito Repellant Reduces the Flame Resistance of Firefighters' Nomex Clothing," Fire Tech Tips, MTDC, July 2005.

**(http://www.cdc.gov/ncidod/dvbid/lyme/ld_humandisease_diagnosis.htm)

Vaccine-Preventable Diseases **Attachment - E 4 (b)**

The following provides basic background information and current recommendations on some of the vaccine-preventable diseases that DOI employees may be exposed to as a result of their work.

The recommendations are based on the current "Recommended Adult Immunization Schedule – United States, 2009" (MMWR Quick Guide™, January 9, 2009 / Vol. 57 /No. 53), and are generic in nature. More detailed, site-specific recommendations can be provided on request from the AMO or DOI MO, or may be obtained from local health department or public health service officials.

- All employees at risk of field-work-related cuts, scrapes, or other open injuries, or those exposed to potentially contaminated or unsanitary water, such as those personnel working in outdoor water or wildlife research, should be up to date in their vaccination status for tetanus. This requires an injection every 10 years with a combination tetanus/diphtheria vaccine, and, at least once, with a tetanus/diphtheria/acellular pertussis vaccine, for adequate protection.

- Hepatitis A vaccination is recommended for the following employees: 1) travelers to developing countries or other areas of know high or intermediate endemicity of hepatitis A; 2) men who have sex with men; 3) injection drug users; 4) persons who work with HAV-infected non-human primates or work with HAV in the laboratory; and 5) those who have chronic liver disease or receive clotting factors concentrates. Hepatitis A has not been recognized as a significant occupational hazard in other settings where known outbreaks are not taking place.

- Vaccination for cholera, yellow fever, typhoid, and other more "exotic" diseases is not necessary in this country at this time, but could be if personnel are traveling to endemic areas elsewhere in the world, or may be exposed to these diseases as a result of research or laboratory work with the infectious agents.

- Optional consideration may be given to vaccines for Pneumococcal pneumonia (for elderly persons, and those with chronic diseases or reduced resistance to disease), rubella (for non-immune women in their child-bearing years), and possibly polio (for those previously unimmunized or as a booster in those who have not already had a booster dose as an adult and may travel to polio endemic areas).

The following provides background information and current recommendations on Rabies for DOI employees who may be exposed to vectors of the disease as a result of their work.

Background

It is the intent of the Department of the Interior that all DOI employees be protected from rabies virus exposure, infection, or disease. Within each operating division, an assessment should be made of the likelihood of exposure for individuals or groups of employees to animals or conditions in which rabies virus might be transmitted. Appropriate action should be taken or offered to affected employees.

Wild (92%) and domestic (8%) animals are the primary sources of rabies in the United States. There were 6,940 cases reported for wild animals in the US in 2006, and all states except Hawaii have reported cases. The distribution of wild animal cases are as follows:

raccoons (37.7%), skunks (21.5%), bats (24.4%), foxes (6.2%), and others (including rodents and rabbits, 2.4%). There were 547 cases reported for domestic animals in the US for 2006. Cats, dogs, and cattle are the most common domestic animals affected.

Humans are at risk when exposed to rabid animals, primarily by bites or scratches, but aerosols (in bat caves) or medical procedures (such as corneal transplants) may be sources of infection. There were 24 human rabies cases reported in the US for the years 2000-2006. These cases were reported from 15 states across the country. There has been an average of 3.4 cases per year (range 1-8) over this time period, and the source of these human cases has been bats (17), dogs (6), and raccoons (1).

High risk jobs (involving “Continuous” potential exposure) include rabies research lab workers, and rabies biologic production workers. High-medium risk jobs (“Frequent” potential exposure) include rabies diagnostic lab workers, spelunkers (cave explorers), veterinarians and staff, and animal control or wildlife workers in high rabies risk areas. Medium-low risk (“Infrequent” potential exposure) jobs include veterinarians and staff, and animal control or wildlife workers in low rabies risk areas, as well as travelers to high risk areas where access to medical care is limited. Low risk jobs (“Rare” potential exposure) include the general US population.

POST EXPOSURE TREATMENT (PROPHYLAXIS)

Prevention of rabies first involves avoidance of exposure to potential vectors. If a possible exposure occurs, an assessment of the risk of infection must be conducted.

According to the Centers for Disease Control and Prevention, the following provides a guide for this assessment:

SOURCE ANIMAL	ANIMAL EVALUATION	RESPONSE
Dog/cat/ferret	If animal appears to be healthy and 10-day observation is possible	No Post Exposure Prophylaxis (PEP)** unless animal develops signs of infection
	If animal is known or suspected to be rabid	Provide PEP
	If animal's condition is unknown	Consult local public health officials (PHO)
Other carnivore	Consider it to be rabid (until proven otherwise)	Consider PEP (consult with PHO)
Cattle/rodents***	Consider on a case-by-case basis	Consult with PHO

**Post-exposure prophylaxis, or PEP, involves the following:
1 - thoroughly clean the wound mechanically (scrubbing and, if necessary, debridement) and with soap or a virucidal agent such as a detergent (benzalkonium chloride) or povidine-iodine solution
2 - inject human rabies immune globulin into the tissue around the wound or exposure site
3 - provide vaccination (see below)

***While exposure to rabies theoretically is possible from these sources, no known cases have occurred.

An estimated 40,000 people in the US receive PEP each year. This process is highly effective: there have been no PEP failures in the US, and none elsewhere when all of the above steps have been applied correctly.

VACCINATION

Vaccination for post-exposure prophylaxis may involve both passive and active measures. The passive vaccine is rabies immune globulin (RIG), which is given only to individuals who have **not** previously been immunized. Passive vaccines are used at the time the wound is initially treated by a physician, and may be infiltrated around the wound and/or intramuscularly. One of the active vaccines also should be used for post-exposure prophylaxis. Whichever active vaccine is used, it is to be given on days 0, 3, 7, 14, and 28, for a total of five doses.

Using the risk categories noted above, those individuals who should receive these vaccinations on a pre-exposure basis include:

Risk Category	Vaccinations and Testing
High risk	Primary course of vaccine, followed by serologic testing every 6 months, and booster vaccination if the antibody titer is low (<1:5)
High-medium risk	Primary course of vaccine, followed by serologic testing every 2 years, and booster vaccination if antibody titer is low
Medium-low risk	Primary course of vaccine, no follow up testing or booster vaccination
Low risk	No vaccination or testing

An excellent source of further information on rabies may be found on the Internet at: **http://www.cdc.gov/ncidod/dvrd/rabies/**

*The above information is based on the CDC web site noted above.

Hantavirus **Attachment - E 4 (d)**

It is the intent of the Department of the Interior that all DOI employees be protected from exposure, infection, or disease due to a hantavirus. Within each operating division, an assessment should be made of the likelihood of exposure for individuals or groups of employees to conditions in which hantavirus infection may occur. Appropriate action, as indicated in the following discussion, should be taken or offered to effected employees.

The primary hantavirus disease in the United States is hantavirus pulmonary syndrome (HPS), which is caused by a hantavirus called the Sin Nombre Virus (SNV). Several other types of hantavirus are known from around the world, and most cause a syndrome of hemorrhagic fever and kidney disease that generally are not found in the U.S. The SNV was first recognized in the United States in 1993 following a cluster of deaths in the southwest. As a result of the investigation of this cluster, other hantaviruses have been identified, but most cases of HPS have been due to the SNV. A total of more than 465 cases have been reported through 2007, and 35% of cases have been fatal. Persons in most states appear to be at risk, but the disease has been rare in the northeast, and the southeast. Most cases have been in the southwest, west, northwest, upper Midwest, and mid-Atlantic states.

Hantavirus generally is transmitted through aerosols of mouse urine or feces. It also may be transmitted by bites, or ingestion of food contaminated with mouse urine, feces, or saliva. The animal most commonly responsible for transmission of hantavirus in the southwestern U.S. is the deer mouse (*Peromyscus maniculatus*). In rare cases, it also is known to have been transmitted by the cotton rat (*Sigmodon hispidus*) and the rice rat (*Oryzomus palustris*).

The incubation period after exposure may vary from about one to five weeks. The clinical disease starts with non-specific symptoms, including fever, muscle aches, headache, and chills, which may last for up to a week. Gastrointestinal symptoms also are frequently present, including nausea, vomiting, diarrhea, and abdominal pain. Rapid respiration, non-productive cough, and a rapid heart rate are commonly found upon initial evaluation by a health care provider. The disease may progress rapidly once these cardiac and respiratory symptoms develop. Employees developing these symptoms should be encouraged to seek medical attention. Treatment of the disease is supportive, and usually requires hospitalization and intensive care. Approximately 50% of individuals who develop HPS die of the disease. Because there are no specific treatments or vaccines for hantavirus infection, prevention is critical.

Humans are at most risk when doing things that stir up or put them in contact with mouse droppings and waste. These activities include such things as cleaning or maintaining cabins, barns, or other buildings that have been infested with deer mice. Because the disease may be transmitted by aerosols, any activity that stirs up dust in buildings with mouse infestations may present a risk of infection.

Preventing exposure begins with taking steps to avoid infestation with mice, both inside and out. Elimination of food, nesting material, and nesting sites for mice in buildings or other structures used by humans is necessary. In settings where mouse infestation is apparent, avoiding aerosols by thoroughly wetting the area with detergent or a hypochlorite solution is effective because the hantavirus is surrounded by a lipid (fatty) coat that makes it susceptible to these agents. Mopping or sponging, while wearing latex or other barrier gloves, should be used to remove contaminated materials.

Rodents should be prevented from entering buildings by sealing cracks in foundations and closing gaps in walls with concrete or metal barriers. Removal of rodents may necessitate the assistance of a pest control service. A DOI manual is available, entitled *Mechanical Rodent Proofing Techniques: A Training guide for National Park Service Employees*, that may be of value in preventing rodent problems.

An excellent source for specific guidance and further information on hantavirus may be found on the Internet at:

http://www.cdc.gov/ncidod/diseases/hanta/hps/index.htm

Poisonous Plants **Attachment - E 4 (e)**

Poisonous plants represent one of the physical hazards that may be encountered by Department employees as they carry out the field work common to many positions. The three most common poisonous plants to which employees may become exposed include poison ivy, poison oak and poison sumac. Because all of these plants contain the potent antigen urushiol, they are a common cause of allergic contact dermatitis and from 60% to 80% of people who are exposed to the antigen will become sensitized to it. It is a volatile oil that may contaminate other objects, such as fur, clothing, shoes, or tools, from which it may be transferred to exposed skin. The common response is for a sensitized person who has been exposed to the antigen to develop a rash with blisters a day to a day and a half later. Because exposure may result in urushiol binding to skin proteins within about 15 minutes of first contact, this window of time provides an opportunity to remove the antigen by washing with soap and water before the binding and the resulting reaction occur. Once fixed to skin proteins, the antigen cannot be washed off and it will not cross contaminate other objects or areas of skin.

Preventing exposure is strongly recommended, as is proper clean up of tools and organic debris from plant cutting or removal activities. The fact sheet on the following pages provides more specific information, and may be copied and distributed for employee use.

United States Department of the Interior
Office of Managing Risk and Public Safety

POISONOUS PLANTS FACT SHEET

Poison Ivy

- A perennial, high-climbing, woody vine.
- Leaves are alternate, deciduous, pinnately compound; leaflets three, thin, bright green, shiny, ovate to elliptic, 1.5 to 4.75 inches long, 1.5 to 4.75 inches wide, entire to serrate to shallowly lobed.
- Flowers small, yellowish green, in clusters of axils.
- Fruit a scarcely fleshy drupe, glabrous to short pubescent, 0.15 to 0.20 inches broad.
- Poison ivy can be found in every region of the United States, except the Southwest, Alaska, and Hawaii. It appears as a weed with three shiny green leaves and a red stem. The plant typically grows in the form of a vine, often along riverbanks, in moist woods, but also in pastures, fencerows, and roadsides.

Poison Oak

- It grows in the form of a shrub 1 to 6.5 feet tall and has three leaves similar to poison ivy, however, it does not climb.
- Leaflets are thicker, dull green, hairy on both surfaces, broadest above the middle, and often lobed or coarsely serrate.
- Fruit is densely pubescent rather than glabrous or short pubescent.
- Found on the West Coast and throughout the South most abundant on relatively dry, sunny sites in woodlands, thickets, and old fields.

Poison Sumac

- Poison sumac grows abundantly along the Mississippi River, but is less common in other regions.
- It grows as a woody shrub. Each stem contains 7 to 13 leaves arranged in pairs.

Toxicity

- The Poison Ivy and Poison Oak toxin resin (oily sap) is found in its stems and leaves.
- All parts of the plants are poisonous.
- The toxic principle is a phenolic compound called urushiol. It is a skin and mucous membrane irritant and is found in all parts of the plant.
- Some humans are quite sensitive to the effects of the toxin while others show no ill effects from coming into contact with the plant.
- The toxin has little or no effect on animals, but pets may carry the irritating substance on their hair and thereby transmit it to humans.

Symptoms

- This is a form of contact dermatitis caused by an allergic reaction to the resins (oily sap) of the poison ivy, oak, or sumac plant.
- The rash is spread only when the oils come into contact with different areas of skin. It is not spread by the fluid of the blisters it creates, thus it is not contagious unless the resin remains on the skin and is touched by another person.
- The reaction and rash in susceptible humans usually starts with itchiness and swelling followed by the reddish inflammation of tiny pimples or formation of blisters at the areas of contact.
- The rash can vary in severity from person to person and from year to year on an individual.
- The rash can begin as early as an hour after contact or up to five days after contact.
- The oily resin usually enters the skin rapidly, and is seldom-transferred person to person. Conversely, the resin may persist for long periods on contaminated clothing, pets, tools, etc., and sensitive individuals can easily develop the rash from delayed contact with contaminated items.
- Severe cases can occur from exposure to smoke from burning Poison Ivy and Poison Oak.
- Worst stage of the rash is experienced 4 to 7 days after exposure. Rash may last for 1 to 3 weeks.

Treatment

- The skin should be washed thoroughly with soap and cool water as soon as possible following exposure. Because the resin enters skin quickly, it must be washed off completely within 30 minutes to prevent a reaction. Scrub under the fingernails with a brush to prevent spreading of the resin to other parts of the body by touching or scratching. (Use cool water to wash skin. Warm water opens pores and may allow urushiol to penetrate deeper into the skin causing a more

	severe reaction.) • Calamine lotion and topical hydrocortisone cream may be applied to the skin to help decrease itching and blistering. • Antihistamines, such as Benadryl (diphenhydramine) help relieve itching and can be mildly sedating. Bathing in tepid water with one cup of Aveeno oatmeal per tub may also soothe itchy skin. • Some people have severe allergic reactions to these plants and can have swelling in the throat, breathing problems, weakness, dizziness and bluish lips. If any of these reactions occur, seek emergency medical care. **Prevention and Control Methods** • Learn to identify poison ivy, oak, and sumac to avoid exposure. • Cover skin with clothing (long sleeves, long pants, shoes, and socks) when walking in the woods or in areas where these plants may grow. • Use barrier cream such as Ivy Block or Stokoguard when working in areas where poison ivy is present. • Be aware of resins carried by pets. • Remember that the oil may persist on tools and equipment for years, so exposures may occur unexpectedly when direct or even secondary skin contact is made with these items. • Wash exposed skin thoroughly with soap and cool water as soon as possible following exposure. • Also, keep your hands away from your eyes, mouth and face. • Wash the clothing and shoes of the exposed person with soap and hot water. Resin can linger on these surfaces for days. • May and June are the best times to apply control measures to these poison plants, but it can be done any time of the year. • Burning can be dangerous and is not recommended for disposal or as a control measure because the toxic oil from the plant can be carried in smoke. • Spraying the foliage with glyphosate (sold under the trade names of Roundup or Kleenup and others) is recommended. • Remember that the vine left on the tree or fence still has oil in it so be careful if you pull the vine down. Even if the vine is brown and looks dead, it still may have oil in it.

West Nile Virus **Attachment - E 4 (f)**

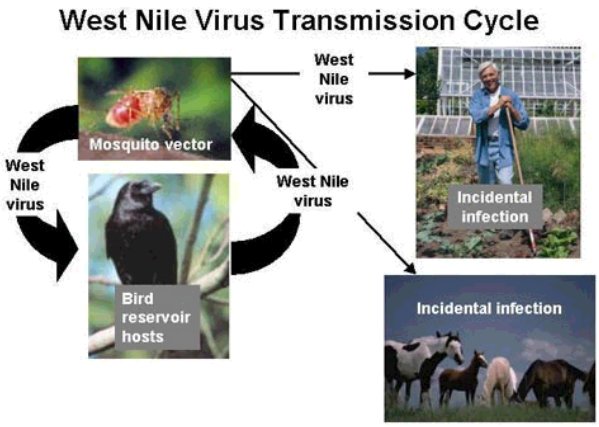
The following information is derived from a tri-fold pamphlet entitled "West Nile Virus: PROTECT YOURSELF," prepared by the DOI Office of Managing Risk and Public Safety, now the Office of Occupational Health and Safety (OHS).

WHAT IS WEST NILE VIRUS?

West Nile Virus is a mosquito-borne virus that can cause encephalitis (an inflammation of the brain) or meningitis (inflammation of the lining of the brain and spinal cord) in humans and other animals. It first appeared in the United States in September 1999, in New York City and is rapidly spreading westward. It is normally found in Africa, West Asia, and the Middle East. It is closely related to St. Louis encephalitis virus, a disease that is naturally found in the United States.

HOW IS WEST NILE VIRUS SPREAD?

West Nile Virus is transmitted to humans through the bite of an infected mosquito. Mosquitoes get the virus by feeding on West Nile-infected birds. The mosquitoes then give the virus to humans and animals when they bite them.



The main mosquito species that carry West Nile Virus are *Culex pipiens*, in the North, and *C. quinquefasciatus*, in the South. These mosquitoes breed in stagnant water in rain barrels, tubs, catch basins, cesspools, ditches, ground pools, and other places where water stands for more than a week. These mosquitoes are higher in numbers in late summer and tend to bite at night.

WHAT ARE THE SYMPTOMS?

Milder symptoms include:

- Slight fever
- Headache
- Body aches
- Swollen glands
- Sometimes a skin rash

Severe symptoms include:

- High fever
- Intense headache
- Stiff neck
- Confusion/disorientation

HOW CAN I REDUCE MY RISK OF GETTING WEST NILE VIRUS?

West Nile virus is NOT passed from person to person. In other words, you cannot get sick from touching or kissing a person who has West Nile Virus, or from a health care worker who has treated someone with the disease. No one has caught the virus from handling live or dead birds with the virus. However, avoid picking up any dead animal with your bare hands. Use gloves or double plastic bags to collect the dead animal.

To reduce the risk of becoming infected with West Nile Virus**:**

- Stay indoors at dawn, dusk, and in the early evening. Make sure the screens on windows and doors are in good repair.

- If you must be outdoors during these times, wear long-sleeved shirts and long pants to prevent being bitten by the mosquitoes.

- Apply insect repellent (DEET*, picaridin, or oil of lemon eucalyptus) sparingly to exposed skin. A good DEET-based repellent will contain 20 percent to 30 percent DEET. Use 10% DEET concentration or less for children. Repellents may hurt the eyes and mouth, so do not put repellent on the hands of children. No insect repellents should be used on children under 3 years of age.

- Spray clothing with repellents containing Permethrin, DEET, picaridin, or oil of lemon eucalyptus because mosquitoes may bite through thin clothing.

Because of their breeding habitats, the best way to control these mosquitoes is to get rid of stagnant water by**:**

- Emptying containers that hold water for any period of time such as old tires, metal cans, ceramic pots, wading pools, pool covers, or birdbaths.

- Keeping ditches free of trash so that water will continue to flow.

- Keeping septic tanks in good repair.

- Cleaning out leaves and other trash from gutters regularly to prevent standing water.

*According to studies sponsored by the Missoula Technology and Development Center (MTDC) and carried out by the Underwriters Laboratories, DEET may cause a reduction in the flame resistance of Nomex clothing under certain circumstances, and must be used with caution where the fire resistance efficacy of Nomex clothing is important. Anderson, Leslie, and Petrilli, Tony, "DEET Mosquito Repellant Reduces the Flame Resistance of Firefighters' Nomex Clothing," Fire Tech Tips, MTDC, July 2005.

WHAT ARE MY CHANCES OF GETTING WEST NILE VIRUS?

Most people bitten by a mosquito infected with West Nile Virus do not get sick. Studies done in New York after the 1999 epidemic showed that about three-fourths of the people with West Nile Virus did not become sick at all. About one-third had a mild illness with fever, headache, and body aches, sometimes also with swollen lymph glands and a skin rash. Only a few (1 percent) had the dangerous infection called encephalitis which causes headache, high fever, neck stiffness, confusion, coma, tremors, convulsions, paralysis, and, in some cases, death. During an epidemic, it is estimated that 1 in 100 mosquitoes will be infected; 1 in 200 people who are infected will become seriously ill; and 10-15 percent of those who become seriously will die

The time between the mosquito bite and a person becoming sick is usually 5 to 15 days. The very old, very young, and persons with compromised immune systems are at greatest risk of serious illness. There is no vaccine to prevent the disease, and intensive support therapy such as intravenous fluids and airway management are indicated for the seriously ill since there is no specific treatment.

Contact your Bureau or Office Safety Manager for more information.
Source: Centers for Disease Control, March 2004.

WEB SITE INFORMATION:

Centers for Disease Control and Prevention.
www.cdc.gov/ncidod/dvbid/westnile/index.htm

EPA Mosquito Control Program
http://www.epa.gov/pesticides/health/mosquitoes/

Indoor Air Quality – Mold **Attachment - E 4 (g)**

This document provides Department of the Interior managers and employees guidance on dealing with IAQ/Mold complaints. Following the sections on Environmental Assessment, Remediation, and Hazard Communication, a stand-alone section on "Molds In Indoor Workplaces" has been included that may be used as a handout for employees.

