NASA Procedural Requirements

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COMPLIANCE IS MANDATORY

NASA Occupational Health Program Procedures w/Change 2 (05/17/2013)

Responsible Office: Office of the Chief Health & Medical Officer

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Change Log
NPR 1800.1C, NASA Occupational Health Program Procedures w/Change 2 (05/17/2013)

Change #	Center	Date Approved	Description
1	Office of the Chief Health and Medical Officer	12/31/2009	The following directives were added to paragraph "P.6 Cancellation" because these documents were consolidated in the revision of NPR 1800.1C: 1) NPR 1810.1A, Health Services for International Travel or Assignment 2) NPD 1810.2B, NASA Occupational Health Medicine Program (Revalidated 3/29/04) 3) NPD 1820.1B, NASA Environmental Health Program (Revalidated 3/29/04) 4) NPD 1830.1B, NASA Employee Assistance Program (Revalidated 3/29/04) 5) NPD 1840.1B, NASA Worker's Compensation Program (Revalidated 3/29/04) 6) NPD 1840.1, Management of Workers' Compensation Injuries and Illnesses w/Change 1
2	Office of the Chief Health and Medical Officer	5/17/2013	The removal of language in Chapter 7 as it relates to a rating system for OCHMO reviews which has no impact on NASA

Preface

P.1 Purpose

a. This NASA Procedural Requirement (NPR) describes occupational health program procedures necessary to effectively carry out the mission of the Office of the Chief Health and Medical Officer as specified in Section 4.16.1 of NPD 1000.3C, The NASA Organization and to ensure that the scope and quality of services provided by Occupational Health Program (OHP) personnel at NASA Centers are optimal. Both OHP professionals and allied professionals throughout the Agency shall utilize these procedures, as appropriate, in their daily tasks to assure the health of employees and a safe work environment.

b. Where conflicts exist between other NASA health and safety requirements, Occupational Safety and Health Administration requirements and other Federal, state, or local regulations, the most protective requirements shall apply.

c. OHP services shall encompass six constituent areas, all working synergistically to support employee health, yet functioning under different legal statutes and requiring unique professional expertise and different process procedures and outcome metrics. These six constituent programs include Occupational Medicine, Environmental Health, Radiological Health, Health Promotion and Wellness, Workers' Compensation, and Employee Assistance.

d. Recordkeeping is one area that overlaps all six of the OHP constituent areas. While each area has recordkeeping requirements specific to it, there are a few requirements that apply across the board. All OHP records (e.g., medical, industrial hygiene, and compensation claims) shall be safeguarded, maintained, and dispositioned in accordance with the following:

(1) NPR 1441.1, NASA Records Retention Schedules;

(2) 5 U.S.C. 552a, the Privacy Act of 1974, as amended; and

(3) The Health Information Management System (HIMS) in NASA's "Privacy Act; Annual Notice and Amendment to Systems of Records," published in the Federal Register.

P.2 Applicability

This NPR is applicable to NASA Headquarters, NASA Centers, and Component Facilities, as well as to the Jet Propulsion Laboratory and to NASA contractors to the extent specified in their contracts.

P.3 Authority

a. 29 U.S.C 668, Section 19 of the Occupational Health and Safety Act of 1970, as amended, Programs of Federal Agencies.

b. 5 U.S.C 7901, Health Services Programs.

c. Executive Order 12196, dated February 26, 1980, Occupational Safety and Health Programs for Federal Employees, 3 CFR (1980 Compilation).

d. 29 CFR Part 1960, Basic Program Elements for Federal Employee Occupational Safety and

Health Programs and Related Matters.

P.4 Applicable Documents

a. 5 U.S.C. 552a, the Privacy Act of 1974.

b. NPD 1800.2, NASA Occupational Health Program.

c. NPR 1000.3, The NASA Organization.

d. NPR 1441.1, NASA Records Retention Schedules.

e. NPR 8715.1, NASA Occupational Safety and Health Program.

f. NPR 8621.1, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating and Recordkeeping.

g. NPR 8715.2, NASA Emergency Preparedness Plan Procedures and Guidelines.

P.5 Measurement/Verification

Triennial audit process and interim Center self audits.

P.6 Cancellation

a. NPR 1800.1B, NASA Occupational Health Program Procedures, dated January 30, 2007.

b. NPR 1810.1A, Health Services for International Travel or Assignment

c. NPD 1810.2B, NASA Occupational Health Medicine Program (Revalidated 3/29/04)

d. NPD 1820.1B, NASA Environmental Health Program (Revalidated 3/29/04)

e. NPD 1830.1B, NASA Employee Assistance Program (Revalidated 3/29/04)

f. NPD 1840.1B, NASA Worker's Compensation Program (Revalidated 3/29/04)

g. NPD 1840.1, Management of Workers' Compensation Injuries and Illnesses w/Change 1

/s/
Richard S. Williams

Chapter 1. Policy

1.1 Designated Agency Safety and Health Official

1.1.1 The Chief Health and Medical Officer (CHMO) serves as the Designated Agency Safety and Health Officer (DASHO) liaison to the Department of Labor (DoL), as required by Executive Order 12196.

1.1.2 All official, Agency-related communication with Occupational Health and Safety Administration (OSHA) shall be through the DASHO. The DASHO shall be copied on, or otherwise informed of, all Center communication with OSHA.

1.1.3 In addition, the Office of Safety and Mission Assurance shall be copied on all correspondence to help ensure configuration management of policy and processes for safety.

1.2 Medical Waiver Authority

1.2.1 The CHMO shall serve as the Agency Health and Medical Technical Authority (HMTA) for all health and medical technical requirements, standards, and matters, possessing the final waiver authority for any NASA health and medical requirement.

1.2.2 The CHMO delegates authority to each NASA Center's Chief Medical Officer/Medical Director (where appropriate).

1.2.3 The CHMO shall be responsible for ensuring the health and safety of NASA employees in space and on the ground by developing medical policy, establishing guidelines for health and medical practice in the Agency, providing oversight of health care delivery, assuring professional competency Agency wide, and reviewing and approving research requirements and deliverables.

1.2.4 Center Chief Medical Officers/Medical Directors (where appropriate) in collaboration with the NASA Center's occupational health Contracting Officer Technical Representative (COTR) shall be responsible for:

a. Ensuring appropriate credentials reviews of all health care providers stipulated in all statements of work for contracts procuring occupational health services.

b. Notifying the Agency CHMO of cases of impaired providers and actions taken as they occur.

1.3 Required Annual Reports

1.3.1 OSHA Report

1.3.1.1 NASA shall submit an annual report to the Secretary of Labor containing the status of NASA's Occupational Health Program (OHP) during the preceding year, goals and objectives for the current year, and a plan for achieving those goals. The procedure for collecting the requisite data shall be as follows:

a. NASA OHP shall forward the format to the Centers each year as soon as it is received from OSHA/DoL.

b. NASA installations shall complete the form and return it to Office of the Chief Health and

Medical Officer (OCHMO) by the designated deadline.

c. The report shall be jointly prepared by the Office of Safety and Mission Assurance and the OCHMO, signed by the DASHO, and submitted to OSHA by the January deadline.

1.3.2 Cost and Staffing Report

1.3.2.1 A Cost and Staffing Report shall be compiled annually as part of the OCHMO internal budget process to support funding for the NASA OHP. Each Center shall submit to OCHMO the following data:

a. The number of staff, civil service or contractor, and the man-hours utilized for each professional discipline reported.

b. Data shall include both occupational medicine and environmental health staffing.

1.3.3 Employee Assistance Program (EAP) Report

1.3.3.1 Center EAP clinicians in conjunction with