Managers at facilities where molds are a concern should follow the attached guidelines and not rush to hire a contractor to perform air or surface sampling. In most cases in areas where mold contamination has been identified, the resources should be spent on the underlying moisture intrusion problem and the clean-up can be handled in-house, taking appropriate precautions. If health complaints are raised by employees that may be related to exposures to indoor air contaminants, a qualified occupational health physician should be consulted regarding appropriate referrals and other action that may be indicated.

Because of a history of misinterpreting data and drawing conclusions and/or making recommendations on limited air sampling data, the IAQ profession does not generally recommend air sampling as a screening tool to determine whether a mold exposure problem exists in a building. The ubiquitous nature of molds in the environment, the lack of an established exposure limit, and the unclear link between exposure level and health effects makes interpreting the data difficult, if not impossible. Precisely because of these problems with interpreting sampling data, IAQ professionals are now relying on visible inspection of workplaces and not on sampling data.

In the last few years a new industry has emerged in the assessment and remediation of buildings with mold contamination. This was fueled by the assumption that the presence of any mold in a building was a health hazard requiring extensive sampling and mitigation using asbestos abatement techniques. The public quickly became alarmed about these toxic molds, particularly the genus *Stachybotrys*. Scientists are now realizing that this reaction is not supported by the science and, in most cases, air sampling does little in helping to solve the problem.

While the "toxic mold" phenomenon gained momentum, two agencies primarily responsible for guidance on epidemiology (the U.S. Centers for Disease Control) and remediation (the New York City Department of Health) quietly re-evaluated the issue, recently releasing dramatically different recommendations. After intensive analysis of the data by review panels, the CDC stated the following:

- Molds potentially containing mycotoxins (e.g., *Stachybotrys*) present the same health risk as other common building molds.
- Mold growth in buildings generally can be controlled with simple procedures such as wiping with bleach solution and removing contaminated materials.

The widely accepted Guidelines for Assessment and Remediation of Fungi developed by the New York City Department of Health were revised in April, 2000. These revisions include:

- Deletion of standards based on specific microbial concentrations.
- Acceptance of visual inspection as a basis for assessment in most cases rather than microbial sampling.
- Relaxation of standards for mold removal in areas less than 100 contiguous square feet. These can now be conducted without containment, negative pressure, or a full respiratory protection program (several modest control measures are prescribed).
- Allowance for most projects to be cleared by visual inspection alone. Only large projects must utilize post-remediation sampling.

The amount of detail and precaution required for remediation should be determined on a site-specific basis. This can be accomplished in the majority of cases by in-house personnel when equipped with appropriate guidance. Except for the most complex or controversial situations, microbial sampling and on-site "experts" need not be a necessary part of the equation.

I. Environmental Assessment

The presence of mold, water damage, or musty odors should be addressed immediately. In all instances, any source(s) of water must be stopped and the extent of water damaged determined. Water damaged materials should be dried and repaired. Mold damaged materials should be remediated in accordance with this document (see Section II, Remediation).

1. Visual Inspection

A visual inspection is the most important initial step in identifying a possible contamination problem. The extent of any water damage and mold growth should be visually assessed. This assessment is important in determining remedial strategies. Ventilation systems should also be visually checked, particularly for damp filters but also for damp conditions elsewhere in the system and overall cleanliness. Ceiling tiles, gypsum wallboard (sheetrock), cardboard, paper, and other cellulosic surfaces should be given careful attention during a visual inspection. The use of equipment such as a boroscope, to view spaces in ductwork or behind walls, or a moisture meter, to detect moisture in building materials, may be helpful in identifying hidden sources of fungal growth and the extent of water damage.

2. Bulk/Surface Sampling

Bulk or surface sampling is not required to undertake a remediation. Remediation (as described in Section II, Remediation) of visually identified fungal contamination should proceed without further evaluation.

Bulk or surface samples may need to be collected to identify specific fungal contaminants as part of a medical evaluation if occupants are experiencing symptoms which may be related to fungal exposure or to identify the presence or absence of mold if a visual inspection is equivocal (e.g., discoloration, and staining).

An individual trained in appropriate sampling methodology should perform bulk or surface sampling. Bulk samples are usually collected from visibly moldy surfaces by scraping or cutting materials with a clean tool into a clean plastic bag. Surface samples are usually collected by wiping a measured area with a sterile swab or by stripping the suspect surface with clear tape. Surface sampling is less destructive than bulk sampling. Other sampling methods may also be available. A laboratory specializing in mycology should be consulted for specific sampling and delivery instructions.

3. Air Monitoring

Air sampling for fungi should not be part of a routine assessment. This is because decisions about appropriate remediation strategies can usually be made on the basis of a visual inspection. In addition, air-sampling methods for some fungi are prone to false negative results and therefore cannot be used to definitively rule out contamination.

Air monitoring may be necessary if an individual(s) has been diagnosed with a disease that is or may be associated with a fungal exposure (e.g., pulmonary hemorrhage / hemosiderosis, and aspergillosis).

Air monitoring may be necessary if there is evidence from a visual inspection or bulk sampling that ventilation systems may be contaminated. The purpose of such air monitoring is to assess the extent of contamination throughout a building. It is preferable to conduct sampling while ventilation systems are operating.

Air monitoring may be necessary if the presence of mold is suspected (e.g., musty odors) but cannot be identified by a visual inspection or bulk sampling (e.g., mold growth behind walls). The purpose of such air monitoring is to determine the location and/or extent of contamination.

If air monitoring is performed, for comparative purposes, outdoor air samples should be collected concurrently at an air intake, if possible, and at a location representative of outdoor air. For additional information on air sampling, refer to the American Conference of Governmental Industrial Hygienists' document, "Bioaerosols: Assessment and Control."

Personnel conducting the sampling must be trained in proper air sampling methods for microbial contaminants. A laboratory specializing in mycology should be consulted for specific sampling and shipping instructions.

4. Analysis of Environmental Samples

Microscopic identification of the spores/colonies requires considerable expertise. These services are not routinely available from commercial laboratories. Documented quality control in the laboratories used for analysis of the bulk/surface and air samples is necessary. The American Industrial Hygiene Association (AIHA) offers accreditation to microbial laboratories (Environmental Microbiology Laboratory Accreditation Program (EMLAP)). Accredited laboratories must participate in

quarterly proficiency testing (Environmental Microbiology Proficiency Analytical Testing Program (EMPAT)).

Evaluation of bulk/surface and air sampling data should be performed by an experienced health professional. The presence of few or trace amounts of fungal spores in bulk/surface sampling should be considered background. Amounts greater than this or the presence of fungal fragments (e.g., hyphae, and conidiophores) may suggest fungal colonization, growth, and/or accumulation at or near the sampled location. Air samples should be evaluated by means of comparison (i.e., indoors to outdoors) and by fungal type (e.g., genera, and species). In general, the levels and types of fungi found should be similar indoors (in non-problem buildings) as compared to the outdoor air. Differences in the levels or types of fungi found in air samples may indicate that moisture sources and resultant fungal growth may be problematic.

II. Remediation

In all situations, the underlying cause of water accumulation must be rectified or fungal growth will recur. Any initial water infiltration should be stopped and cleaned immediately. An immediate response (within 24 to 48 hours) and thorough clean up, drying, and/or removal of water damaged materials will prevent or limit mold growth. If the source of water is elevated humidity, relative humidity should be maintained at levels below 60% to inhibit mold growth. Emphasis should be on ensuring proper repairs of the building infrastructure, so that water damage and moisture buildup does not recur.

Five different levels of abatement are described below. The size of the area impacted by fungal contamination primarily determines the type of remediation. The sizing levels below are based on professional judgment and practicality; currently there is not adequate data to relate the extent of contamination to frequency or severity of health effects. The goal of remediation is to remove or clean contaminated materials in a way that prevents the emission of fungi and dust contaminated with fungi from leaving a work area and entering an occupied or non-abatement area, while protecting the health of workers performing the abatement. The listed remediation methods were designed to achieve this goal, however, due to the general nature of these methods it is the responsibility of the people conducting remediation to ensure the methods enacted are adequate. The listed remediation methods are not meant to exclude other similarly effective methods. Any changes to the remediation methods listed in these guidelines, however, should be carefully considered prior to implementation.

Non-porous (e.g., metals, glass, and hard plastics) and semi-porous (e.g., wood, and concrete) materials that are structurally sound and are visibly moldy can be cleaned and reused. Cleaning should be done using a detergent solution. Porous materials such as ceiling tiles and insulation, and wallboards with more than a small area of contamination should be removed and discarded. Porous materials (e.g., wallboard, and fabrics) that can be cleaned, can be reused, but should be discarded if possible. A professional restoration consultant should be contacted when restoring porous materials with more than a small

area of fungal contamination. All materials to be reused should be dry and visibly free from mold. Routine inspections should be conducted to confirm the effectiveness of remediation work.

The use of gaseous ozone or chlorine dioxide for remedial purposes is not recommended. Both compounds are highly toxic and contamination of occupied space may pose a health threat. Furthermore, the effectiveness of these treatments is unproven. For additional information on the use of biocides for remedial purposes, refer to the American Conference of Governmental Industrial Hygienists' document, "Bioaerosols: Assessment and Control."

1. Level I: Small Isolated Areas (10 sq. ft or less) - e.g., ceiling tiles, small areas on walls

Remediation can be conducted by regular building maintenance staff. Such persons should receive training on proper clean up methods, personal protection, and potential health hazards. This training can be performed as part of a program to comply with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Respiratory protection (e.g., N95 disposable respirator), in accordance with the OSHA respiratory protection standard (29 CFR 1910.134), is recommended. Gloves and eye protection should be worn.

The work area should be unoccupied. Vacating people from spaces adjacent to the work area is not necessary but is recommended in the presence of infants (less than 12 months old), persons recovering from recent surgery, immune suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).

Containment of the work area is not necessary. Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.

Contaminated materials that cannot be cleaned should be removed from the building in a sealed plastic bag. There are no special requirements for the disposal of moldy materials.

The work area and areas used by remedial workers for egress should be cleaned with a damp cloth and/or mop and a detergent solution.

All areas should be left dry and visibly free from contamination and debris.

2. Level II: Mid-Sized Isolated Areas (10 - 30 sq. ft.) - e.g., individual wallboard panels.

Remediation can be conducted by regular building maintenance staff. Such persons should receive training on proper clean up methods, personal protection, and potential health hazards. This training can be performed as part of a program to comply with the

requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200). Respiratory protection (e.g., N95 disposable respirator), in accordance with the OSHA respiratory protection standard (29 CFR 1910.134), is recommended. Gloves and eye protection should be worn.

The work area should be unoccupied. Vacating people from spaces adjacent to the work area is not necessary but is recommended in the presence of infants (less than 12 months old), persons having undergone recent surgery, immune suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).

The work area should be covered with a plastic sheet(s) and sealed with tape before remediation, to contain dust/debris.

Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.

Contaminated materials that cannot be cleaned should be removed from the building in sealed plastic bags. There are no special requirements for the disposal of moldy materials.

The work area and areas used by remedial workers for egress should be HEPA vacuumed (a vacuum equipped with a High-Efficiency Particulate Air filter) and cleaned with a damp cloth and/or mop and a detergent solution.

All areas should be left dry and visibly free from contamination and debris.

3. Level III: Large Isolated Areas (30 - 100 square feet) - e.g., several wallboard panels.
A health and safety professional with experience performing microbial investigations should be consulted prior to remediation activities to provide oversight for the project.

The following procedures at a minimum are recommended:

Personnel trained in the handling of hazardous materials and equipped with respiratory protection, (e.g., N95 disposable respirator), in accordance with the OSHA respiratory protection standard (29 CFR 1910.134), is recommended. Gloves and eye protection should be worn.

The work area and areas directly adjacent should be covered with a plastic sheet(s) and taped before remediation, to contain dust/debris.

Seal ventilation ducts/grills in the work area and areas directly adjacent with plastic sheeting.

The work area and areas directly adjacent should be unoccupied. Further vacating of people from spaces near the work area is recommended in the presence of infants (less than 12 months old), persons having undergone recent surgery, immune

suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).

Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.

Contaminated materials that cannot be cleaned should be removed from the building in sealed plastic bags. There are no special requirements for the disposal of moldy materials.

The work area and surrounding areas should be HEPA vacuumed and cleaned with a damp cloth and/or mop and a detergent solution.

All areas should be left dry and visibly free from contamination and debris.

If abatement procedures are expected to generate a lot of dust (e.g., abrasive cleaning of contaminated surfaces, demolition of plaster walls) or the visible concentration of the fungi is heavy (blanket coverage as opposed to patchy), then it is recommended that the remediation procedures for Level IV are followed.

4. Level IV: Extensive Contamination (greater than 100 contiguous square feet in an area)

A health and safety professional with experience performing microbial investigations should be consulted prior to remediation activities to provide oversight for the project. The following procedures are recommended:

Personnel trained in the handling of hazardous materials equipped with:

Full-face respirators with high efficiency particulate air (HEPA) cartridges

Disposable protective clothing covering both head and shoes

Gloves

Containment of the affected area:

Complete isolation of work area from occupied spaces using plastic sheeting sealed with duct tape (including ventilation ducts/grills, fixtures, and any other openings)

The use of an exhaust fan with a HEPA filter to generate negative pressurization

Airlocks and decontamination room

Vacating people from spaces adjacent to the work area is not necessary but is recommended in the presence of infants (less than 12 months old), persons having undergone recent surgery, immune suppressed people, or people with chronic

inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).

Contaminated materials that cannot be cleaned should be removed from the building in sealed plastic bags. The outside of the bags should be cleaned with a damp cloth and a detergent solution or HEPA vacuumed in the decontamination chamber prior to their transport to uncontaminated areas of the building. There are no special requirements for the disposal of moldy materials.

The contained area and decontamination room should be HEPA vacuumed and cleaned with a damp cloth and/or mop with a detergent solution and be visibly clean prior to the removal of isolation barriers.

Air monitoring should be conducted prior to occupancy to determine if the area is fit to reoccupy.

5. Level V: Remediation of HVAC Systems

5.1 A Small Isolated Area of Contamination (<10 square feet) in the HVAC System

Remediation can be conducted by regular building maintenance staff. Such persons should receive training on proper clean up methods, personal protection, and potential health hazards. This training can be performed as part of a program to comply with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Respiratory protection (e.g., N95 disposable respirator), in accordance with the OSHA respiratory protection standard (29 CFR 1910.134), is recommended. Gloves and eye protection should be worn.

The HVAC system should be shut down prior to any remedial activities.

The work area should be covered with a plastic sheet(s) and sealed with tape before remediation, to contain dust/debris.

Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.

Growth supporting materials that are contaminated, such as the paper on the insulation of interior lined ducts and filters, should be removed. Other contaminated materials that cannot be cleaned should be removed in sealed plastic bags. There are no special requirements for the disposal of moldy materials.

The work area and areas immediately surrounding the work area should be HEPA vacuumed and cleaned with a damp cloth and/or mop and a detergent solution.

All areas should be left dry and visibly free from contamination and debris.

A variety of biocides are recommended by HVAC manufacturers for use with HVAC components, such as, cooling coils and condensation pans. HVAC manufacturers should be consulted for the products they recommend for use in their systems.

5.2 Areas of Contamination (>10 square feet) in the HVAC System

A health and safety professional with experience performing microbial investigations should be consulted prior to remediation activities to provide oversight for remediation projects involving more than a small isolated area in an HVAC system. The following procedures are recommended:

Personnel trained in the handling of hazardous materials equipped with:

Respiratory protection (e.g., N95 disposable respirator), in accordance with the OSHA respiratory protection standard (29 CFR 1910.134), is recommended.

Gloves and eye protection

Full-face respirators with HEPA cartridges and disposable protective clothing covering both head and shoes should be worn if contamination is greater than 30 square feet.

The HVAC system should be shut down prior to any remedial activities.

Containment of the affected area:

Complete isolation of work area from the other areas of the HVAC system using plastic sheeting sealed with duct tape.

The use of an exhaust fan with a HEPA filter to generate negative pressurization.

Airlocks and decontamination room if contamination is greater than 30 square feet.

Growth supporting materials that are contaminated, such as the paper on the insulation of interior lined ducts and filters, should be removed. Other contaminated materials that cannot be cleaned should be removed in sealed plastic bags. When a decontamination chamber is present, the outside of the bags should be cleaned with a damp cloth and a detergent solution or HEPA vacuumed prior to their transport to uncontaminated areas of the building. There are no special requirements for the disposal of moldy materials.

The contained area and decontamination room should be HEPA vacuumed and cleaned with a damp cloth and/or mop and a detergent solution prior to the removal of isolation barriers.

All areas should be left dry and visibly free from contamination and debris.

Air monitoring should be conducted prior to re-occupancy with the HVAC system in operation to determine if the area(s) served by the system are fit to reoccupy.

A variety of biocides are recommended by HVAC manufacturers for use with HVAC components, such as, cooling coils and condensation pans. HVAC manufacturers should be consulted for the products they recommend for use in their systems.

III. Hazard Communication

When fungal growth requiring large-scale remediation is found, the building owner, management, and/or employer should notify occupants in the affected area(s) of its presence. Notification should include a description of the remedial measures to be taken and a timetable for completion. Group meetings held before and after remediation with full disclosure of plans and results can be an effective communication mechanism. Individuals with persistent health problems that appear to be related to bioaerosol exposure should see their physicians for a referral to practitioners who are trained in occupational/environmental medicine or related specialties and are knowledgeable about these types of exposures. Individuals seeking medical attention should be provided with a copy of all inspection results and interpretation to give to their medical practitioners.

Conclusion:

In summary, the prompt remediation of contaminated material and infrastructure repair must be the primary response to fungal contamination in buildings. The simplest and most expedient remediation that properly and safely removes fungal growth from buildings should be used. In all situations, the underlying cause of water accumulation must be rectified or the fungal growth will recur. Emphasis should be placed on preventing contamination through proper building maintenance and prompt repair of water damaged areas.

Widespread contamination poses much larger problems that must be addressed on a case-by-case basis in consultation with a health and safety specialist. Effective communication with building occupants is an essential component of all remedial efforts. Individuals with persistent health problems should see their physicians for a referral to practitioners who are trained in occupational/environmental medicine or related specialties and are knowledgeable about these types of exposures.

Based on guidelines from New York City Department of Health

Molds in Indoor Workplaces

Molds are forms of fungi that are found indoors and outdoors.
You are exposed to them daily in the air you breathe. Sometimes molds grow excessively inside your workplace and can cause different types of illnesses. Most workers will not be affected by molds. Some workers have symptoms like those of hay fever and the common cold, but they can last for longer periods. Molds can also aggravate asthma. In addition, some molds produce chemicals called mycotoxins that can cause flu-like symptoms. Most health problems are temporary and can be controlled by limiting exposure to molds. However, workers with chronic lung diseases may be at risk for long-term effects on their health.

Are my employees being exposed to molds at work?

Molds need moisture, darkness, and a food source (organic material). Molds can be any color, including white, orange, green, brown, or black. Even if you cannot see any molds, you may notice a mildew or earthy smell. They may be found indoors on wet/damp walls, carpets, ceilings, or behind wallpaper, as well as in heating, ventilation, and air conditioning (HVAC) systems. Indoor moisture leading to the growth of molds may come from flooding, leaks, high humidity, and steam. Symptoms also can indicate that you are exposed to molds at work. If an employee reports symptoms, observe when they occur. They may be work-related if they worsen when they are at work, and disappear or lessen at home or on weekends, or during vacations. The onset of symptoms depends on their individual reaction to molds.

How do you get exposed to molds?

Molds produce seed-like spores that are small enough to travel through the air. You can breathe in spores or come into contact with them. Some molds also produce chemicals called mycotoxins, which are attached to the spores and other parts of the mold. You may be exposed to mycotoxins at the same time you are exposed to molds.

Mycotoxins are produced only under certain environmental conditions, and only by a few molds.

How can molds affect your health?

Molds can cause allergic reactions, toxic effects, and fungal infections. Most workers, however, will have no reaction at all when exposed to molds. Some workers have underlying health conditions that make them more sensitive to effects of mold exposure. Allergic reactions, similar to common pollen or animal allergies, are the most common health effects of molds. Allergic and toxic illnesses can be treated by getting rid of the mold exposure. Physicians may also prescribe medication to control symptoms.

In almost all cases of allergic or toxic illnesses, the symptoms are temporary. However, if someone has chronic lung problems, they may be at risk for long-term health effects. Fungal infections, although rare, require immediate medical attention and treatment. The symptoms for mold exposure can also be due to other causes such as bacterial or viral infections, or other allergies. An occupational medicine physician may help determine if the illness is work-related and can also help identify other workplace conditions that could be related to their symptoms.

What to do about molds in the workplace.

There are no standards to say how much mold is hazardous to your health. There should not be visible mold growth or strong moldy odors in the workplace.

Report mold problems. If you see or smell

mold, or if you or others are experiencing mold-related symptoms, report it so the problem can be investigated. Find out whether others are experiencing any of the symptoms. See if a particular office, floor, or area is affected.

Clean up mold contamination. Employers should ensure that mold contamination is cleaned up regardless of the types of molds present. Environmental sampling is usually not necessary, since all molds need to be eliminated. A thorough investigation of the building should reveal all sources of mold growth and water collection. No one with symptoms or at risk for mold-related illness should participate in the cleanup. The level of protection depends on the type of cleanup work:

- Scrubbing hard surfaces such as tile, concrete, or vinyl requires gloves for worker protection. An effective disinfectant is 10% chlorine bleach (1.5 cups bleach per gallon of water). Never mix bleach with ammonia. The area needs to be well ventilated.
- Mold growth on porous surfaces such as ceiling tile, wallboard, or wood usually requires tearout and replacement of materials. Cleanup workers should be free of allergies, asthma, and immune suppressive disorders. They should wear gloves, eye protection, disposable coveralls, head and shoe covers, and proper respiratory protection. Dust masks are not adequate for tearout work. A disposable N-95 particulate respirator is usually adequate, as long as it is properly fitted (see the recommended respiratory protection program).

Training for cleanup workers should cover cleaning methods, use of personal protective equipment, and health hazards. If the contaminated area is extensive (greater than 30 square feet), professional help is recommended.

Avoid exposure during mold cleanup.
The highest exposure to mold often occurs during cleanup. You may need to temporarily leave work areas where cleanup is occurring, especially if you have symptoms or underlying medical conditions that increase your risk of mold-related illnesses.

Most people will have no reaction at all when exposed to molds.

Eliminate and control the source of moisture.
As long as moisture is present the mold will return, so the source of the moisture must be eliminated and the building properly maintained.

Monitor symptoms after cleanup.
If the symptoms persist after cleanup, they may not be related to molds, or the cleanup effort was unsuccessful. You and your doctor should explore other possible causes of illness. If there are other indoor air quality problems or the cleanup was not adequate, your employer may need professional assistance.

Workers with a higher sensitivity to mold-related illness include those who:

- Have other allergies, or are elderly
- Have existing respiratory conditions including asthma or other lung diseases
- Are moderately immunocompromised (such as diabetic or pregnant) or severely immuno-compromised (have AIDS or leukemia, receiving chemotherapy, or are organ transplant recipients)

What about *Stachybotrys*?

Stachybotrys chartarum (also known as *Stachybotrys atra*) is a rare greenish-black mold that grows on materials with high cellulose content (drywall, wood and paper, and dropped ceiling tiles). This mold, like some other molds, produces chemicals called mycotoxins under certain environmental conditions. Health effects of breathing mycotoxins are not well understood. Here are the most important things to know:

- Not all black molds are *Stachybotrys*, and not all *Stachybotrys* produces mycotoxins.
- While still alive, *Stachybotrys* is slimy and does not release many spores or mycotoxins. Exposure is low unless it dries up, when spores and mycotoxins (if present) are released into the air.
    - There is no diagnostic test to determine if you are currently exposed to *Stachybotrys*.

All indoor molds are potential health hazards and need to be cleaned up.

Information resource: California Department of Health Services

DOT Vehicle Operators (i.e., Medical Clearance for Holders of a Commercial Driver's License) **Attachment - E 5**

The Department of Transportation has established regulations (49 CFR 391.41 (b)(1) through (b)(13)) governing the medical examination requirements for individuals who need a Commercial Driver's License to operate trucks, buses, or other heavy equipment on public highways. In order to drive such a vehicle, a driver must: 1) have the technical skills to operate the equipment (this subject is not covered further in this *Handbook*); 2) meet the requirements of the physical examination; and 3) comply with drug and alcohol testing requirements. Drug and alcohol testing is covered in Tab 9 (*Special Emphasis Program Guides*). The physical examination form can be accessed at: http://www.fmcsa.dot.gov/documents/safetyprograms/Medical-Report.pdf . As specified in 49 CFR 391.41 (as of October 1, 2008) and subsequent DOT clarifying publications in the Federal Register:

(a) A person shall not drive a commercial motor vehicle unless he/she is physically qualified to do so and, except as provided in Sec. 391.67, has on his/her person the original, or a photographic copy, of a medical examiner's certificate that he/she is physically qualified to drive a commercial motor vehicle.

The United States and Canada entered into a Reciprocity Agreement, effective March 30, 1999, recognizing that a Canadian commercial driver's license is proof of medical fitness to drive. Therefore, Canadian commercial motor vehicle (CMV) drivers are no longer required to have in their possession a medical examiner's certificate if the driver has been issued, and possesses, a valid commercial driver's license issued by a Canadian Province or Territory. However, Canadian drivers who are insulin-using diabetics, who have epilepsy, or who are hearing impaired as defined in Sec. 391.41(b)(11) are not qualified to drive CMVs in the United States. Furthermore, Canadian drivers who do not meet the medical fitness provisions of the Canadian National Safety Code for Motor Carriers but who have been issued a waiver by one of the Canadian Provinces or Territories are not qualified to drive CMVs in the United States.

(b) A person is physically qualified to drive a commercial motor vehicle if that person--

(1) Has no loss of a foot, a leg, a hand, or an arm, or has been granted a skill performance evaluation certificate pursuant to Sec. 391.49;

(2) Has no impairment of:

(i) A hand or finger which interferes with prehension or power grasping; or

(ii) An arm, foot, or leg which interferes with the ability to perform normal tasks associated with operating a commercial motor vehicle; or any other significant limb defect or limitation which interferes with the ability to perform normal tasks associated with operating a commercial motor vehicle; or has been granted a skill performance evaluation certificate pursuant to Sec. 391.49.

(3) Has no established medical history or clinical diagnosis of diabetes mellitus currently requiring insulin for control;

(4) Has no current clinical diagnosis of myocardial infarction, angina pectoris, coronary insufficiency, thrombosis, or any other cardiovascular disease of a variety known to be accompanied by syncope, dyspnea, collapse, or congestive cardiac failure.
(5) Has no established medical history or clinical diagnosis of a respiratory dysfunction likely to interfere with his/her ability to control and drive a commercial motor vehicle safely;
(6) Has no current clinical diagnosis of high blood pressure likely to interfere with his/her ability to operate a commercial motor vehicle safely;
(7) Has no established medical history or clinical diagnosis of rheumatic, arthritic, orthopedic, muscular, neuromuscular, or vascular disease which interferes with his/her ability to control and operate a commercial motor vehicle safely;
(8) Has no established medical history or clinical diagnosis of epilepsy or any other condition which is likely to cause loss of consciousness or any loss of ability to control a commercial motor vehicle;
(9) Has no mental, nervous, organic, or functional disease or psychiatric disorder likely to interfere with his/her ability to drive a commercial motor vehicle safely;
(10) Has distant visual acuity of at least 20/40 (Snellen) in each eye without corrective lenses or visual acuity separately corrected to 20/40 (Snellen) or better with corrective lenses, distant binocular acuity of at least 20/40 (Snellen) in both eyes with or without corrective lenses, field of vision of at least 70[deg] in the horizontal Meridian in each eye, and the ability to recognize the colors of traffic signals and devices showing standard red, green, and amber;
(11) First perceives a forced whispered voice in the better ear at not less than 5 feet with or without the use of a hearing aid or, if tested by use of an audiometric device, does not have an average hearing loss in the better ear greater than 40 decibels at 500 Hz, 1,000 Hz, and 2,000 Hz with or without a hearing aid when the audiometric device is calibrated to American National Standard (formerly ASA Standard) Z24.5--1951.
(12)(i) Does not use a controlled substance identified in 21 CFR 1308.11 Schedule I, an amphetamine, a narcotic, or any other habit-forming drug.
(ii) Exception. A driver may use such a substance or drug, if the substance or drug is prescribed by a licensed medical practitioner who:
(A) Is familiar with the driver's medical history and assigned duties; and
(B) Has advised the driver that the prescribed substance or drug will not adversely affect the driver's ability to safely operate a commercial motor vehicle; and
(13) Has no current clinical diagnosis of alcoholism.

[35 FR 6460, Apr. 22, 1970, as amended at 35 FR 17420, Nov. 13, 1970; 36 FR 223, Jan. 7, 1971; 36 FR 12857, July 8, 1971; 43 FR 56900, Dec. 5, 1978; 55 FR 3554, Feb. 1, 1990; 60 FR 38744, July 28, 1995; 62 FR 37152, July 11, 1997; 65 FR 59369, Oct. 5, 2000; 67 FR 61824, Oct. 2, 2002]

For further information, the reader may contact the AMO, the DOI MO, or the Department of Transportation.

Department of Labor forms CA-1 (Federal Employee's Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation) and CA-2 (Notice of Occupational Disease and Claim for Compensation), are used by most agencies to file claims for work related injury or illness compensation. The Department has established the Safety Management Information System (SMIS) as the official Administrative System for electronic entry of accident and illness claims data. SMIS is a Internet based data system and can be found on the World Wide Web at http://www.smis.doi.gov .

Automatic External Defibrillators **Attachment - E-7**

Cardiac arrest is defined as the "abrupt cessation of cardiac [heart] pump function which may be reversible by a prompt intervention but will lead to death in its absence." There are about 80 million men and women with cardiovascular disease in the United States (2006), and more than 864,000 deaths from cardiovascular disease (of all types, including both the heart and the major blood vessels) were reported in 2005. While the death rate due to cardiovascular disease has dropped by more than half since 1950, it still is ranked as the #1 cause of death in this country.

More than 596,000 deaths in 2005 were due to coronary heart disease (a disease of the arteries that provide blood for the heart itself, and which may lead to sudden cardiac arrest), or about 1,600 per day. Clearly, this is a major health issue for Americans.

While prevention is the most effective way to deal with heart disease and cardiac arrest, there is a "chain of survival" that is vital when cardiac arrest does occur. The chain of survival includes:

- *early* **access to care** (including citizen-provided cardiopulmonary resuscitation, or CPR, emergency medical technicians, and other health care providers)
- *early* **CPR** (to get oxygen to the tissues)
- *early* **defibrillation** (if this abnormal heart rhythm condition is present), and
- *early* **advanced care** (for more definitive treatment).

Death is almost certain unless appropriate intervention is provided, including, automatic external defibrillation, or AED. AED devices were first developed in the 1980s, and became available in the early 1990s for out-of-hospital use. When connected to a victim's chest, the device senses the heart's electrical activity and, if fibrillation is present, provides a shock to the heart at the correct time in the electrical cycle. The current generation of these devices are portable, light weight, and simple to use, costing about $1,500 for each machine. In September, 2004, the Food and Drug Administration approved over-the-counter sales (i.e., without a prescription) of a particular AED device made by Philips Medical Systems for in-home use, so these easy-to-use devices are becoming even easier for lay people to use. However, most AED devices still require a prescription to purchase and use them, and medical oversight is required for DOI agencies that provide AED services, though users are easily trained to apply them effectively.

After calling for additional help and implementing the local emergency response system, properly applied CPR continues to be the most important procedure to be provided for a person with cardiac arrest if defibrillation cannot be provided within about 4 minutes of the actual arrest. It also is important to provide CPR, if possible, while AED equipment is being set up for a patient. Survival of cardiac arrest in cases where the actual arrest is witnessed, and when CPR and AED both are provided, has been reported to be as high as 37-45% in some studies.

DOI managers are encouraged to carefully consider the relative value and need for AED before setting up a program for their employees or for the public that may be served by the agency. AED programs are ONLY permitted as part of a complete "chain of survival" program. This includes designation and training of sufficient staff to provide initial management of cardiac arrest cases, including initial first aid/CPR as well as using the AED device. Furthermore, formal medical oversight and equipment maintenance programs are essential. Factors to consider include:

- **RISKS (of cardiac arrest) and AVAILABLE SERVICES, including**:
  - location (remote; city; traffic patterns; near EMS; services not available)
  - activities (office; power plant)
  - population (elderly; young; many; few; general public; only federal workers)
  - previous work force experience and employee expectations

- **IMPLEMENTATION FACTORS, including**:
  - local state laws on emergency medical care
  - initial costs
  - administration factors (medical oversight, maintenance/security of device, assigned personnel)
  - training (initial and on-going) for first responders, program administrators, medical personnel

The U.S. Public Health Service (Federal Occupational Health) provides consultative assistance for agencies that are considering establishing an AED program, and can be reached at their web site: http://www.foh.dhhs.gov/Public/WhatWeDo/AED/AED.asp .

REFERENCES

American Heart Association, Cardiopulmonary Resuscitation (CPR) Statistics (Internet web site: http://www.americanheart.org)

Centers for Disease Control and Prevention, National Center for Health Statistics (Internet web site: http://www.cdc.gov/nchs)

Influence of Cardiopulmonary Resuscitation Prior to Defibrillation in Patients With Out-of-Hospital Ventricular Fibrillation, Cobb, Leonard A., et.al., JAMA, Vol. 281, No. 13, April 7, 1999, pp. 1182-1188

Automatic External Defibrillator, Policy M.72, Federal Occupational Health

First Aid Kits **Attachment - E-8**

First aid supplies are required to be readily available under paragraph § 1910.151(b). An example of the minimal contents of a generic first aid kit is described in American National Standard (ANSI) Z308.1-1978 "Minimum Requirements for Industrial Unit-Type First-aid Kits." The contents of the kit listed in the ANSI standard should be adequate for small worksites. When larger operations or multiple operations are being conducted at the same location, employers should determine the need for additional first aid kits at the worksite, additional types of first aid equipment and supplies and additional quantities and types of supplies and equipment in the first aid kits.

In a similar fashion, employers who have unique or changing first-aid needs in their workplace may need to enhance their first-aid kits. The employer can use the OSHA 200 log, OSHA 101's or other reports to identify these unique problems. Consultation from the local fire/rescue department, appropriate medical professionals, or local emergency departments may be helpful to employers in these circumstances. By assessing the specific needs of the workplace, employers can ensure that reasonably anticipated supplies are available. Employers should assess the specific needs of their worksite periodically and augment the first aid kit(s) appropriately.

If it is reasonably anticipated that employees will be exposed to blood or other potentially infectious materials while using first aid supplies, employers are required to provide appropriate personal protective equipment (PPE) in compliance with the provisions of the **Occupational Exposure to Blood borne Pathogens** standard, § 1910.1030(d)(3) (56 FR 64175). This standard lists appropriate PPE for this type of exposure, such as gloves, gowns, face shields, masks, and eye protection.

In areas where there is a higher than normal risk for accidents that may result in suffocation, severe bleeding, or other life threatening or permanently disabling injury or illness, a response time of no more than 3 to 4 minutes, from time of injury to time of administering first aid, is required. In other circumstances, i.e., where a life-threatening or permanently disabling injury is an unlikely outcome of an accident, a longer response time such as 15 minutes may be acceptable.

Where first aid treatment cannot be administered to injured employees by outside professionals within the required response time for the expected types of injuries, a person or persons within the facility shall be adequately trained to render first aid.

If the facility provides a first aid kit for its employees to use themselves, the agency needs to have a mechanism for routinely checking the kit to be sure it is complete, and that nothing has become outdated. Any use of the kits' contents should be logged in some way so that it's clear what has been used, for what purpose, and with what follow up, and so that the kit can be restocked with the items that have been used.

Keep in mind, including medications in a workplace kit can raise issues of liability, especially related to **who** provides the medication (e.g., do individuals take the medications themselves [lower liability], or does someone else administer the medication to others [greater liability, even for over-the-counter medications]). If one individual provides over the counter medication to others, it must be for immediate use and cannot be repackaged (i.e., transferred from one container to another) or dispensed to someone for their later use.

Depending on the types of injuries and exposures that may be experienced by an individual work force, the contents of a first aid kit might include such items as:

First Aid Manual
Information (phone numbers for the regional Poison Control Center, and if 911 is not in your area, emergency services for local police, fire department, and ambulance services)
Latex or, if latex allergy is known or thought likely to be present among employees, vinyl examining gloves
and

adhesive bandages (various sizes)	antiseptic solution
bandage closures/"butterfly bandages"	triangular bandage
adhesive tape	safety pins
mild soap	burn treatments
antiseptic swabs	elastic bandage
gauze pads (various sizes)	metal splints
gauze bandage	aluminum splint
scissors	forceps
disposable, instant-activating cold packs	tweezers
eyewash solution	eye dressing
cleansing tissue	hydrogen peroxide
cough suppressant	antihistamine
decongestant tablets	calamine lotion
hydrocortisone cream	acetaminophen, ibuprofen, aspirin tablets

Quantities should be sufficient to prevent exhausting any single item, based on expected frequency of use, regular inspections, and re-supply. Further information on first aid kits can be found in the American College of Emergency Physician's recommendations for first aid kits: http://www.acep.org/patients.aspx?id=26036 and at the Occupational Safety and Health Administration website:
http://www.osha.gov/Publications/OSHA3317first-aid.pdf .

Tuberculosis **Attachment – E 9**

Over the course of history, tuberculosis has been one of the world's leading causes of morbidity and mortality. Recent increases in the rate of infection and symptomatic disease due to tuberculosis in the U.S. have been attributed in large measure to an increase in the number of cases of AIDS (a disease which diminishes the ability of a person's immune system to prevent active disease once infection has occurred), and an increase in the number of immigrants from areas of the world with a high prevalence of tuberculosis. A complicating factor in recent years has been an increase in the number of cases of tuberculosis due to organisms resistant to multiple antibiotics.

For most DOI employees, the risk of exposure to co-workers or members of the public who have tuberculosis and are contagious is quite small. For some employees, however, tuberculosis is a disease prevalent among the population they serve or with whom they have regular contact. As covered in *Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Facilities, 1994*, (Centers for Disease Control and Prevention. MMWR 1994; 43 (No.RR-13); pp. 1-8), the bacterium responsible for tuberculosis is carried in airborne droplets generated when persons with active pulmonary or laryngeal tuberculosis sneeze, cough, speak, or otherwise forcefully expel air from their airways. People with tuberculosis who are most likely to transmit infectious droplets are those who have:

1. Active disease in the lungs, airways, or larynx;
2. A cough, or otherwise use forceful expiratory measures;
3. Acid-fast bacilli (AFB, the tuberculosis organism) in their sputum;
4. A failure to cover the mouth and nose when coughing or sneezing;
5. Cavitation on their chest x-rays (evidence of significant infection);
6. Had inappropriate or short duration chemotherapy;
7. Procedures that induce coughing or that aerosolize sputum.

Environmentally, the risk of transmission from one person to another is increased by:

1. Exposure in relatively small, enclosed spaces;
2. Inadequate local or general ventilation, such that contaminated air is insufficiently diluted or droplets are not removed from the circulating air;
3. Recirculation of air that contains infectious droplets.

The risk of becoming infected is related to the concentration of infectious droplets in the inhaled air, and the duration of exposure to that air. When the droplets are inhaled by a susceptible person, infection may occur. Reinfection of a previously infected person does occur, and vaccination with BCG (Bacille of Calmette and Guérin) probably does not affect this risk. Instead, the BCG may decrease the risk that a person with latent (inactive) tuberculosis will progress to active disease. Being infected with tuberculosis bacteria (*Mycobacterium tuberculosis*) does not mean the person has the disease-- active

tuberculosis. About 10% of people infected with *M. tuberculosis* develop active tuberculosis during their lifetime. People more likely to progress from simple infection to active disease are those who:

1. Have been recently infected (within the past two years);
2. Are children age 4 or less;
3. Have fibrosis (scar) lesions in their lungs, as seen on X-ray;
4. Have certain medical conditions, such as infection with HIV; silicosis; gastrectomy or jejuno-ileal bypass (intestinal surgery); significant underweight; chronic renal failure, on dialysis; diabetes mellitus; immunosuppression as a result of certain medical therapies, and some malignancies.

While antibiotic treatment continues to be effective for most cases, prevention of infection and consequent disease is the primary goal of public health efforts directed at tuberculosis. Users of this *Handbook* are encouraged to refer to the *Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Facilities, 1994*, cited above. While written for health care facilities, the document provides valuable and pertinent guidance that applies to other settings in which the risk of exposure to droplets containing *M. tuberculosis* is thought to be elevated. As presented in the *Guidelines* and modified here for other than just health care facilities:

> "Specific measures to reduce the risk for transmission of *M. tuberculosis* include the following:
>
> - Assigning to specific persons in the [program] the supervisory responsibility for designing, implementing, evaluating, and maintaining the TB infection-control program.
>
> - Conducting a risk assessment to evaluate the risk for transmission of *M. tuberculosis* in all areas of the [program], developing a written TB infection-control program based on the risk assessment, and periodically repeating the risk assessment to evaluate the effectiveness of the TB infection-control program.
>
> - Developing, implementing, and enforcing policies and protocols to ensure early identification, diagnostic evaluation, and effective treatment of [employees] who may have infectious TB.
>
> - Developing, installing, maintaining, and evaluating ventilation and other engineering controls to reduce the potential for airborne exposure to *M. tuberculosis*.

- Developing, implementing, maintaining, and evaluating a respiratory protection program.

- Educating and training [employees] about TB, effective methods for preventing transmission of *M. tuberculosis*, and the benefits of medical screening programs.

- Developing and implementing a program for routine periodic counseling and screening of [employees] for active TB and latent TB infection.

- Promptly evaluating possible episodes of *M. tuberculosis* transmission in [program facilities], including PPD skin-test conversions among [employees], epidemiologically associated cases among [employees or the public served]; and contacts of [the public served or employees] who have TB and who were not promptly identified and isolated.

- Coordinating activities with the local public health department, emphasizing reporting, and ensuring adequate ... follow-up and the continuation and completion of therapy."

Probably the most important step in the area of tuberculosis prevention and control for DOI programs and offices is the conduct of a risk assessment. If there is any suspicion that exposure to tuberculosis is a realistic potential for employees, a risk assessment should be conducted by persons knowledgeable in this activity. If resources are not available locally for determining the need for a risk assessment or carrying out such an assessment, the local health department or the OOHS may be contacted for guidance and further information.

Medical Conditions That May Effect Safe and Efficient Job Performance Tab 13

SUMMARY OF ISSUE PAPER ADDENDUMS

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Use of Coumadin (or "blood thinners")	**Addendum - 14**

Stinging Insect Allergy **Addendum – 1**

According to the American College of Allergy, Asthma & Immunology (ACAAI)6, between 0.5% and 5 percent of the population in this country are subject to anaphylaxis as a result of insect stings, which result in over 40 deaths and send more than ½ million people to emergency rooms every year. Most of these stings are from wasps, yellow jackets, and hornets (Family Vespidae), or bees (Family Apidae), or fire ants (Family Formicidae).

Examples of the primary stinging insect varieties:

Wasp

Bee

Hornet

Yellow Jacket

Fire Ant

Most stings from these insects result in a local reaction, due to the injection of venom. Venom is a water-based solution that includes a variety of proteins, peptides, and vasoactive amines, substances that cause an antibody, IgE, to be released within the skin and other tissues. The envenomation generally causes pain, itching, redness, and swelling at the site of the sting. The reaction can be mild and limited to the immediate vicinity of the sting, or it can extend to involve a much larger area and can even occlude blood flow to the distal parts of a limb, for example, if a sting is on an arm or leg. One or more stings at some point in the past are necessary for sensitization to the venom to

6 http://www.medem.com/medlb/article_detaillb.cfm?article_ID=ZZZMO0FIA9C&sub_cat=530

occur, though an individual may or may not be aware of that exposure and sensitization does not occur in all individuals or following every envenomation. Once sensitization has occurred, however, further stings are more likely to cause a large scale release of histamine and other immune system agents that may result in either anaphylaxis (a systemic reaction) or major local reactions.

While about half of all deaths due to insect stings occur in people who have no known prior reactions to such stings, about 60% of people who have had a systemic reaction (anaphylaxis) due to an insect sting will have another systemic reaction with subsequent stings. Preparation and prevention are key considerations for the health and safety of all people with a risk of exposure, but particularly for those who have had a previous systemic reaction.

Once an individual has been identified as being sensitive to stinging insects, it is important for them to take steps to protect themselves from subsequent exposure to venom (i.e., they should avoid getting stung) and to be prepared to treat the allergic reactions that are at greater risk of occurring (i.e., they should have a means of treating the reaction readily available). Epinephrine is the most effective medication for preventing and treating anaphylaxis, though it may be combined with (or preceded by) the use of antihistamines (e.g., diphenhydramine, or Benadryl) or, in a medical facility, followed by injectable steroids. The easiest form of epinephrine for use by individuals may be the EpiPen, an autoinjector device that delivers a single dose of 0.3 mg of epinephrine by "stabbing" the unit into the lateral aspect of the thigh, exposing the needle and injecting the medication into the large lateral quadriceps muscle, well away from the large blood vessels or nerve bundles that otherwise may be hit by the injection. Intravascular injections may cause stroke (due to the sudden and significant rise in blood pressure from such a dose) or loss of limbs (due to the occlusion of major blood vessels by the action of the drug, a particularly problem for the hands, feet, or digits). Repeat doses may be necessary in severe cases, but the medication generally is highly effective in preventing and treating allergic reactions.

A draw back to the EpiPen and other forms of epinephrine, however, is the fact that the medication must be protected from extremes of temperature. The manufacturer (Dey®, an affiliate of Merck KGaA) specifies that the EpiPen is to be stored at 77°F, with temperature variations only allowed from 59°F to 85°F.[7] This is a narrow temperature range for a medication that may be required for use in the sort of environmental situations that may be encountered by employees who work in remote locations. Also, the medication specifically is <u>not</u> to be refrigerated, due to the risk of precipitation of the drug, so this is not an option for maintaining a stable storage environment.

7 http://www.epipen.com/epipen_prescribing.aspx

Recommendation:
Because of the relatively common problem of significant insect allergies among the general population, it is appropriate for the agencies with medical standards programs to have in place a plan for how cases should be managed when this historical finding comes up in the course of medical clearance reviews.

It has been recommended by the DOI MO that any individual who has been identified as having a history of a systemic allergic reaction to insect stings should be required to submit and have on file certain medical documentation before being considered for a medical clearance for work in remote locations. The medical documentation should consist of a signed and dated letter from the employee's personal physician, on the physician's letterhead stationery, that:

a) confirms that the individual holds a current valid prescription for epinephrine (generally in the form of at least one dose [and preferably more] of epinephrine or EpiPen autoinectors);
b) confirms that the prescription will remain valid (including approved refills) through the period that is to be covered by the employee's medical clearance;
c) confirms that the individual has been fully informed of the manner in which the epinephrine is to be administered, should a sting occur;
d) confirms that the physician is aware of the nature of the work and the potential types of assignments, temperature extremes, environmental conditions, and geographic locations in which the employee may be assigned for duty, and in which the epinephrine may have to be stored and administered; and
e) concurs that, in the opinion of the physician, the medication can be used safely and effectively by the individual.

Then, as part of the restrictions that should be applied to the employee if medical clearance is to be provided, the employee should be required at the time of each new assignment to notify management of:

a) the individual's history of a potentially-serious allergy;
b) the need to carry epinephrine as a preventive and therapeutic measure, to be used if an exposure incident occurs; and
c) the manner in which the employee intends to maintain the epinephrine in a temperature stable condition at all times during the period of the assignment.

Cardiac Risk Assessment and Clearance **Addendum 2**

A number of individuals are found at the time of their initial or periodic medical clearance evaluations to have risk factors for one or more forms of heart disease. These risk factors may include those that, for practical and pertinent purposes, cannot be changed, such as increasing age, male gender, and heredity. Risk factors also may include those that may be subject to modification, such as elevated levels of total or LDL-cholesterol, a low level of HDL-cholesterol, an elevated blood pressure, concurrent diabetes (Type 1 or 2), physical inactivity, obesity, and smoking, and various contributory factors, such as stress and excessive alcohol consumption.8 A question may come up regarding the extent to which these risk factors should be considered when making clearance decisions.

According to information provided at a Department of the Interior Medical Standards Program Managers meeting in November 2007, between 16 and 34% of the initial exams of employees who are seeking a medical clearance for wildland firefighting work have resulted in a medical finding that requires follow up, which may result in a delay or even a denial of a medical clearance due to a medical condition that has been diagnosed or treated by the employee's own physicians, and cardiovascular conditions represent a significant portion of these identified conditions. Among others, those cardiovascular conditions may include the presence of pacemakers or prosthetic valves, and the diagnosis of coronary artery disease, hypertension (greater than 140/90), left bundle branch block, myocarditis, endocarditis, pericarditis, prior myocardial infarction, valvular heart disease, dysrhythmia, angina pectoris, cardiomyopathy, or congestive heart failure.

When an employee's physician has diagnosed a heart-related condition, such as one or more of those listed above, the employer and its medical review officers (MROs) can and should consider the risk of aggravating, accelerating, exacerbating, or permanently worsening that condition as a result of the employee carrying out the functional requirements of the job. Also of concern is the risk to the employee and to others, and to the accomplishment of the mission, should an employee have a significant cardiac event, such as a cardiac arrest or arrhythmia, and experience a sudden incapacitation while driving, or while working in a remote location, or under particularly hazardous circumstances. Clearances justifiably may be withheld as a result of these medical conditions, or until sufficient information has been presented to establish that the risks are not medically or functionally significant.

Federal regulations (5 CFR 339: Medical Qualification Determinations) state in section 339.206 that, for

8 Risk Factors and Coronary Heart Disease, American Heart Association: http://www.americanheart.org/presenter.jhtml?identifier=235

> "*positions with medical standards or physical requirements, or positions subject to medical evaluation programs, a history of a particular medical problem may result in medical disqualification only if the condition at issue is itself disqualifying, recurrence cannot medically be ruled out, and the duties of the position are such that a recurrence would pose a reasonable probability of substantial harm*."

In general, the summaries of clearance actions cited above represent only those employees whose medical conditions have led to a clearance-related action. Those summaries do not include those employees who were noted only as having risk factors for a significant medical condition. A question has been raised regarding the extent to which such risk factors should be considered when clearance decisions are being made. It is important for the employer, its MROs, and its consultants to be consistent and defensible in their consideration of risk factors in order both to be fair to the employee, since it may impact employment decisions, and to assure that clearance actions are both legal and rational, since they may impact the agency's ability to accomplish its mission and manage the agency's liability.

In 5 CFR 339.104, the regulations state that, for "*purposes of this part-- Medical condition means health impairment which results from injury or disease… .*" This reflects the point that, related to a medical clearance, a medical condition must be associated with or involve some form of impairment, not just the risk of future impairment, since the regulations note that a covered impairment "*results from injury or disease… .*" A diagnosed medical condition, such as coronary artery disease, or valvular heart disease, clearly <u>may</u> qualify as a condition covered by this section of the regulations, depending on the current status of the condition, the risk of a significant aggravation, acceleration, exacerbation, or permanent worsening of that condition, and the likelihood of an event related to or resulting from that condition that threatens the safety of the employee or others. However, risk factors for a medical condition only indicate factors that <u>may</u> lead to the development of the medical condition, but may not themselves be a medical condition, or "*health impairment*," as defined in the regulations.

As presented in the National Heart, Lung, and Blood Institute's "Estimating Coronary Heart Disease (CHD) Risk Using Framingham Heart Study Prediction Score Sheets"9, while the risk factors for heart disease each contribute to the overall risk of developing the disease, some much more than others, no one factor means that an individual with that risk factor has or will develop heart disease, or will suffer the consequences of heart disease. For example, a 56 year old man, who has normal cholesterol and HDL-cholesterol levels, normal blood pressure, does not smoke, and does not have diabetes, still has an estimated 7% chance, or risk, of developing coronary heart disease over the next 10 years just because he is a male who has reached middle age. These risk estimates also mean that the same man has a 93% chance of not developing heart disease over that

9 http://www.nhlbi.nih.gov/about/framingham/riskabs.htm

time period. Further, even if he does develop heart disease, the estimates do not address the seriousness of that specific individual's condition (though all heart disease should be considered to be serious, and must be considered carefully on a case-by-case basis).

Some risk factors for coronary heart disease are themselves medical conditions, such as diabetes and hypertension. These medical conditions may be aggravated, accelerated, exacerbated, or permanently worsened as a result of carrying out the functional requirements of a job, particularly stressful or arduous duty ones, and consideration of restrictions or other action may be required for employees who have been identified as having one or more of such conditions. Other risk factors, such as an elevated cholesterol level or a history of smoking, may be present in some cases for an individual's entire life with no apparent impairment and without leading to a diagnosis of heart disease. This may be due to the presence of protective genetic factors, or a lack of aggravating genetic factors, or to some other factors that are not yet fully understood.

In general, the mere risk of an event, unless that risk substantially exceeds that of the population at large, presents challenges to an employer who is considering using that risk as the basis for restricting some aspect of an individual's employment. A case might be made that a 70 year old man, with a total cholesterol of 290 mg/dL, and HDL-cholesterol of 30 mg/dL, a blood pressure of 170/110 mmHg, with diabetes, and who smokes, would present a valid concern regarding his ability to engage safely in a stressful or arduous duty assignment without undue risk to himself, his co-workers, the mission, and the agency, since his risk of coronary heart disease over the next 10 years would be well over 50%, compared to a risk of about 14% for a similarly aged man without the other risk factors. However, it would not just be the risk factors themselves but also the presence of both diabetes and hypertension as significant medical conditions in this example that would prompt most MROs to request further medical information and the opinion of the individual's personal physician(s) regarding the ability of the individual to engage safely in an arduous duty job.

Once a medical <u>condition</u> (as opposed to a risk factor) has been identified, by the employee or by his/her physician, the MRO may be justified fully in requesting further medical documentation before a clearance decision is made. In 5 CFR 339.104, medical documentation is defined as "*a statement from a licensed physician or other appropriate practitioner which provides information the agency considers necessary to enable it to make a employment decision*," though the current regulations do not specify the circumstances under which an agency may <u>require</u> additional medical documentation (this, hopefully, will be addressed in a revision of 5 CFR 339 that is under current review for approval). If additional medical documentation is requested, Section 104 clearly addresses what is considered to be "*acceptable*" for this purpose:

> "*the diagnosis or clinical impression must be justified according to established diagnostic criteria and the conclusions and recommendations must not be*

inconsistent with generally accepted professional standards. The determination that the diagnosis meets these criteria is made by or in coordination with a physician or, if appropriate, a practitioner of the same discipline as the one who issued the statement. An acceptable diagnosis must include the following information, or parts identified by the agency as necessary and relevant:

(a) The history of the medical conditions, including references to findings from previous examinations, treatment, and responses to treatment;

(b) Clinical findings from the most recent medical evaluation, including any of the following which have been obtained: Findings of physical examination; results of laboratory tests; X-rays; EKG's and other special evaluations or diagnostic procedures; and, in the case of psychiatric evaluation of psychological assessment, the findings of a mental status examination and the results of psychological tests, if appropriate;

(c) Diagnosis, including the current clinical status;

(d) Prognosis, including plans for future treatment and an estimate of the expected date of full or partial recovery;

(e) An explanation of the impact of the medical condition on overall health and activities, including the basis for any conclusion that restrictions or accommodations are or are not warranted, and where they are warranted, an explanation of their therapeutic of risk avoiding value;

(f) An explanation of the medical basis for any conclusion which indicates the likelihood that the individual is or is not expected to suffer sudden or subtle incapacitation by carrying out, with or without accommodation, the tasks or duties of a specific position;

(g) Narrative explanation of the medical basis for any conclusion that the medical condition has or has not become static or well stabilized and the likelihood that the individual may experience sudden or subtle incapacitation as a result of the medical condition. In this context, ''static or well-stabilized medical condition'' means a medical condition which is not likely to change as a consequence of the natural progression of the condition, specifically as a result of the normal aging process, or in response to the work environment or the work itself. ''Subtle incapacitation'' means gradual, initially imperceptible impairment of physical or mental function whether reversible or not which is likely to result in performance or conduct deficiencies. ''Sudden incapacitation'' means abrupt onset of loss of control of physical or mental function."

The challenge to the MRO, as it relates to the above discussion, is to deal with the generally narrow gray area that falls between the presence of only risk factors on one side and significant medical conditions or diagnoses on the other: deciding when there is sufficient concern raised by a pattern or severity of risk factors to justify even a temporary withholding a clearance when a medical diagnosis has not yet been identified

(pending the receipt of additional information). In most cases, individuals will have either a diagnosis of a condition that will justify clarification and confirmation that they can perform their work safely, or will only have a set of risk factors that do not rise to the level of forcing a decision to withhold a clearance pending the receipt of additional information. Ultimately, however, it is the MRO's role to evaluate the information available and to formulate a medical opinion regarding the adequacy of that information for clearance purposes.

Recommendation:
As a result of the foregoing considerations, the recommendation of the DOI MO is that reaching final negative clearance decisions by the MRO related to an agency cardiac standard, if those negative clearance decisions are based solely on risk factors for coronary artery disease, is not warranted. However, a pattern of significant risk factors may justify the MRO to seek additional information in order to sufficiently resolve the MRO's concern regarding the employee's health and safety.

Color Vision Evaluation **Addendum 3**

Questions have been raised regarding the type of color vision testing that may be performed during employee medical clearance examinations. There are a variety of measures that can be used to test for color vision deficiency (e.g., Ishihara plates, Titmus vision tester, Farnsworth D-15, and various "alternative" tests such as colored yarn or paper), but these tests are only effective in detecting red/green color vision deficiency, not yellow/blue. There currently are no widely-available and established testing methods for detecting a yellow/blue color deficiency.

Concern has been expressed that this fact might have significance regarding the assessment of the color vision status of employees covered by some standards. Some commentators have noted that the color vision standard commonly is waived when an incumbent shows a color vision deficiency, so the elimination of the standard has even been proposed. However, the granting of a waiver, even the common granting of waivers for this condition, is not a basis for elimination of the test for color vision since it is important for the agency (and possibly the employee him/herself) to know this deficit exists, and the agency can provide guidance related to color vision in the waiver/accommodation letters. This may include such actions as avoiding assignment to driving duties, or paying special attention to escape route flagging in crews to which a color vision deficient employee has been assigned. For example, a pertinent Forest Service study documented the importance of color vision as it relates to firefighting.10 A September 2001 Tech Tips article noted:

> "*Our field evaluations indicated that hot-pink flagging was the easiest color to see and was visible at the greatest distance. Lime-green flagging showed up poorly to participants with normal color vision, but colorblind participants saw the lime-green flagging best.*"
>
> "*Based on the field evaluations, we recommend that hot-pink flagging marked ESCAPE ROUTE be used to identify escape routes and safety zones. Crews with colorblind members may wish to carry both hot-pink ESCAPE ROUTE and lime-green flagging to identify their escape routes.*"

About 8% of males and 0.5% of females have a color vision deficiency11 and, of those, about 99% have difficulty distinguishing red and green hues from each other. Only a very small percentage of people with a color vision deficiency have difficulty distinguishing yellows and blues (possibly as low as 0.1%). Current color vision assessment methods used in clinical practice are effective in detecting red/green color

10 "Flagging for Firefighting Escape Routes and Safety Zones," Bob Beckley, Fire Tech Tips, MTDC, September 2001
11 "Borish's Clinical Refraction," William J. Benjamin, OD, MS, PhD, Editor, W.B. Saunders Company, Philadelphia, 1998, p. 243.

vision deficiency, so they are useful in detecting about 99% of all people who have a color vision deficiency, which is only about 0.5 to 8.0% of the population. While not perfect, the available tests are effective as screening tools for the general population.

Consideration has been given to devising a standard method for applying alternative color testing methods (e.g., standard sets of colored yarn or paper, items that have no intrinsic color cues based on their shape or general nature that would assist the person being tested to identify the individual colors). This may be a way to address the failure of the common testing methods to detect yellow/blue color vision deficiencies. However, such methods have not been widely tested for validity or standardization for their use in clinical situations, and their distribution to the numerous clinical sites at which they would have to be used would involve additional logistical arrangements that may not be worth the limited benefit to be gained.

Recommendation:
The recommendation of the DOI MO is to continue to use the current color vision testing methods in the various DOI vision screening programs since they are widely available, inexpensive, and highly effective for the most common forms of color vision deficiency. The specific color vision testing method should be selected by the clinical site, based on locally available tools or equipment, and the ability of an applicant or incumbent employee to distinguish red / green / yellow should be indicated on the examination form. If all of the Ishihara plates are recorded as having been viewed correctly, a presumption can be made that the key colors can be distinguished. If any of the plates are missed during the test, an alternative test should be done using readily available objects in the testing environment.

Drug and Alcohol Evaluation **Addendum 4**

A concern has been raised regarding individuals who have a history of alcohol or drug abuse and have their medical clearances withheld despite being "*good workers who show up for work on time and work hard all day.*" The medical history and examination forms used in several of the DOI medical standards programs were modified a few years ago to be sure the focus on alcohol and drug use was on the diagnosis of a medical condition, not simply the presence of a behavior of some periodic over-indulgence in these substances. As an example, and in conjunction with both the instruction that "*All 'Yes' answers in the medical history sections must be explained, including dates, treatments and current status*," and the admonishment that "*Submitting information that is misleading or untruthful may result in termination, criminal sanctions, or failure to be cleared for your intended position or job duties*," one form specifically requests responses to the following in the medical history portion:

> "*G. Have you ever been diagnosed with or treated for alcoholism or alcohol dependence? (If Yes, please describe fully)*" and
> "*H. Have you ever been diagnosed as being dependent on illegal drugs, or treated for drug abuse? (If Yes, please describe fully)*"

These queries give the respondent an opportunity to provide further information to allow a meaningful evaluation of the significance of the history. If the respondent does not provide the requested description of their condition(s), or if the information provided is incomplete, there may be a delay in processing the clearance until a better understanding of the individual's condition can be obtained.

The diagnosis of substance abuse and dependence, for both alcohol and other drugs, is not made or taken lightly. It is based on the following criteria:[12]

> <u>Abuse</u>
> The individual "*is not dependent on the substance and reports one or more of the following symptoms in the past year.*
> 1. *Recurrent use resulting in failure to fulfill major role obligations at work, school, or home*
> 2. *Recurrent substance use in situations in which is it physically hazardous (e.g., driving and automobile)*
> 3. *Recurrent substance-related legal problems*
> 4. *Continued use despite having persistent or recurrent social or interpersonal problems*"

12 Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)

Dependence

The individual "*is defined as being dependent on a substance if he or she reports three or more of the following symptoms in the past year.*

1. *Tolerance—discovering less effect with same amount (needing more to become intoxicated)*
2. *Withdrawal (characteristic withdrawal associated with type of drug)*
3. *Using more or for longer periods than intended*
4. *Desire to or unsuccessful efforts to cut down or control substance use*
5. *Considerable time spent in obtaining or using the substance or recovering from its effects*
6. *Important social, work, or recreational activities given up or reduced because of use*
7. *Continued use despite knowledge of problems caused by or aggravated by use*"

Alcohol abuse and dependence are serious, both for the individual and for those with whom he or she interacts. As noted by the National Institutes of Health,13

> "*Alcoholism is a type of drug addiction. There is both physical and psychological dependence with this addiction. Physical dependence reveals itself by withdrawal symptoms when alcohol intake is interrupted, tolerance to the effects of alcohol, and evidence of alcohol-associated illnesses.*
>
> *Alcohol affects the central nervous system as a depressant, resulting in a decrease of activity, anxiety, tension, and inhibitions. Even a few drinks can result in behavioral changes, a slowing in motor performance, and a decrease in the ability to think clearly. Concentration and judgment become impaired. In excessive amounts, intoxication may result.*
>
> *Alcohol also affects other body systems. Irritation of the gastrointestinal tract can occur with erosion of the lining of the esophagus and stomach causing nausea and vomiting, and possibly bleeding. Vitamins are not absorbed properly, which can lead to nutritional deficiencies with the long-term use of alcohol. Liver disease, called alcoholic hepatitis, may also develop and can progress to cirrhosis. The heart muscle may be affected. Sexual dysfunction may also occur, causing problems with erections in men and cessation of menstruation in women.*
>
> *Alcohol affects the nervous system and can result in nerve damage and severe memory loss. Chronic alcohol use also increases the risk of cancer of the larynx, esophagus, liver, and colon. Alcohol consumption during pregnancy can cause severe birth defects. The most serious is fetal alcohol syndrome, which may result*

13 National Institutes of Health, National Library of Medicine, Medline Plus: Alcoholism: http://www.nlm.nih.gov/medlineplus/ency/article/000944.htm

> *in mental retardation and behavior problems. A milder form of the condition which can still cause lifelong impairment is called fetal alcohol affects.*
>
> *The social consequences of problem drinking and alcohol dependence can be as serious as the medical problems. People who abuse or are dependent on alcohol have a higher incidence of unemployment, domestic violence, and problems with the law. About half of all traffic deaths are related to alcohol use.*"

Regarding the prognosis for those individuals with this condition, the same source cites:

> "*Only 15% of those with alcohol dependence seek treatment for this disease. Relapse after treatment is common, so it is important to maintain support systems in order to cope with any slips and ensure that they don't turn into complete reversals. Treatment programs have varying success rates, but many people with alcohol dependency have a full recovery.*"

The medical standards programs within DOI are not oriented towards disqualifying any individual. They are intended, as covered in one set of standards, "*to aid the examining physician, the designated medical review officer(s), and officials of the involved agencies when determining whether medical conditions may hinder an individual's ability to safely and efficiently perform the requirements of* [the job] *without undue risk to himself/herself or others*."14 When a diagnosis of substance abuse has been made, it does not mean that the individual is unable to perform the duties of their intended position, but it does mean that information is necessary to confirm that the individual is under treatment that has been sufficiently effective to allow them to perform their job duties safely and efficiently, and in the settings and under the conditions that may be expected to occur while carrying out those duties. Employees and applicants should be encouraged both to be honest in reporting their relevant medical histories, and to provide sufficient information to allow medical review officers to make informed decisions regarding the individual's current status as it relates to substance abuse and its treatment.

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14 "Medical Standards and Review Criteria for Medical Review Officers" applicable to "Wildland Firefighter (Arduous Duty)," page 1.

EKG Evaluation **Addendum 5**

It is well recognized that certain tests and clinical procedures contribute significantly to the cost of a medical clearance examination, and some managers and consultants have expressed that such tests may not provide relevant information concerning an employee's medical status. For example, an electrocardiogram (ECG) may add $35 or more to the cost of an exam. Proposals have been made by some managers to postpone this test until age 40 or 45, as recommended by the American College of Cardiology (ACS) for asymptomatic adults, 15 though it should be noted that these ACS recommendations may not reflect the employee-employer relationship and the responsibilities that must be considered in an employment situation. Different agencies and organizations have addressed the use of ECGs for medical clearance considerations in a variety of ways, reflecting there own perceptions, values, and program needs. For example:

The Occupational Safety and Health Administration requires a baseline resting twelve-lead electrocardiogram with interpretation for its compliance safety or health officers (CSHOs).16

The National Fire Protection Association calls for a baseline electrocardiogram for structural firefighters.17

The Department of Transportation does not mandate obtaining an electrocardiogram for commercial drivers, but covers the issue as follows:

> "*An electrocardiogram (ECG)* [is] … *required when findings so indicate. It is recommended that a baseline ECG be done at age 40, then every 6 years until age 55, then every 2 years thereafter, and an* [exercise stress test] *be done at age 45 if the individual manifests one or more cardiac risk factors or has a history of ischemic heart disease.*"18

The American College of Cardiology (ACC)/American Heart Association (AHA) notes that the electrocardiogram may be a very valuable tool:

15 "An Analysis of Medical Standard Implementation for the USDA Forest Service: Fire and Aviation Management; Washington, DC, August, 2003," page 4.
16 OSHA Instruction PER 8-2.4 March 31, 1989 Directorate of Technical support.
17 Medical Requirements for Fire Fighters, National Fire Protection Association, NFPA 1582, 1997 Edition, page 18.
18 Department Of Transportation, Federal Highway Administration, 49 CFR Part 391.

> "*Electrocardiography serves as the gold standard for the noninvasive diagnosis of arrhythmias and conduction disturbances, and it occasionally is the only marker for the presence of heart disease*"19

but its value is somewhat limited as a screening tool in the general population because

> "*routine ECG testing in asymptomatic persons, in whom the pretest probability of having [coronary artery disease (CAD)] is relatively low, is not an efficient process for detecting CAD or for predicting future coronary events.*"20

Because of this, and consistent with the manager's proposal noted at the beginning of this addendum,

> "*the American Heart Association (ACC/AHA) recommends baseline testing [only] for all persons over 40 years of age and for those about to have exercise stress testing.*"21

Regarding the use of the electrocardiogram as a baseline test, the U.S. Preventive Services Task Force writes that:

> "*A screening ECG has been recommended to provide a 'baseline' to help interpret changes in subsequent ECGs…* [However,] *only a small subset of the asymptomatic population is likely to benefit from having a baseline ECG… those with baseline ECG abnormalities suggestive of ischemia who subsequently develop acute noncardiac chest pain. Savings from preventing a few unnecessary hospitalizations among these patients must be weighted against the high costs of routine ECG screening in the large population of asymptomatic persons.*"22

At this time, the Task Force concludes:

> "*There is insufficient evidence to recommend for or against screening middle-aged and older men and women for asymptomatic coronary artery disease with resting electrocardiography (ECG), ambulatory ECG, or exercise ECG…*"

though they also acknowledge that

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19 Kadish et al., ACC/AHA Clinical Competence Statement On Electrocardiography And Ambulatory Electrocardiography, J Am Coll Cardiol 2001.
20 U.S. Preventive Services Task Force. Guide to clinical preventive services, 2nd ed. Baltimore: Williams & Wilkins, 1996, page4
21 Ibid., page 8, referring to ACC/AHA. Guidelines for electrocadiography. A report of the American College of Cardiology/American Heart Association Task Force on Assessment of Diagnostic and Therapeutic Cardiovascular Procedures (Committee on Electrocardiography). J Am Coll Cardiol 1992;19:473-481.
22 Ibid. page 7.

> "*screening individuals in certain occupations (pilots, truck drivers, etc.) can be recommended on other grounds* [than looking for coronary artery disease], *including possible benefits to public safety.*" 23

Whether this potential benefit of the ECG outweighs the cost (both financial and logistical) of obtaining baseline electrocardiograms prior to age 40 must be considered by individual agency managers who are responsible for their medical clearance programs.

Recommendation:
Consistent with the proposal presented initially, it is the recommendation of the DOI MO that obtaining a routine baseline electrocardiogram for medical clearance purposes may be delayed until an employee / applicant reaches the age of 40, unless there are individually-identified reasons to obtain an ECG sooner than this, or the agency or position in question has established requirements for an alternate schedule that must be met.

23 Ibid., page 10.

When an Employee Doesn't Meet the Agency's Hearing Standard
Addendum 6

An Overview for Federal Supervisors and Medical Standards Program Managers

[This guide was published on October 23, 2008 and distributed as a stand-alone document.]

Introduction

Agency managers frequently are faced with a need to make decisions regarding such things as granting waivers, approving restrictions or accommodations, or taking personnel action when employees are unable to meet medical standards. A medical standard issue commonly encountered is related to a hearing deficit, or the inability to hear well enough to meet the established standard. A hearing deficit may be due either to sudden or gradual loss of normal hearing, or to a lack of normal hearing as a result of congenital causes. This brief guide is intended to assist supervisors and program managers to evaluate the possible significance of a hearing deficit, and things to consider when an employee is unable to meet an agency hearing standard.

> ***Please Note***: *This guide is intended for general informational purposes only. It reflects the views of the authors, but is not intended to replace or supersede more comprehensive, authoritative, or official agency or professional standards, guidelines, or policies.*

Basis for Hearing Standards

A hearing standard may be established for a group or classification of employees when the ability to hear has been identified as pertinent to the safety of employees and the efficient performance of their job duties. The specific standard or hearing level required for a job is identified and established through a process that involves making worksite observations and gathering information from employees, supervisors, and medical and safety professionals, then giving careful consideration to the volume or loudness of sounds that must be heard accurately for communication and for detecting and accurately interpreting other pertinent work-related sounds. It is recognized that this communication and sound detection activity may have to be conducted under particular circumstances and environmental conditions that may not be present when hearing testing is conducted in a clinic situation.

Legal Requirements

While this brief guide is not intended as a substitute for the expertise of professional human resources personnel, or the more complete manuals and guidelines available from other agencies, such as the Office of Personnel Management, the manager should be aware of some pertinent regulations as they consider appropriate actions to take when an employee or applicant does not meet a hearing standard. According to Federal law (5 CFR 339.102(c)), "*failure to meet a properly established medical standard or physical requirement … means that the individual is not qualified for the position unless a waiver or reasonable accommodation is indicated…* ." As a result, if an individual's hearing

deficit is so severe that they cannot meet the agency's established hearing standard, some type of response is necessary, either by the employee or by management. This may include such actions as: waiving the standard if the individual can demonstrate that they can perform the essential functions of their job safely and efficiently despite the hearing deficit; providing a waiver accompanied by agency-mandated restrictions in order to minimize the risks related to the hearing deficit; providing a reasonable accommodation if the employee is found to be a qualified disabled individual; arranging for a transfer to another position where an individual's ability to hear is less critical; or termination of employment.

Waivers

Federal law (5 CFR 339.204) requires an agency to "*waive a medical standard or physical requirement… when there is sufficient evidence that an applicant or employee… can perform the essential duties of the position without endangering the health and safety of the individual or others*." So, despite a hearing loss, if, an individual demonstrates a current and true ability to safely and efficiently perform the requirements of a job, under all of the likely conditions and circumstances that may be encountered during the course of carrying out that job, the standard must be waived. In some cases, a waiver may be accompanied by agency-mandated restrictions that are intended to minimize potential risks related to the hearing deficit.

Accommodations

Federal law (29 CFR 1614.203, the "Rehabilitation Act") requires managers to "*make reasonable accommodation to the known physical or mental limitations of an applicant or employee who is a qualified individual with handicaps unless the agency can demonstrate that the accommodation would impose an undue hardship on the operations of its program*." A qualified individual means "*an individual with handicaps who, with or without reasonable accommodation, can perform the essential functions of the position in question without endangering the health and safety of the individual or others*," and meets the other requirements for the position.

The granting of waivers, accommodations, and restrictions should never be considered as an automatic response when a hearing deficit it encountered. Each case must be considered on a strict case-by-case basis to ensure that the most appropriate course of action is taken, for the safety of the individual and for benefit of the agency.

Agency Response to a Hearing Deficit

How is an employee's hearing recorded, and what does it mean? How does a manager know if an employee's hearing deficit poses a safety risk or may be undermining the efficiency of the program? What are the safety risks associated with a loss of the normal ability to hear? When can (or should) management grant a waiver (with or without restrictions), a step that means, for that particular employee, management is going to allow the employee to continue to work despite the failure to meet an established standard? What types of accommodations are possible, and reasonable, in response to an

employee's loss of normal hearing? This overview will address these questions to help guide the manager to respond in a fair and responsible way when an employee is unable to meet the hearing standard.

Audiograms and what they mean

As used within standard clinical and occupational practice, an audiogram is a printed record of the results of an individual's hearing test. The test, when performed correctly, provides an accurate summary (for each ear separately) of the volume that specific sound frequencies must be presented to a person under controlled circumstances in order for them to be conscious of those sounds and for them to trigger a device to record that the sound was heard. The standard frequencies used for an audiogram generally include 500 cycles per second (recorded as Hertz, or Hz), which is a fairly low or deep sound, plus 1000 Hz, 2000 Hz, 3000 Hz, 4000 Hz, 6000 Hz, and 8000 Hz. That last value, 8000 Hz, is a fairly high-pitched sound to the human ear. Most people can hear sounds of sufficient volume within these frequencies, which include the frequencies where much of our speech takes place (about 500 to 3000 Hz). The volume of sound that must be presented in order to be heard by an individual is measured in decibels (dB), and ranges from 0 to above 100 dB. Because of the unique way that sound volumes are recorded and testing has been standardized, some individuals with particularly acute hearing can hear sounds that are recorded as having intensity levels of -5 dB, or even lower.

Examples Of The Decibel Levels Of Some Common Sounds	
Decibels	**Activity or source of sound**
0 dB	The volume at which a person with normal hearing can hear a sound at least 50% of the time
10 dB	The rustle of leaves
20 dB	Water dripping
30 dB	A whisper
40 dB	A quiet radio in room
50 dB	Moderate rainfall
60 dB	Normal conversation, or a dishwasher
70 dB	Busy traffic, or a vacuum cleaner
80 dB	An alarm clock ringing
90 dB	A lawnmower
100 dB	A snowmobile, or a chainsaw
110 dB	Rock music
120 dB	Jet plane takeoff, and where noise becomes painful for most people

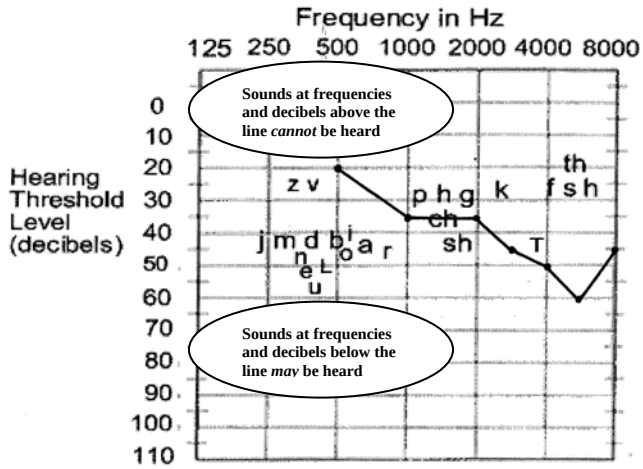
The results of an employee's audiogram might look something like what is presented in the following table. For comparison purposes, the medical standard has been included along the bottom row, and the dB thresholds highlighted in ***red*** show the results that don't meet the standard. In addition, this example highlights in yellow

those results that, while not covered by the standard, nevertheless may be important when considering the individual's hearing ability in an occupational setting:

Hz	.5k	1k	2k	3k	4k	6k	8k
R	20	35	35	***45***	50	60	45
L	10	15	***55***	***65***	75	70	55
Std.	40dB	40 dB	40 dB	40 dB	-	-	-

The above results are normal at the very low frequencies (.5k in both ears, and 1k on the left). However, the results begin to worsen quickly and don't meet the standard on the left at 2000 Hz, or in either ear at 3000 Hz. Hearing is quite poor in both ears at the frequencies above the agency standard, and the slight "improvement" you see at the higher frequencies is typically observed in hearing loss due to chronic noise exposure.

The diagram below presents the audiogram results for the right ear from the table above, superimposed on a graph that shows approximately where certain speech sounds fall, both by loudness and by frequency, during normal conversation. As you can see, the softer sounds, such as **th**, **sh**, and **f**, are found at higher frequencies, as are most of the hard consonants, such as **k** and **t**, and most consonants actually are spoken more softly than vowels tend to be. If a person loses hearing acuity in the mid- to upper-frequencies, such as from 2000 to 6000 Hz, they may have difficulty picking out these sounds and may misinterpret words that use them, unless they are spoken particularly loud, which itself can lead to distortion. The difference in how consonants and vowels are spoken (high versus low pitch, and louder versus softer volume) contributes to the wayhearing loss interferes with a person's ability to understand what is said. A person whose hearing loss is similar to that in the diagram likely would hear the sounds that fall below the line, but would have difficulty hearing the sounds above the line.24



24 The above graphic and the information regarding the symptoms of hearing loss are modified from information provided by a commercial site, Hound Dog Hearing, http://www.hdhearing.com/index.htm

Levels or degrees of hearing loss have been defined in a variety of ways over the years by different organizations. One approach, presented in the International Journal of Audiology25, uses the following categories of hearing loss:

Normal (implied):	20 dB or less
Mild:	>20 and ≤ 40 dB
Moderate:	>40 and ≤ 60 dB
Severe:	>60 and ≤ 90 dB
Profound:	>90 dB HL

Another approach, which is used by the National Institute for Occupational Safety and Health (NIOSH)26, is the following:

Normal:	-10 – 25 dB
Mild:	26 – 40 dB
Moderate:	41 – 55 dB
Moderate/severe:	56 – 70 dB
Severe:	71 – 90 dB
Profound:	91 – 100 dB or more

A third approach, which is used by the American Speech/Language Hearing Association (ASHA)27, is the following:

Normal:	-10 – 15 dB
Slight:	16 – 25 dB
Mild:	26 – 40 dB
Moderate:	41 – 55 dB
Moderately severe:	56 – 70 dB
Severe:	71 – 90 dB
Profound:	91 + dB

As you can see, the definitions and ranges that are used may vary. However, the specific terms used to define a range of hearing, and the cut-off values for those ranges themselves, are not critical for the purposes of this guide. What is important is the functional deficit that might be expected when an individual has less than normal hearing. For example, using general categories (for discussion purposes only, and not with reference to any specific scale presented above):

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25 RH Margolis, GL Saly: International Journal of Audiology, Volume 46, Issue 12 December 2007, pp 746 - 758

26 National Institute for Occupational Safety and Health: Inquiring Ears Want to Know; A fact sheet about your hearing test, http://www.cdc.gov/niosh/mining/pubs/pdfs/2008-102.pdf

27 American Speech/Language Hearing Association: Type, Degree, and Configuration of Hearing Loss, http://www.asha.org/public/hearing/disorders/types.htm

With a **mild hearing loss**, a person may be unable to hear soft sounds, or a whispered conversation in a quiet room. They likely would be able to hear a normal conversation in a quiet room but would have difficulty doing so in a noisy environment.

With a **moderate hearing loss**, a person may have considerable difficulty hearing a normal conversation in a quiet room. If there is background noise, the individual may not be able to understand many of the words without the ability to lip read.

With a **severe hearing loss**, a person may not be able to hear a conversation at all unless the speaker speaks loudly.

With a **profound hearing loss**, a person may not be able to understand speech even if the speaker speaks very loudly, and may only hear very loud sounds, such as a chainsaw.

Because we localize where sounds come from by a sophisticated mechanism in the brain that uses the time that a sound reaches one ear versus the other, as well as differences in loudness, the variety of frequencies, and a combination of these factors in the way sound reaches the two ears, hearing loss in one or both ears may disrupt the process of sound localization. Hearing aids may further disrupt this process of sound localization because they interfere with the timing, the intensity, and the complex variety of frequencies that the brain depends upon when attempting to identify the source of a sound. That is one of the reasons hearing aids may not be allowed under the medical standards for some jobs. Other reasons may involve the mechanics of hearing aids, including risk of damage to the electronics, battery failure, and sensitivity to water or dirt that may be encountered and present safety risks in particular work settings.

Does the hearing deficit pose a safety risk or undermine the efficiency of the job?

It may. Depending on the workplace hazards, or the functional requirements of the particular job, a hearing deficit may result in a heightened risk of injury or communication error if it becomes too severe. An analysis of the types of work place hazards, and the importance of accurate verbal communication, is necessary in order to determine the level of hearing necessary and the types of risk posed by a deficit in hearing.

Safety risks associated with a hearing deficit

Not hearing a verbal direction correctly, or missing the warning provided by a piece of equipment that is malfunctioning, or not knowing where a hazard is coming from

may present a major, or minimal, risk to an employee. Standards are established with the intent to take these factors into consideration.

Granting a waiver for a hearing deficit

A waiver may be granted when, in the judgment of a deciding official, an individual who does not meet a medical standard has demonstrated that they have sufficient experience, skills, or knowledge that they are able to carry out a job or function safely and efficiently despite their hearing deficit. In this situation, the requirement to meet the standard is waived for that individual for the current evaluation cycle, but the issue should be re-evaluated every time an examination or evaluation normally would be conducted for that individual, and every time there is a significant change in job duties or the work environment. This is intended to ensure that the individual continues to be able to perform the duties safely and efficiently. The factors discussed in the preceding sections should be considered when making this sort of decision.

Granting a waiver with restrictions for a hearing deficit

A waiver with restrictions may be granted when, in the judgment of a deciding official, an individual who does not meet a medical standard has demonstrated that they have sufficient experience, skills, or knowledge that they are considered to be able to carry out a job or function safely and efficiently despite their hearing deficit if certain steps or actions are taken that are intended to minimize the risks presented by that deficit. This may involve such measures as a requirement to use ear buds on hand-held radios, standing near the presenter at all safety briefings, or informing co-workers about the hearing deficit so they are aware of the possibility of miscommunications or missed warnings. These restrictions should be specified based on unique aspects of the hearing deficit, the circumstances of the job, and the environment in which it is to be carried out.

Reasonable accommodations for an employee with a hearing deficit

As noted on page 1, the Rehabilitation Act requires the accommodation of disabled individuals if the individual is qualified and the accommodation is reasonable. In other words, it would not impose an undue hardship on the operations of the agency. Determining if an accommodation would pose such hardship depends on:

"*(i) The overall size of the agency's program with respect to the number of employees, number and type of facilities and size of budget;*
(ii) The type of agency operation, including the composition and structure of the agency's work force; and
(iii) The nature and the cost of the accommodation."

According to the Act, reasonable accommodation "*may include, but shall not be limited to:*

(i) Making facilities readily accessible to and usable by individuals with handicaps; and

(ii) Job restructuring, part-time or modified work schedules, acquisition or modification of equipment or devices, appropriate adjustment or modification of examinations, the provision of readers and interpreters, and other similar actions."

These factors, among others that may be applicable to the individual and local circumstances of the job, must be considered when a determination is to be made regarding whether or not an accommodation can or should be granted. Any accommodation that is to be considered for an employee must have an established, direct, risk-avoidance or task-accomplishment value related to the specific medical condition(s). Most medical standards have associated with them some form of narrative or description of the "basis" for the standard, and it may be helpful to review this information when considering whether an accommodation is appropriate.

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Hearing Aids and Directional Hearing **Addendum 7**

The issue of significant hearing loss and either the use of, or the potential use of, hearing aids by employees in some job categories has prompted considerable discussion, expressions of concern, and differences of opinion regarding the acuity of hearing required by employees in those job categories and the appropriateness of hearing aid use by those employees while engaged in carrying out their job functions. Some of these job functions are carried out in a hazardous environment in which situational awareness may be critically important for safety, health, and efficient job performance. In addition, conditions may involve low light or altered light situations that interfere with visual cues in the environment, and result in a heightened dependence upon other sensory cues, such as hearing. In response, some medical standards programs have decided that "*hearing aides are not permitted … due both to the limitation in directional hearing afforded by hearing aides, and to the risk of dislodging of a hearing aid during critical or emergency periods when hearing must be acute.*" How critical all these factors actually are, however, relative to other physical findings and experience when it comes to employee safety and efficient job performance, has been weighted differently by different members of the reviewing boards for the programs. Such boards should review and confirm their perspective on the relative importance of hearing, including directional hearing, in order to assure that the decisions, standards, and recommendations made by the board reflect current science as well as practical experience.

A review of this subject by Lynn Cook, AuD (Doctor of Audiology), who is a board certified occupational audiologist and has served as an occupational audiology consultant for the Office of Personnel Management and the Department of the Navy for many years, provided consultative guidance in an illustrative case involving a firefighter with hearing loss who reported the use of hearing aids. In her written report, Dr. Cook recommended strongly against the use of hearing aids under firefighting conditions, and provided the following reasoning for her opinion:

> "*There are many reasons why hearing aids would be contraindicated in this type of arduous environment. Hearing aids are electronic instruments, and are thus subject to failure. Moisture is the hearing aid's worst enemy. Excessive sweating, as well as the mist or direct spray from water hoses may significantly affect the performance of these battery-driven devices. Particulate matter permeating the atmosphere in the vicinity of a forest fire may also wreak havoc with the internal operation of a hearing aid. [An individual might carry a cleaning kit] while on duty, however, there is clearly not always time to stop and perform hearing aid maintenance while performing the duties of a wildland firefighter. Headgear or helmets may impede the microphone port of the hearing aid, causing malfunction or feedback. Hearing aids are incompatible with the use of hearing protective devices, which are often required in this position as protection against overexposure to noise. (Duties may involve operation of a chainsaw, riding an ATV, or exposure to sirens and other hazardous*

noises.) Finally, and perhaps most importantly, hearing aids in their present form do not restore hearing to normal levels for those with sensori-neural hearing loss. For the majority of users, hearing aids are least efficient in the presence of background noise, just when they are needed the most. Furthermore, auditory localization, which is a critical skill for a wildland firefighter, is worse for those with hearing loss when hearing aids are used, as compared to unaided performance. This is due to the significant modification in intensity and (especially) timing characteristics of the signal necessary for adequate localization imparted by the hearing aid."

Whether or not these or similar factors apply to the functional requirements of other jobs must be considered carefully the respective boards. As summarized in the guide, *When an Employee Doesn't Meet the Agency's Hearing Standard* (see Tab 13 – Addendum 6 of this Handbook),

"*Because we localize where sounds come from by a sophisticated mechanism in the brain that uses the time that a sound reaches one ear versus the other, as well as differences in loudness, the variety of frequencies, and a combination of these factors in the way sound reaches the two ears, hearing loss in one or both ears may disrupt this process. Hearing aids may further disrupt this process of sound localization because they interfere with the timing, intensity, and complex variety of frequencies the brain depends upon when attempting to identify the source of a sound. That is one of the reasons hearing aids may not be allowed under the medical standards for some jobs. Other reasons may involve the mechanics of hearing aids, including damage to the electronics, battery failure, and sensitivity to water or dirt that may be encountered and present safety risks in particular work settings*."

The NFPA 1582 statement on the subject28 is unambiguous, noting that "*Hearing aid use is not considered a reasonable accommodation for the following reasons:*

(1) U.S. FDA regulations (21 CFR 801.420) require that all hearing aids be labeled with a statement that hearing aids do not restore normal hearing.
(2) Hearing aids are adjusted to restore one-third to one-fourth the measured loss in pure tone frequency range of 250 to 6000 Hz (National Acoustic Labs). This allows for improved hearing of speech but will not restore ability to hear or discriminate acoustic cues (such as collapsing wall/timber, gas leaks, traffic sounds) or radio broadcasts that are essential safety requirements at a fire or rescue scene.
(3) Hearing aids seriously compromise the ability to localize acoustic cues so that the source of impending danger is confused and safety is imperiled.
(4) Hearing aids are not calibrated to function in areas of high background noise (fire scene, rescue scene, traffic) or during radio transmissions.

28 National Fire Protection Association, NFPA 1582 Standard on Comprehensive Occupational Medical Program for Fire Departments, 2007 Edition, copyright 2006, page 52

(5) *Hearing aids are not reliable after submersion or heavy exposure to water.*"

These opinions regarding the limitations placed on the use of hearing aids in firefighting situations are supported by numerous studies that address the issue of hearing aids and directional hearing. There is some controversy about this subject, however, and alternative views and findings have been published as well (see References, below), though little research has been done that involves sound localization by hearing aid wearers while in the presence of background noise in a test setting, and none of the research I was able to locate addressed the issue of hearing aid failure due to water, particulate contamination, or loss of battery power, particularly in hazardous occupational settings. Specifically, no research was found that addressed the use of hearing aids under the known conditions of wildland firefighting, including very high levels of background noise and the risks involved in an untimely failure of one or more of the devices or their effect on sound localization. Of the articles that noted an ability to localize sounds while using a hearing aid, this ability generally was in spite of the hearing aid, not because of it (i.e., the hearing aid itself tended to impair sound localization, but when the hearing aid was not tightly fitted within the canal and the user could hear "around" the hearing aid they were able to localize sounds better than when the hearing aid fit tightly and prevented sound from bypassing the hearing aid). However, without the hearing aid, individuals have difficulty hearing at all, due to their basic hearing deficit. As a result, individuals who have a hearing deficit may localize sounds better without their hearing aids in place, if the sounds to be localized are loud enough to be heard above the hearing threshold, but without their hearing aids they may have difficulty even hearing the sounds needed for normal communication and detection of man-made or natural warnings.

Recommendation:
It is the recommendation of the DOI MO that is that the DOI medical standards programs not allow the use of hearing aids by employees while they are engaged in work-related activities in which hearing acuity and directional hearing are critical to the safety of that employee or others. Also, when hearing acuity is important for safety and efficiency, employees also must meet any hearing standards that have been established and implemented for their positions, or be granted a waiver under limited circumstances where this action, along with appropriate and specific restrictions, has been determined not to inordinately risk the individual's or coworkers' safety.

This recommendation is based on a perception by the DOI MO of the high degree of importance of hearing acuity by employees in some DOI positions, as well as the importance of their ability to localize sounds accurately under the conditions that may be encountered in carrying out the functional requirements of those positions, in order to optimize the safe and efficient performance of their duties.

References:

A) NFPA 1582 Standard on Comprehensive Occupational Medical Program for Fire Departments, 2007 Edition; National Fire Protection Association

B) "*When an Employee Doesn't Meet the Agency's Hearing Standard*," a guide prepared by Jay Paulsen and Lynn Cook as "An Overview for Federal Supervisors and Medical Standards Program Managers" (see attached)

C) A sample of pertinent articles includes:

1) Leeuw AR, Dreschler WA, Speech understanding and directional hearing for hearing impaired subjects with in-the-ear and behind-the-ear hearing aids, Scand Audiol 1987; 16(1):31-6: **While "*SRT* [speech recognition threshold] *values for the ITE* [in the ear hearing aid] *were significantly lower* [i.e., better] *than those for BTE* [behind the ear]," "*directional hearing was not improved by wearing an ITE*."**

2) Noble W, Byrne D, A comparison of different binaural hearing aid systems for sound localization in the horizontal and vertical planes, Br J Audiol 1990 Oct; 24(5)335-46: ***"ITC* [in the ear canal] *wearers … showed a deterioration in aided over unaided performance,"* and *"in all conditions, aided and unaided, vertical plane localization was markedly disrupted in all the hearing impaired groups"* and *"was also disrupted, to a lesser but still substantial extent, in aided conditions for the non-impaired listeners."***

3) Kimberly BP, Dymond R, Gamer A, Bilateral digital hearing aids for binaural hearing, Ear Nose Throat J 1994 Mar;73(3):176-9: ***"Both localization ability and speech-understanding-in noise are affected in the impaired listener" and when "localization performance is tested in impaired ears with conventional hearing aid fittings it is found to be worse than the unaided condition."***

4) Byrne D, Noble W, Glauerdt B, Effects of earmold type on ability to locate sounds when wearing hearing aids, Ear Hear 1996 Jun;17(3):218-28: ***"The choice of earmold can effect aided localization,"* and *"people with conductive or mixed hearing losses may have poor auditory localization and … this may be improved by the fitting of hearing aids."***

5) Noble W, Sinclair S, Byrne D, Improvement in aided sound localization with open earmolds: observations in people with high-frequency hearing loss, J Am Acad Audiol 1998 Feb;9(1):25-34: ***"Closed earmolds affected localization, particularly in the frontal horizontal plane, but performance was restored to***

***unaided levels in both of the open earmold conditions*" which "*are argued to improve aided sound localization … by permitting undistorted access to low-frequency interaural time/phase differences.*"**

6) Neuman A, Haravon A, Sislian N, Waltzman S, Sound-Direction Identification with Bilateral Cochlear Implants, Ear and Hearing Feb 2007;28:1: ***"sound-direction identification with bilateral cochlear implants is better than with a single implant."*** [Note: this study only addressed sound localization in individuals whose hearing assistance was provided by a cochlear implant]

7) D'Angelo W, Bolia R, Mishler P, Morris L, Effects of CIC Hearing Aids on Auditory Localization by Listeners With Normal Hearing, J of Speech Language and Hearing Research Dec 2001:44:1209-14: ***"The findings indicate a statistically significant decrement in localization acuity, both in azimuth and elevation, occasioned by the wearing of CIC* [completely-in-the-canal] *hearing aids. However, the magnitude of this decrement was small compared to those typically caused by other ear-canal occlusions, such as earplugs, and would probably not engender mislocalization of real-world sounds."*** [Note: this study was conducted with individuals who had normal hearing, and without background noise competition, rather than individuals with a hearing deficit for whom amplification was necessary in order to detect sounds]

Refraction-Correcting Surgical Procedures (e.g., LASIK) Addendum 8

Because of the increasing frequency with which employees and applicants are identified who have had a refraction-correcting surgical procedure, such as LASIK, and because of the potential impact of such procedures on both the vision of the employee and the physical integrity of the employee's eye(s), a protocol or standard for reviewing and medically clearing individuals who have had such a procedure has been requested by some medical standards programs.

LASIK surgery, which refers to **l**aser-**a**ssisted in-**si**tu **k**eratomileusis, is one of several methods that may be used for correcting refractive errors of vision. Other available methods include LASEK (**las**er **e**pithelial **k**eratomileusis), which may be used with people who have especially thin corneas; PRK (**p**hoto**r**efractive **k**eratectomy), which involves "shaving" the surface of the cornea, rather than the portion of the cornea under a flap of surface tissue; and RK (**r**adial **k**eratotomy), one of the earliest refractive surgical procedures, which is rarely done anymore due to its higher rate of complications and poorer results than the newer methods.

LASIK surgery was developed in 1990 in Italy, and was introduced into the US in 1991. It may be used for farsightedness, nearsightedness, or astigmatism, and the risk of significant complications has dropped from as much as 5% in the late 1990s to less than 1% now, with careful selection of surgical candidates. Complications, when they do occur, include such things as incomplete correction of the problem, dry eyes, halos around bright lights (particularly at night), irregularities in vision, and infection. Rupture of the eye (through the weakened cornea), which occurred in some cases of RK surgery, is not a complication that should ever occur with LASIK when it is properly performed. If the cornea has been shaved too thinly, which would weaken the structure and make it more susceptible to rupture, visual acuity will be altered as a result of the bulging of the cornea, which is the primary refractive structure of the eye (the lens is for fine tuning of the refracted light), so this complication can be detected by non-ophthalmologists or eye surgeons by the standard assessment of visual acuity. Between 80 and 90% of people who undergo refractive surgery are able to do without their corrective lenses, at least most of the time.

A Food and Drug Administration summary of LASIK surgery29 recommends the avoidance of "*strenuous contact sports … for at least four weeks after surgery*," and notes that it "*may take up to three to six months for … vision to stabilize after surgery*." Other complications, such as glare, dry eyes, sensitivity to light, blurred vision, and infection should all have been resolved (or detected and addressed as a result of standard follow up care) by a month or two following surgery.

29 http://origin.www.fda.gov/cdrh/LASIK/expect.htm

The California Peace Officer Standards and Training (POST) guidelines related to medical clearances following LASIK surgery are helpful on this point.30 These guidelines provide for clearances between one and three months after surgery if the individual is asymptomatic and has normal visual function.

Because of the consultative work provided to its various customer agencies, in late 2001 the Federal Occupational Health consulting physicians reviewed the issue of post-surgical medical clearances for individuals who have undergone LASIK and other refractive surgical procedures. Based on information gathered from their own ophthalmology consultants, the FOH physicians recommended waiting 3 months after LASIK surgery, 6 months after PRK, and 1 year after RK, before granting medical clearances for individuals involved in law enforcement work, due to their potential for physical interpersonal contact, strenuous activity (which raises blood pressure, and the pressure within the eye), and changes in altitude, depending on work assignments. One physician, who has worked with fighter pilots, indicated that medical clearances could be delayed as much as a year after refractive surgery. The FOH law enforcement program also requires documentation from the treating ophthalmologist that the individual's vision is stable and that the surgery has been considered successful.

Because no truly long-term follow up has been possible for the more recent forms of refractive surgery, including LASIK surgery, it is not possible to state with certainty what the risk may be for long-term complications, or which individuals are at most risk for complications beyond the immediate post-op period. Current recommendations may be need to be modified in the future as more information becomes available, and as surgical techniques evolve.

Recommendation:
Based on the above, and discussions with the Comprehensive Health Services medical consultant for several DOI medical standards programs, Dr. Lawrence Saladino, the recommendation of the DOI MO is the following:

In addition to meeting the specified vision requirements in the standards,

1) if LASIK surgery has been done **90 days or less** prior to the date of the medical clearance screening exam, a clearance from the individual's treating ophthalmologist should be required; such a clearance must make clear that the ophthalmologist has reviewed and is aware of the functional requirements of the employee's position, as presented in the table that accompanies the medical standards for that position, and is of the opinion that the individual is capable of

30 POST Medical Screening Manual, Chapter XI, Vision Guidelines (Revised 10/02), page XI-63 (http://www.post.ca.gov/selection/medical.asp

safely carrying out the requirements of the job under the conditions of employment that may be encountered; and

2) if LASIK surgery has been done **more than 90 days** prior to the date of the medical clearance screening exam, the basic findings of the medical history portions of the screening exam forms will be used to assess symptoms and possible complications that may have occurred, and which may have an impact on a clearance decision.

   Similar recommendations would apply to PRK and RK, with time periods being adjusted to 6 months for PRK, and 1 year for RK. For other procedures, consultation with the treating ophthalmologist would be necessary.

Periodicity of Physical Examinations — Addendum 9

The periodicity of physical examinations to assess an employee's medical status relative to an agency's medical standards has been the subject of considerable discussion over the years, primarily driven by factors of cost, administration, and logistics. As an example, one agency has noted that, since "*many* [employees] *have moved into non-arduous positions by middle age,*[reducing the frequency of examinations] *would eliminate considerable annual costs.*" 31 Another agency suggested that the periodicity of exams for permanent employees under age 35 be changed because they believed "*there will be little or no change in a permanent employee's occupational health between the* [initial or baseline] *exam …up to age 35.*" That agency recommended that subsequent or periodic "*examinations … not occur until age 35 with a five-year periodicity until age 45*," and then at "*age 45 the periodicity will decrease to every three years.*" 32

The required or recommended periodicity of medical evaluations of employees in arduous or safety sensitive occupations varies among many nationally-recognized organizations, as shown below, and reflects variations in agency philosophies, perceived risks to employees or to public safety, and historical precedent.

For federal ***wildland firefighters*** (WLFFs), the **Federal Fire and Aviation Leadership Council** (FFALC) decided that full medical examinations would use the following schedule:

Up to age 45:	baseline exam, then every 5 years
Age 45 and higher:	every 3 years.33

A brief medical history and physical evaluation also are provided to WLFFs annually.

For ***structural firefighters***, the **National Fire Protection Association** (NFPA) requires an initial physical examination, followed by an <u>annual</u> examination, by a physician.34

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31 An Analysis of Medical Standard Implementation for the USDA Forest Service: Fire and Aviation Management; Washington, DC, August, 2003, page 4.

32 September 11, 2003 memo from the Federal Aviation Leadership Council to Kevin Jensen, DDS, Program Manager, Interagency Wildland Firefighter Medical Qualification Standards

33 Medical Standards and Review Criteria for Medical Review Officers … Applicable to … : Wildland Firefighter (Arduous Duty), 06/08 version, http://www.nifc.gov/medical_standards/resources/medstand_review-criteria.pdf

34 National Fire Protection Association "Standard on Comprehensive Occupational Medical Program for Fire Departments," NFPA 1582, 2007 Ed., pp. 16-17.

For ***divers***, the **U.S. Navy** requires medical examinations on the following schedule:

Up to age 45:	every 5 years
Age 45 and higher:	every 2 years.35

For ***scientific divers***, the **National Oceanic and Atmospheric Administration** (NOAA) requires medical examination on the following schedule:

Up to age 50:	every 5 years
Age 50-60:	every 2 years
Age 60 and higher:	every 1 year.36

For ***law enforcement officers*** in most of its agencies, current **DOI** guidance calls for medical examinations on the following schedule:

Up to age 39:	every 3 years
Age 40-44:	every 2 years
Age 45 and higher:	every 1 year.37

For ***commercial drivers***, the **Department of Transportation** (DOT) requires medical examinations every 2 years (no specified starting age).38

For ***aircraft pilots***, the **Federal Aviation Administration** (FAA) requires exams every 6 months to a year (no specified starting age).39

For ***hazardous materials workers***, the **Occupational Safety and Health Administration** (OSHA) requires examinations every 1-2 years (no specified starting age).40

For ***underground mine inspectors***, the **Mine Safety and Health Administration** (MSHA) require examinations every three years (no specified starting age).41

For ***surface mining reclamation specialists***, the DOI **Office of Surface Mining** (OSM) requires examinations every three years (no specified starting age).42

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35 U.S. Navy Manual of the Medical Department (NAVMED P-117): Chapter 15: Medical Examinations.
36 NOAA Diving Program Medical Evaluation for Diving Checklist.
37 The United States Department of Interior Medical Standards and Review Criteria for Reviewing Medical Officers … Applicable to … National Park Service Commissioned Law Enforcement Officers
38 49 CFR 391.45, Persons who must be medically examined and certified.
39 14CFR61.23
40 29CFR1910.120
41 MSHA Administrative Policy and Procedures Manual, Volume IV, Chapter 1000
42 U.S. DOI Office of Occupational Health and Safety, Occupational Medicine Program Handbook, October 2005, Tab 12, Attachment D 7(b), page 2.

For ***offshore inspectors***, the DOI **Minerals Management Service** (MMS) requires examinations on the following schedule:

Age 29 and under	every 5 years
Age 30 – 45	every 3 years
Age 46 – 59	every 2 years
Age 60 and above	every year43

U.S. Forest Service correspondence stated that providing "*an initial baseline exam for all permanent employees is important in eliminating future medical claims. Studies would indicate (The maritime study [Shelton and van Hall] confirmed that most problems surface after the age of 40) that the frequency of the periodic exam could be reduced without increasing risk to employees, unless mitigating circumstances are found during the annual exam*."*44* Presumably, the "annual exam" referenced here includes the yearly completion of the current "Annual" form that is used in the WLFF program, along with its brief medical screening evaluation.

Some of the variation among agencies in the periodicity of medical examinations reflects their consideration of and responses to nationally-gathered and analyzed data on the risk of various age-related diseases, some of which is summarized here.

NHANES II (CDC, NCHS, and AHA) data for 1988-1994 shows the increase in prevalence of **cardiovascular disease** as a person ages (shown as a *percent* of the U.S. population within the specified age group):

AGE (in years)	GENDER	
	MALES	FEMALES
18-24	5.5	4.6
25-34	10.4	4.2
35-44	17.4	13.6
45-54	34.2	28.9
55-64	51.0	48.1
65-74	65.2	65.2

CDC/NCHS data for 1988-1994 shows the increase in prevalence of **hypertension** as a person ages (shown as *percent* of the U.S. population within the specified age group):

AGE	GENDER

43 U.S. DOI Minerals Management Service Manual, Chapter 7, Medical Standards Program, (sub)Chapter 3, Medical Examinations, page 24.
44 An Analysis of Medical Standard Implementation for the USDA Forest Service: Fire and Aviation Management; Washington, DC, August, 2003, page 4.

(in years)	MALES	FEMALES
20-34	8.6	3.4
35-44	20.9	12.7
45-54	34.1	25.1
55-64	42.9	44.2
65-74	57.3	60.8

National Vital Statistics System data for 1995-97 shows the increase in death rates for **cerebrovascular disease** as a person ages (shown as *deaths per 100,000 persons* in the U.S. population, by age group):

AGE (in years)	GENDER	
	MALES	FEMALES
15-24	0.5	0.4
25-34	1.8	1.7
35-44	6.7	6.0
45-54	19.6	15.4
55-64	52.4	38.7
65-74	154.6	120.8

National Vital Statistics System data for 1995-97 shows the increase in death rates for **chronic obstructive pulmonary disease** as a person ages (shown as *deaths per 100,000 persons* in the U.S. population, by age group):

AGE (in years)	GENDER	
	MALES	FEMALES
15-24	0.7	0.5
25-34	0.9	0.9
35-44	1.8	2.1
45-54	8.9	8.4
55-64	51.8	42.4
65-74	196.9	134.7

Current National Institute for Diabetes and Digestive and Kidney Diseases (Diabetes in America, 2nd edition) data shows the increase in prevalence of **diabetes** as a person ages (shown as *percent of persons in the age group* in the U.S. population, by age group):

AGE (in years)	Total ***Percent*** with Diabetes	American Indians	Non-Hispanic Whites	Hispanic
<20	0.16			
>20	8.2			
>65	18.4			
Total		15.1*	7.6	10.2

*Range (5.3 in Alaska to 25.7 in the Southeast)

It should be remembered that, with the exception of the last table, the above data reflects the U.S. population as a whole, and does not take into account such things as the "healthy

worker effect" in which the employed population tends to be healthier than the general population. It also does not identify ethnic differences, such as are demonstrated by the higher heart disease, cerebrovascular disease, and diabetes rates found among American Indians and Alaska Natives.45

This data indicates that approximately 10% of males and over 4% of females less than 35 years of age have some form of cardiovascular disease. More than 8% of males and 3% of females under 35 years of age have hypertension. The diabetes data is not readily available in a form that allows a breakdown for under and over 35 years of age, but the trend clearly is for an increase with age, and represents a significant health problem for some ethnic groups that are heavily represented in some DOI job categories, such as the firefighting community. These serious health problems may or may not be evident to an individual, yet may present significant health risks under physiological or emotional stress.

It is clear that, as age increases, there is an associated change in the health status of the general population, and some of those changes may be incompatible with safe and efficient performance of arduous and hazardous job duties. There is no solid or consistent data regarding the "correct" or "right" age at which the periodicity of medical exams should be changed in order to cost-effectively confirm an individual's health status as being sufficient for their safe and efficient job performance. However, limiting the frequency of medical evaluations for given age groups leaves employees in those groups with periods of time during which a small but potentially significant portion of the population at large has or develops health problems that pose a risk to the employee and to the agency. It also should be remembered that guidance regarding routine screening examinations for the general public, such as those recommended by the U.S. Preventive Services Task Force, are not the same as employment exams in which the agency has both a responsibility and a liability related to the employee, his/her co-workers, and the general public. Safety and efficiency of job performance are factors that come into play with an employment exam that may not apply to the general public.

Recommendation:
It is the recommendation of the DOI MO that the periodicity of examinations for arduous duty DOI employees take into consideration the experience and practices used by other agencies, and also carefully consider the nature and risks of the positions to be covered by the examination services, when those agencies establish or consider changing the periodicity of examinations for their employees.

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45 Indian Health Service: Trends in Indian Health 1998-1999, at http://www.ihs.gov/PublicInfo/Publications/trends98/trends98.asp

Pulmonary Function Testing **Addendum 10**

The value of periodic pulmonary function testing (PFT), or spirometry, in an occupational health setting for employees who have exposure to respirable particulates has been questioned by some agency representatives who have wondered if this might be an area in which cost savings could be achieved by reducing or eliminating the tests. However, national experts in the practice of occupational and pulmonary medicine continue to recommend the PFT as part of basic occupational medicine services, particularly where respiratory exposures occur or are likely to occur, such as in wildland firefighting. As stated by some experts in this field:

> "*Spirometry is now properly regarded as an integral component of any respiratory medical surveillance program. During the employment entrance evaluation, it can identify applicants with preexisting respiratory impairment to assure proper job placement and to assist in the selection of compatible respiratory protection. Periodic retesting of workers can detect pulmonary disease in its earliest stages, when corrective measures are more likely to be beneficial.*"[46]

The National Fire Protection Association (NFPA) recommends the PFT for evaluating the respiratory status of structural firefighters:

> "*The medical examination shall include examination of the following components: … (e) Respiratory system … (m) Pulmonary function testing*"[47]

and

> "*Pulmonary function testing can be helpful for individuals with a history of respiratory health problems and as a baseline for later comparison.*"[48]

The PFT also is well recognized as a vital tool in assessing pulmonary function in wildland firefighters who are exposed to airborne particulates. Dr. Paul Enright, a pulmonary disease specialist with the National Institute for Occupational Safety and Health (NIOSH), recently wrote:

> "*The most important long-term risk of inhalation of the products of combustion is a chronic obstructive lung disease (COPD). The best screening test for COPD is spirometry, so we at NIOSH highly recommend that spirometry be performed*

[46] McKay, Roy T. and Horvath, Edward P, Jr., "Pulmonary Function Testing in Industry" in Occupational Medicine, 3rd Edition, Carl Zenz, Ed., Mosby, 1994; p. 229.
[47] Medical Requirements for Fire Fighters, National Fire Protection Association, NFPA 1582, 1997 Edition, page 5.
[48] Ibid, page 18.

> *both for the baseline and periodic medical qualification examinations of individual firefighters, and for epidemiological studies of the medical effects of wildland firefighting. There is a large body of published research results demonstrating that exposures to respirable particles (both fine and ultrafine sizes, as found in smoke and fumes) cause airway inflammation. When these exposures are prolonged or repeated (or a high dose is inhaled on only one occasion in susceptible individuals), the airway inflammation may become long-lasting (chronic), causing respiratory symptoms and airway obstruction (measured by spirometry). … Professional organizations have published guidelines which recommend the use of spirometry for detecting airway obstruction in high-risk populations. ... Even when spirometry results are in the normal range, comparisons of year-to-year changes in lung function can detect the susceptible subset of 'rapid fallers' in exposed workers.*"49

Note that the comment from Dr. Enright includes reference to the ongoing role of the PFT in identifying changes in lung function over time.

As another example, the Victoria, Australia fire program requires a medical examination that includes an assessment of lung function, in addition to a review of an individual's respiratory history.50

Exposure to smoke is a recognized aspect of firefighting, and the impact of such exposure is not fully quantified. In Health Hazards of Smoke, Dr. Brian Sharkey stated that

> "*Breathing zone exposure studies of firefighters have shown occasional exposures in excess of OSHA permissible exposure limits. Studies of the health effects of smoke have found small but statistically significant changes in pulmonary function over the course of a season. The long-term consequences of these changes and the potential for more serious effects have not been determined.*"51

Dr. Sharkey also noted that

> "*A prospective study of health effects may be required to determine the long-term effects of exposure. The study will require a large initial population, entry level information on respiratory health and pulmonary function, accurate career-long exposure data, and many years to reach a conclusion.*"52

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49 Personal communication to Kevin Jensen, DDS (WLFF Medical Standards Program Manager) from Paul Enright, MD, Division of Respiratory Disease Research, Centers for Disease Control and Prevention (CDC/NIOSH); Sept 11, 2003.
50 Health and Fitness for Firefighters, Department of Sustainability and Environment, Victoria, Australia.
51 Sharkey, Brian J., "Respiratory Protection" in Health Hazards of Smoke: Recommendations of the Consensus Conference, April 1997, page 65.
52 Dr. Sharkey; ibid, pp. 44-45.

In the Medical Surveillance and Research section of the above document, Dr. Sharkey recommended "*periodic followup*" that "*employ[s] a schedule that includes periodic pulmonary function testing for continuing seasonal and career employees.*" The current program implementing the medical standards for wildland firefighter provides for the collection of information from medical histories, physical examinations, and pulmonary function testing (among other services) for several thousand federal firefighters who receive baseline or periodic exams through this program. It involves gathering this information in a secure, confidential, searchable database, from which data may be extracted and analyzed for individuals and for groups, and for single years or over as many years as the data continues to be gathered. Such data will be invaluable in carrying out the research intentions expressed in Health Hazards of Smoke, and helping to protect the health and safety of the federal employees who experience this smoke exposure as part of their work.

Recommendation:
The recommendation of the DOI MO is for agencies to obtain a PFT as part of the baseline and periodic examinations of applicants or employees in positions in which exposure to respirable particulates is expected to occur, in addition to obtaining an appropriate history and physical examination.

References:
The following additional references were provided by Dr. Enright, and reflect the rationale for the NIOSH recommendation.53

Pulmonary function and respiratory symptoms in wildland firefighters. J Occup Med. 1991;33(11):1163-7.

The short-term effects of smoke exposure on the pulmonary function of firefighters. Chest. 1990;97(4):806-9.

Pulmonary function and respiratory symptoms in forest firefighters. Am J Ind Med. 1997;31(5):503-9

Cumulative exposure to dust causes accelerated decline in lung function in tunnel workers. Occup Environ Med. 2001;58(10):663-9

Office spirometry for lung health assessment in adults: A consensus statement from the National Lung Health Education Program. Chest. 2000;117(4):1146-61.

American Thoracic Society. Screening for adult respiratory disease. Am Rev

53 Dr. Paul Enright; ibid.

Respir Dis 1983; 128:768-774.

Global strategy for the diagnosis, management, and prevention of COPD. Am J Respir Crit Care Med 2001; 163:1256-1276.

Medical screening using periodic spirometry for detection of chronic lung disease. Occup Med State of the Art Reviews 1993; 8:353.

Spirometry in the occupational setting. American College of Occupational and Environmental Medicine. J Occup Environ Med. 2000 Mar;42(3):228-45

Pulse Evaluation **Addendum 11**

In some situations, medical examinations and even preliminary clearance determinations may be carried out by individuals from a variety of health professional backgrounds. These include health aides (in Alaska), nurses, EMTs, and others, with other exams performed by physicians, nurse practitioners, or physician's assistants. Because there are no explicit values for cardiac pulse presented in the medical standards for some agencies, guidance was requested to assist these examiners when individuals are found whose pulse appears to be slow or fast (e.g. less than 40 or more than 100).

The standards generally do not specify a value for a normal pulse, requiring only that the applicant/incumbent is to have a cardiovascular system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. They should have a normal cardiac exam, however, and should not have a dysrhythmia (or arrhythmia, an irregular heart rhythm). An arrhythmia may include a pulse that is too slow, too fast, or with an irregular in pattern.

According to the American Heart Association,54

> "*A normal heart beats 60 to 100 times a minute. The term arrhythmia refers to any change from the normal sequence of electrical impulses, causing abnormal heart rhythms. This can cause the heart to pump less effectively. Some arrhythmias are so brief (for example, a temporary pause or premature beat) that the overall heart rate or rhythm isn't greatly affected. But if arrhythmias last for some time, they may cause the heart rate to be too slow or too fast or the heart rhythm to be erratic. The term tachycardia refers to a heart rate of more than 100 beats per minute. Bradycardia describes a rate of less than 60 beats per minute".*

This is important because

> "*Rapid heart beating can produce symptoms of palpitations, rapid heart action, dizziness, lightheadedness, fainting or near fainting. Heartbeats may have either a regular or irregular rhythm. Rapid heart beating in the ventricles — called ventricular tachycardia — can be life-threatening. The most serious cardiac rhythm disturbance is ventricular fibrillation, where the lower chambers quiver and the heart can't pump any blood. Collapse and sudden death follows unless medical help is provided immediately.*"

And

54 American Heart Association, http://www.americanheart.org/presenter.jhtml?identifier=560

> "*A heart rhythm that's too slow can cause fatigue, dizziness, lightheadedness, fainting or near-fainting spells.*"

However, a slow heart beat or pulse also may be due to high levels of aerobic conditioning, which allows the heart to beat slower and more effectively, and still meet the oxygen and nutrient needs of the body.

In order to avoid labeling a well conditioned employee who has a slow heart beat as a person with an arrhythmia (bradycardia) when being evaluated by a health care provider who may have limited training or experience, as well as to have a standard means of evaluating individuals in medical standards programs, some guidance may be useful.

Recommendation:
The recommendations of the DOI consultants who reviewed this issue for one DOI medical standards program were as follows:

1) It should be emphasized that there is no "pulse standard" in most DOI medical standards programs; the following measures are intended only as guidelines to help interpret the intent of the applicable standard ("*a cardiovascular system that is sufficient for the individual to safely and efficiently carry out the requirements of the job*").

2) Any employee who knows he/she has a condition that might be at odds with the written medical standards should bring to the screening site appropriate information from their medical records, or other clarifying information from their physician, which confirms their good health status despite their unusual condition or health findings.

3) If the pulse is found to be "irregular," the employee's records should be referred to the reviewing physician for further evaluation and a clearance determination.

4) If the pulse is faster than 100 beats per minute, the employee should be allowed to rest for 5 to 10 minutes, and then have the pulse rechecked; if the pulse is still elevated above 100, the employee's clearance should be deferred to the reviewing physician for further consideration.

5) if the pulse is in the 40 to 50 range, the employee is to "jog-in-place" for one minute, then recheck the pulse; if the pulse is still less than 50, the employee's clearance should be deferred to the reviewing physician for further consideration.

6) If the pulse is less than 40, the employee's clearance should be deferred to the reviewing physician for further consideration.

Seizures and Medical Clearance **Addendum 12**

Questions and concerns have been expressed regarding the specifics and the intent of the medical standards that cover seizures. This has included reference to an employee's having to document that he/she has a normal electroencephalogram. This addendum is intended to clarify the intent of the actual standards on this topic (e.g., "***… a nervous system that is sufficient for the individual to safely and efficiently carry out the requirements of the job***"), and to convey the revision that has been made in some DOI standards to the language used regarding the evaluation of individuals with a history of seizures.

The risk of recurrent seizures in an individual with a history of seizures may be quite high. According to one source55, 40 to 70 percent of people "*with a single, brief, generalized tonic-clonic seizure,* [even those] *who are found to have a normal EEG and no identified underlying cause for the seizure, will go on to experience further seizures if untreated…. Those most likely to remain seizure-free are those who: 1) have had no seizures for 2 to 4 years; 2) had few seizures before the condition was medically controlled; 3) required only one medication to obtain control; 4) have a normal neurologic examination; 5) have no identified structural lesion responsible for the seizures; and 6) have a normal electroencephalogram (EEG) at the end of the treatment period*." In other words, the seizure condition was quite limited: it is not current, it only resulted in one or a few seizure episodes, it was easily controlled medically, and it did not involve obvious or identifiable abnormalities in brain function or anatomy. The source for this information, Harrison's Principles of Internal Medicine, is a general internal medicine text. It is not specific to or focused on the field of neurology, but it references and depends upon credible specialty sources for its content. The information about recurrence risk was provided in the text of some of the DOI standards in order to convey a sense of the nature of the risk of recurrence carried by an individual with a history of seizures. It was not intended to be used as the basis for a clearance check list.

The reason this subject is so important for some DOI jobs is the concern raised by the combination of a heightened risk of an incapacitating neurological event under circumstances that may include inherent occupational danger and potential geographic isolation. This combination could have both personally lethal and programmatically disruptive consequences, as well as posing a risk to the health and safety of other people. The risk of a recurrent seizure in an individual with a known history of seizures is related to a variety of person-specific factors, including their history and pattern of prior seizures, the medical basis for the individual's seizure disorder, any known precipitating events for those seizures, their response to current or past treatments, and the likelihood of current or future exposures to environmental or occupational stressors or other potentially precipitating conditions. Several of these factors either will be unknown or

55 Harrison's Principles of Internal Medicine, 13th Edition, McGraw-Hill, Inc., San Francisco, page 2232

may be highly variable for any given individual, and an assessment of risk must be made for each employee with a seizure disorder. In general, the risk of a recurrent seizure can only be estimated, based on known factors, but even these estimated risks may be sobering from an occupational safety perspective.

A bibliography of seizure risk was prepared and distributed to the occupational medicine community on an Internet list server in 1999 by Steve Schwendeman, MD, a medical officer with the Federal Aviation Administration. A review of the data presented in abstracts from this bibliography shows a background risk for an initial unprovoked seizure in the general population to be between 2% over a 20 year period to about 4% over a lifetime. For individuals who have had one unprovoked seizure, the risk of a recurrence was reported to be between 14 and 36% during the following year, 29 to 48% over the next three years, and 34 to 56% over the next five years. The risk of recurrent seizures after an initial seizure due to a known cause, such as head trauma, meningitis, or encephalitis, ranged from 1 to 17 times the background risk (i.e., no increase, or up to 70% or more), depending on the cause of the initial seizure and the treatment required.

The National Fire Protection Association56 (NFPA) states in its most current medical standards for structural firefighters that the treatment "*of patients with epilepsy is only variably successful, with roughly 40 percent of patients attaining remission on anticonvulsant therapy. Remission is defined as 5 years without recurrence of seizure activity. Further complicating the fitness-for-duty issue is the fact that only 50 percent of patients who achieve remission do so without toxic side effects of the anticonvulsant drug*." The NFPA further states that as "*much as 10 percent of the population will experience at least one seizure in a lifetime, whereas less than 1 percent of the population qualifies for a diagnosis of epilepsy*," which they define as "*the presence of 'unprovoked, recurrent seizures – paroxysmal disorders of the central nervous system characterized by an abnormal cerebral neuronal discharge with or without loss of consciousness.*"'

In response to the high risk of recurrent seizures in individuals who have had one or more seizures in the past, the NFPA structural firefighter medical standards (NFPA-1582) state in section 6.15.1.2 that to "*be medically qualified a candidate shall meet all of the following:*

(1) No seizures for 1 year off all anti-epileptic medication or 5 years seizure free on a stable medical regimen
(2) Neurologic examination is normal
(3) Imaging (CAT or MRI scan) studies are normal
(4) Awake and asleep EEG studies with photic stimulation and hyperventilation are normal

56 National Fire Protection Association, NFPA 1582 Standard on Comprehensive Occupational Medical Program for Fire Departments, 2007 Edition

(5) A definitive statement from a qualified neurological specialist that the candidate meets the criteria specified [above] and that the candidate is neurologically cleared for fire-fighting training and the performance of a fire fighter's essential job tasks."

These NFPA requirements are more restrictive in terms of the required seizure-free period than is presented in some DOI medical standards, which state that:

1. the individual must be seizure-free for two years, with or without medication

Similar to that of the NFPA, however, current DOI standards commonly also call for the employee to:

2. present for MRO review at the end of that two year period the normal results of the individual's electroencephalogram (EEG); and

3. provide a written opinion from the individual's neurologist and, if necessary, a neurologist selected by the employing agency, regarding the ability of the individual to safely and efficiently carry out the specified requirements of the function, under the anticipated work conditions.

No comment is made in the various DOI medical standards that deal with seizure disorders that is directed toward the neurological examination or any imaging studies, though the some standards (e.g., the WLFF standard on the *Central and Peripheral Nervous System and Vestibular System*) call for an employee to demonstrate the he/she has normal neurological examination findings.

As a result of the identified and clearly increased risk for recurrent seizures in individuals who have a history of seizures, the medical standards for some of the DOI agencies were written to reflect this concern and to attempt to provide some guidance for gathering information to minimize the risk of an individual experiencing a sudden incapacitating and potentially lethal neurological event while engaged in their job duties, particularly arduous duties conducted in remote geographic locations or under circumstances where a lapse in attention or a physical collapse may result in injury or death. The intention of the medical standards programs has not been to dictate the medical diagnosis, treatment, or prognosis decisions made by an employee's personal neurologist, or to inappropriately restrict the work of an employee whose prior seizure condition has been fully stabilized and brought under control with medications that do not pose their own risks to his/her safety or effectiveness.

Recommendation:

The recommendation of the DOI MO is for the explanatory language provided in the medical standards generally titled *Central and Peripheral Nervous System and Vestibular System* to be clarified (where this has not already been done) for the benefit both for those within the medical standards programs as well as for those outside the programs, such as the employees themselves and their personal physicians. The recommended

clarification or modification is as follows, in the sections of the standards where possibly-disqualifying medical conditions are listed:

> *Any other condition not otherwise listed that may adversely affect safe and efficient job performance will be evaluated on a case-by-base basis.*
>
> *In order to be considered for a medical clearance to perform* [the job duties covered by the standard], *an individual with a history of one or more seizures must provide the following written information from a physician who is board certified in neurology. This information is to be provided on the physician's own letterhead, and must include:*
>
> *8) the physician's printed or typed name (i.e., legible), signature, and date;*
> *9) confirmation that the physician has reviewed and is familiar with the Essential Functions And Work Conditions Of* [the job covered by the standards] *(this is the 'job table' for this specific job);*
> *10) a summary of all current medications, along with any known side effects experienced or expected to be experienced by the employee;*
> *11) the known or suspected triggers or factors that may lead to seizure activity for the employee;*
> *12) the results of the most recent diagnostic testing, such as an EEG*
> *13) the employee's overall medical prognosis, related to his/her seizure disorder; and*
> *14) the estimated risk or likelihood of future seizure activity the employee might experience, of any degree of severity.*

…

This modification would fully replace what currently is presented at and follows the final item in the current standards for each DOI agency related to the *Central and Peripheral Nervous System and Vestibular System.*

References:

- Medical Standards and Review Criteria for Medical Review Officers" applicable to "Wildland Firefighter (Arduous Duty)"
- "Basis for the Medical Standards: Approved by the Federal Fire and Aviation Leadership Council for the Function of: Wildland Firefighter (Arduous Duty)"
- Harrison's Principles of Internal Medicine, 13th Edition, McGraw-Hill, Inc., San Francisco, page 2232
- Department of Transportation, Federal Highway Administration, Office of Motor Carrier, Publication No. FHWA-MC-88-042, July 1988
- National Fire Protection Association, NFPA 1582 Standard on Comprehensive Occupational Medical Program for Fire Departments, 2007 Edition

Sleep Apnea **Addendum 13**

The primary medical consultant for one of the large DOI medical standards programs reported at one point that the medical reviewers in his organization had "*been seeing a number of* [employees] *who have sleep apnea and are in various stages of compliance with therapy. Since some of these individuals may drive for work*," a request was made of the DOI MO "*to research what information should be critical to the clearance process*." The following is intended to address this issue.

Several of the medical standards from various DOI agencies may apply to the topic of sleep apnea, though it is not a condition that has been cited explicitly in most agencies' standards. One reason for this is that sleep apnea may be due to a variety of causes, primarily including either respiratory system or central nervous system factors. As a result, and for example, the applicable sections of the current standards for the Wildland Firefighter Medical Standards Program57 are quite general regarding sleep apnea, only specifying for the Respiratory System that:

> "*The applicant/incumbent must have a respiratory system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:*
>
> - *A physical exam of the respiratory system that is within the range of normal variation; and*
>
> …
>
> - *No evidence by physical examination and medical history of respiratory conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.*
>
> …"

Similarly, for the Central and Peripheral Nervous System and Vestibular System:

> "*The applicant/incumbent must have a nervous system that is sufficient for the individual to safely and efficiently carry out the requirements of the job. This may be demonstrated by:*
>
> …
>
> - *No evidence by physical examination and medical history of nervous, cerebellar, or vestibular system conditions likely to present a safety risk or to worsen as a result of carrying out the essential functions of the job.*
>
> *Conditions Which May Result In Disqualification Include, But Are Not Limited To, The Following Examples:*
>
> …

57 "Medical Standards and Review Criteria for Medical Review Officers" applicable to "Wildland Firefighter (Arduous Duty)," page 11 and 14.

> *17. Any other condition not otherwise listed that may adversely affect safe and efficient job performance will be evaluated on a case-by-base basis.*"

The issue of sleep apnea in these two standards falls under the general provisions related to having no evidence by physical examination and medical history of conditions likely to present a safety risk, or other conditions that may adversely affect safe and efficient job performance. Other standards that also may be applicable, depending on the specific cause of the sleep apnea and the treatment modality(ies) used for an individual employee, include the Medication Standard, and the Head, Nose, Mouth, Throat and Neck Standard, but the pertinent aspects for consideration under all of the various standards are similar.

Several aspects of an employee's work serve as the basis for these standards, and how they relate to sleep apnea. Using wildland firefighters as an example, the some pertinent Physical Exposure entries in the Job Table (the "*Essential Functions and Work Conditions of a Wildland Firefighter*," which is included in the standards document for WLFFs) include such factors as working around "*trucks and other large equipment*," "*limited/disrupted sleep*," and "*hunger/irregular meals*." Pertinent Time/Work Volume factors include "*long hours (minimum of 12 hour shifts)*," "*irregular hours*," "*shift work*," "*time zone changes*," and "*multiple and consecutive assignments*." A pertinent Physical Requirement example from the Job Table is the ability of the firefighter to "*drive or ride for many hours*" and, in general, it is important to recognize that the work of the firefighter may be carried out in extremely hazardous environments where lapses in attention or consciousness may have catastrophic consequences. The lack of adequate and refreshing rest may present a significant safety risk for WLFFs, given the inherent risks and challenges of this type of work. Similar concerns apply to many other DOI positions for which medical standards have been determined to be necessary.

Sleepiness, with its resulting implications for attentiveness, efficiency, and safety, may be due to inadequate time available for sleep, as well as to sleep that is insufficiently restful. Regardless of the specific cause, sleepiness on the job should be an area of concern for employees, managers, and safety professionals. Inadequate sleep time may be related to short periods of time allowed or allotted for the activity of sleep, or to the inability of the individual to achieve a state of restful sleep once it has been attempted, often as a result of internal or extraneous distractions (e.g., persistent or troubling thoughts, loud noises, airway irritants, or uncomfortable sleeping surfaces). Insufficiently restful sleep may be due to interruptions in the sleep process, such as that caused by medications, alcohol, excessive fatigue, or medical conditions, such as sleep apnea, the focus of this issue paper.

As summarized by the American Sleep Apnea Association58,

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58 Sleep Apnea Information, American Sleep Apnea Association: http://www.sleepapnea.org/info/index.html

"*The Greek word 'apnea' literally means 'without breath.' There are three types of apnea: obstructive, central, and mixed; of the three, obstructive is the most common. Despite the difference in the root cause of each type, in all three, people with untreated sleep apnea stop breathing repeatedly during their sleep, sometimes hundreds of times during the night and often for a minute or longer.*

Obstructive sleep apnea (OSA) is caused by a blockage of the airway, usually when the soft tissue in the rear of the throat collapses and closes during sleep. In central sleep apnea, the airway is not blocked but the brain fails to signal the muscles to breathe. Mixed apnea, as the name implies, is a combination of the two. With each apnea event, the brain briefly arouses people with sleep apnea in order for them to resume breathing, but consequently sleep is extremely fragmented and of poor quality.

Sleep apnea is very common, … and affects more than twelve million Americans, according to the National Institutes of Health [or between 2 and 4% of Americans59]. *Risk factors include being male, overweight, and over the age of forty, but sleep apnea can strike anyone at any age, even children. …*

Untreated, sleep apnea can cause high blood pressure and other cardiovascular disease, memory problems, weight gain, impotency, and headaches. Moreover, untreated sleep apnea may be responsible for job impairment and motor vehicle crashes. Fortunately, sleep apnea can be diagnosed and treated. Several treatment options exist, and research into additional options continues."

As can be seen, there are both acute and chronic effects of sleep apnea. While the chronic effects are important to the overall health of the employee, the acute effects may present more immediate risks to the health and well being of the employee and those with whom he or she interacts, such as fellow employees and the members of the public that the employee may encounter while driving on public roads. In one Australian study60, it was found that the sleepiest 5% of drivers who completed one of two sleepiness questionnaires "*had an increased risk of an accident*," with odds ratios for such accidents about double that of others in the study. This risk increased to about 2.4 times normal when the driver was using a sedating form of an antihistamine medication, such as that used for allergy symptoms. In a German study61, people with obstructive sleep apnea syndrome (OSAS) were found to "*have an accident rate between two and seven times*

59 Occupational screening for obstructive sleep apnea in commercial drivers, Gurubhagavatula, Indira, et.al., American Journal of Respiratory and Critical Care Medicine; 2004, Vol. 170, pp 371-6
60 Sleepiness, sleep-disordered breathing, and accident risk factors in commercial drivers, Howard, Mark E, et.al., American Journal of Respiratory and Critical Care Medicine; 2004, Vol. 170, pp 1014-21
61 Estimation of accident risk in obstructive sleep apnea syndrome (OSAS) by driving simulation, Orth, M., et.al., Pneumologie, 2002; 56(1):13-8

higher than normals." A Japanese62 study states that automobile "*accidents and near-misses were found in 54.5% and 50.0% in patients with OSAS*."

Probably the most common sign of obstructive sleep apnea is loud and chronic snoring, often with pauses in breathing that may be followed by choking or gasping as breathing resumes, though not everyone who snores has sleep apnea. Other signs and symptoms of sleep apnea include morning headaches, memory or learning problems, not being able to concentrate, feeling irritable, being depressed, having mood swings or personality changes, having to get up to urinate at night, and having a dry throat upon awakening.

Sleep apnea is diagnosed most appropriately by a review of the individual's medical history, the conduct of a physical exam, and consideration of the results of sleep studies, generally performed by a sleep specialist. The sleep study assesses brain activity, eye movement and other muscle activity, breathing and heart rate, the amount of air that moves in and out of the lungs during sleep, and the level or amount of oxygen dissolved in the patient's blood. The study requires at least one overnight stay in a sleep center, and the services of trained specialists, both to conduct the study and to analyze the results, so it is not compatible with a widespread screening process for large groups of people.

However, according to a study published recently in the Journal of Clinical Sleep Medicine,63 a single question ("*Please measure your sleepiness on a typical day: (0 = none, 10 is highest)*") could "*reliably predict normal and abnormal ESS* [Epworth Sleepiness Scale64] *scores respectively*," though not as well as a multiple sleep latency test65 (MSLT). Scores of less than or equal to 2 on the single question test were associated reliably with normal results, and scores of 9 or greater were associated with abnormal results, as compared to the ESS, and this simple method has been proposed by the study authors as a screening tool for excessive sleepiness, which may be due to sleep apnea or other causes.

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62 Daytime sleepiness and automobile accidents in patients with obstructive sleep apnea syndrome, Noda, Akiko, et.al., Psychiatry and Clinical Neurosciences 52 (2) , 221–222

63 Zallek, Sarah Nath, et.al., A Single Question as a Sleepiness Screening Tool, Journal of Clinical Sleep Medicine, April 15, 2008; 04:02; 143-148.

64 The Epworth Sleepiness Scale is a frequently used tool that utilizes eight focused questions; the tested individual provides estimates of their risk of dozing while engaged in a series of activities, with the level of risk given a point value. The total points provides a guide to whether a referral to a sleep specialist is warranted for further evaluation.

65 A multiple sleep latency test, or MSLT, is a type of study used to determine how quickly an individual falls asleep under controlled circumstances. The concept is that an individual generally will fall asleep in less time as their level of sleepiness increases. By measuring brain waves, heartbeats, eye and chin movements, and how quickly and how often the individual enters the rapid-eye-movement (REM) stage of sleep, sleep disorders may be detected. For more information, see http://www.sleepeducation.com/Topic.aspx?id=38, by the American Academy of Sleep Medicine.

Once diagnosed, there are several ways that sleep apnea may be treated. As presented by the National Institutes of Health / National Heart, Lung, and Blood Institute,66 these include lifestyle changes, mouthpieces, breathing devices, and surgery. No medications are felt to be effective for the specific treatment of this condition, but some medications, including nasal sprays, drops, and oral medications, may be used in treating associated or complicating factors, such as allergies. Lifestyle changes include: avoiding alcohol and sedating medications (unfortunately, these include medications that may be used for allergies that may complicate the sleep apnea condition); losing weight (if overweight or obese); sleeping on one's side, instead of on the back (which may allow the uvula and other soft tissues of the throat to drop back into the airway); and stopping smoking. A mouthpiece (a type of oral appliance) may help by keeping the airway clear. These may be over-the-counter devices, or they can be custom-fit plastic inserts that hold the tongue in place and keep the throat from collapsing on itself. Breathing devices include various versions of continuous positive airway pressure (CPAP) machines that use pressurized air hoses and a mask on the nose, or the mouth and nose, to maintain a flow air into the upper airways to stop the airways from becoming narrowed or blocked during sleep. Finally, surgery may be necessary in some cases of sleep apnea to widen breathing passages by removing, shrinking, or stiffening excess tissue in the mouth and throat, or by resetting the lower jaw to keep it from blocking the airways.

The problems of sleepiness related to sleep apnea can be reduced considerably with effective treatment. In a 1997 study67 of 547 sleep apnea patients conducted in France that used questionnaires covering the 12 months before starting and then after using CPAP for 12 months, the number of motor vehicle accidents decreased from 60 to 36, and near-misses decreased from 151 to 32 ($p<0.01$). The number of "*days in the hospital related to accidents*" went 885 days to 84 days over this time period.

Clearly, identifying individuals with undiagnosed or inadequately treated symptomatic sleep apnea could have important implications for safety. Effective methods for screening for this condition have been considered in a number of studies. As noted above, a single question tool was nearly as effective as the Epworth Sleepiness Scale at identifying individuals who suffer from significant sleepiness. In a 2004 study68 of 406 commercial drivers, "*a two-stage approach with symptoms* (of sleep apnea) *plus body mass index* [BMI] *for everyone, followed by oximetry for a subset*" of the population achieved "*91% sensitivity and specificity*" in identifying those with the condition and distinguishing them from those without the condition, with a "*negative likelihood ratio of*

66 http://www.nhlbi.nih.gov/health/dci/Diseases/SleepApnea/SleepApnea_LivingWith.html
67 Accidents in obstructive sleep apnea patients treated with nasal continuous positive airway pressure: A prospective study, Cresge, Lille, et.al., Chest; 1997, Vol. 112, No. 6; pp 1561-6
68 Occupational screening for obstructive sleep apnea in commercial drivers, Gurubhagavatula, Indira, et.al., American Journal of Respiratory and Critical Care Medicine; 2004, Vol. 170, pp 371-6

0.10."69 Without the second stage, which called for the use of oximetry (the article does not specify the method, but this likely was pulse oximetry, which uses a simple and painless finger clip device), and the screening depending only on the individual's symptoms and BMI, the results dropped, but were still "*81% sensitive and 73% specific, with a negative likelihood ratio of 0.26*."

The role of a medical screening program for DOI employees covered by medical standards is not to diagnose and treat employees. However, such a screening program does have an important role in assuring that employees who have been identified as having significant medical conditions, such as OSAS, have those conditions under sufficient control to allow them to carry out the essential functions of their jobs with safety and efficiency. The effective treatment of OSAS, when the condition has not been resolved successfully with lifestyle changes (e.g., weight loss, avoiding alcohol and sedating medications, stopping smoking, and changing sleeping position), appropriate use of allergy medications or decongestants, or surgical procedures, requires the ongoing use of oral appliances or breathing devices. All of these measures, besides surgery, require the ongoing, active participation of the individual if there is to be a likelihood of a successful outcome. If an oral device is required, the employee simply needs to have one or more of the devices with them and in use when sleeping, either during the preparation period leading up to deployment or while on assignment, in order to help to assure that they're getting sound sleep. When a breathing device is required, such as a CPAP machine, an employee may face a more significant challenge due to the requirements for carrying, cleaning, maintaining, and powering the electrical device while on travel status, and the device must be used on a regular basis in order to continue to achieve an effective level of sleep.

From a clearance perspective, what is important is for the Medical Review Officer (MRO) to achieve a degree of confidence that the employee's treatment has been (and continues to be) successful, and the medical condition is under sufficient control for the individual to be able to perform their duties safely and efficiently. This requires that they be able to obtain sufficient sleep on a regular basis to prevent a degree of sleepiness that increases the risk of accidents, whether due to motor vehicles or to lapses in judgment while using job tools or navigating in dangerous terrains.

In the opinion of the DOI MO, it may be impractical for some large DOI medical screening programs (MSPs) to screen with an eight question ESS, or even a two-step questionnaire/calculated BMI (and, if abnormal, oximetry), given the number of employees who may need to be screened each year who may need to drive, and who may be at risk of having a sleep disorder. And, since the MSP is not intended to serve a diagnosis and treatment management role, sleep studies and MSLTs do not belong as

69 The negative likelihood ratio, or NLR, is calculated as [false negative rate / true negative rate] and is used to test non-nested complementary hypotheses.

integral components of DOI MSP programs (even if performing them would not be prohibitively expensive and a logistical nightmare). However, the question remains regarding how an MSP should respond to cases of OSAS that have been diagnosed by others and identified to the MSP during the clearance process. The current method for identifying sleep apnea in some MSPs involves having employees answer questions, such as the following, when completing their Medical History and Exam Form:

#) Have you ever been diagnosed with sleep apnea?	☐No	☐Yes Date diagnosed: _____ Have you ever been advised to use a CPAP machine? ☐No ☐Yes, but I do not use CPAP now ☐Yes, and I do use CPAP now Other treatments: _____ Current status: _____

or:

#) Do you have any type of lung disease other than asthma (reactive airway disease, emphysema, COPD, sleep apnea, etc.)?	☐No	☐Yes Diagnosis: _____ Current status: _____ Have you used an inhaler within the past 2 years? ☐No ☐Yes (give dates, name(s) of inhalers and frequency of use)_____

The questions ask only for a diagnosis of sleep apnea and, in the first form, information about the use of a CPAP machine, other treatments, and the employee's current status. This may not be sufficient, given the significance of the problem.

Recommendation:
The recommendations of the DOI MO include the following: First, in the case of the second example presented above, consideration should be given to separating the issue of sleep apnea into its own question, distinct from that of the various respiratory conditions that are listed. Second, consideration should be given to modifying the subsequent information that is requested when a "Yes" response is made using either of the question formats, with language or questions similar to the following (see next page):

☐Yes
Date diagnosed: _____
Has your sleep apnea been treated with: (complete all that apply)
☐Medication. If so, which one(s): _____)
☐Surgery. If so, when? _____)
☐Oral appliance (mouthpiece, tongue guard, etc.)
Do you use the appliance currently?
☐No (why not? _____)
☐Yes
Have you ever been advised to use a CPAP machine?
☐No
☐Yes, but I do not use CPAP now
Why not? _____
☐Yes, and I do use CPAP now
Date started: _____
On a scale of 0 (not at all) to 10 (very much so), how sleepy are you on a typical day?_____

This expanded information on the current diagnosis and treatment approaches provided by the employee's own health care providers would allow the reviewing medical officer to understand more fully than at present the employee's current status regarding this sleep disorder, if it has been diagnosed. With this understanding, the physician could (and likely should) request follow up medical information from the employee's treating physician when a "Yes" response is given to a questions like one of those presented above, if the condition clearly is not under adequate control as evidenced by this initial information that has been provided. Follow up information from the treating physician should address the opinion of that physician regarding whether or not the employee can perform the essential functions of the job in a safe and efficient manner, as it relates to the diagnosis of sleep apnea and its treatment. In addition, for users of CPAP machines, the employee will need to explain the arrangements that have been made by him/her (and, as appropriate, his/her physician and local management) to operate and maintain the device in a safe and effective manner while on work assignments away from home.

Both treating and DOI reviewing/clearing physicians are encouraged to become familiar with the recommendations presented to the Federal Motor Carrier Safety Administration in evaluating the significance of an employee's sleep apnea condition and the adequacy of its treatment.70

70 Expert Panel Recommendations: Obstructive Sleep Apnea and Commercial Motor Vehicle Driver Safety, presented to the Federal Motor Carrier Safety Administration, January 14, 2008

Use of Coumadin (or "blood thinners") Addendum 14

The following information was gathered for use in a review for a DOI case involving a law enforcement officer, though the considerations may be useful for other non-LEO situations where an individual requires the use of anticoagulants and is assigned to duties that may be hazardous in nature. The information reflects a series of opinions from some cited court cases, as well as some of the stands that have been taken by some specified organizations.

The "opinions" cited are those of the consulting physicians in the respective cases, as noted below, or the summary opinions provided by the court, based on the input from the consulting physicians in those cases. Clearly, there are varied opinions on the issue of risk involved with anticoagulation for individuals whose work may involve hazardous activities. As a non-Internist / non-hematologist, the DOI MO has only attempted to weigh the input of some of these sources, and the way some agencies have dealt with this subject, and then apply personal perspectives and understanding of the possible conditions of employment, in assembling the information presented here. How much risk is too much risk? Who is shouldering that risk? What are the consequences of the risk? At this point in time, there do not appear to be definitive answers, and actions taken must remain a judgment call.

A United States Court of Appeals (District of Columbia Circuit) case, Neal F. Gasser v. District of Columbia (decided March 31, 2006), deals with a law enforcement officer (LEO), Mr. Gasser, who was denied promotion after having been placed on light duty following the start of his use of Coumadin for a thrombosis in an abdominal vein due to a clotting disorder. In that case, a consulting board certified Hematologist (a blood and blood clotting specialist), Dr. Joseph Catlett, concluded that Mr. Gasser "*had an increased risk of 'trauma-associated bleeding due to Coumadin use'*," but deferred to the agency physician regarding what action should be taken. Another physician, a board-certified Internist, Dr. Virginia Weaver, was then consulted. Dr. Weaver concluded that Mr. Gasser "*faced an 'increased risk for bleeding' as a police officer taking Coumadin*," and expressed concern "*that he might suffer severe trauma and excessive bleeding when 'engaging in high speed pursuits, participating in raids,* [or] *discharging firearms at persons*." She added that she believed Mr. Gasser "*would be a threat to coworkers and to the public* [because] *he could become incapacitated very quickly and then he would not be there to assist coworkers*." Mr. Gasser was not returned to full duty, which was a requirement for promotion, which led to the legal proceedings and the cited appeal. The testimony of the physicians regarding the bleeding risk was accepted by the court, and the case was decided in favor of the agency.

In another Federal court summary (Pickering v. City of Atlanta; 75 F.Suppl2d 1374, 1999), the court sided with the employing agency in a case involving the termination of a

corrections officer after she had been on light duty for a period of time, noting that her use of Coumadin "*put her at risk of acute blood loss if she suffered physical trauma*," and the "*risk of physical trauma… 'was an essential function of* [her] *job as a corrections officer'*."

The California Commission on Peace Officer Standards and Training (POST), in their 2005 Medical Screening Manual, notes that "*the use of warfarin* [Coumadin]*, increases the risk of serious injury as a result of physical trauma associated with subduing combative suspects and other essential job functions*." The Manual adds that such complications as bleeding "*into joints, the retroperitoneal area, and intra cranial bleeding are of concern*," though "*these complications will not cause incapacitation nor impair the performance of essential functions within the 5-15 minute time span typical of most critical incidents*," so "*these candidates do not generally pose a risk of harm to others while performing patrol duties*." However, while possibly not harmful to others, such known risks do relate to the possibility of harm to the LEO resulting from the performance of their jobs in the presence of their medically necessitated use of Coumadin. This is an issue that should be considered by the employing agency.

While they do not deal with law enforcement officers, similar concern related to the potential for trauma and associated bleeding, particularly by those taking Coumadin, is dealt with by the National Fire Protection Association in its Standard on Comprehensive Occupational Medical Program for Fire Departments (NFPA 1582, 2007 Edition). Under their standards, the requirement of a candidate for "*chronic or frequent treatment with*" drugs "*that prolong prothrombin time, partial thromboplastin time, or international normalized ration (INR)*" is designated as a "*Category A*" condition. Category A conditions are defined by NFPA 1582 as those "*that would preclude a person from performing as a member in a training or emergency operational environment by presenting a significant risk to the safety and health of the person or others*." As discussed by NFPA 1582, "*anticoagulation compromises the* [individual's] *ability to perform essential job task 8 due to the risk of internal bleeding from trauma with potential for rapid incapacitation from shock or central nervous system hemorrhage… .*" Job task 8 includes "*Climbing ladders, operating from heights, walking or crawling in the dark along narrow and uneven surfaces, and operating in proximity to electrical power lines and/or other hazards*;" this task is one of 13 specified for structural firefighters in NFPA 1582 and, obviously, is written with the role of structural firefighters in mind. However, the risk factors addressed in these standards may have value in the consideration of other positions or functions that involve activities, or potential activities and risks, that may present similar types of risks.

The U.S. Navy, in its Manual of the Medical Department (NAVMED P-117), Chapter 15 (Physical Examinations and Standards for Enlistment, Commission, and Special Duty) states in section 15-54 that a current "*history of coagulation defects (*ICD-9] *286) … is disqualifying*" for individuals seeking to join the Navy in any enlisted, commissioned, or

special duty status. ICD-9 286 refers to the International Classification of Diseases (Ninth Revision) and condition 286, coagulation defects, which are defined as "*Hemorrhagic and thrombotic disorders that occur as a consequence of abnormalities in blood coagulation due to a variety of factors such as coagulation protein disorders; blood platelet disorders; blood protein disorders or nutritional conditions.*"

The Department of the Interior's U.S. National Park Service has approved and implemented medical standards for its Park Ranger LEOs that any "*condition or post-surgical management that requires the use of Coumadin or other anti-coagulants is disqualifying*."

In summary, whether or not the risks of an individual's use of this medication are of an acceptable level must be determined by the agency, though different experts in the pertinent fields of Hematology and Internal Medicine may disagree about the significance of those risks for LEOs and other individuals whose jobs involve the potential for physical trauma. The opinion of the DOI MO, as a non-Hematologist / non-Internist, is that the weight of expert opinion indicates the risk of harm is sufficiently great that agencies should carefully consider whether or not to allow an individual who must take Coumadin to serve in the capacity of an unrestricted, full duty LEO or any other position or function that involves the potential for physically-hazardous activities.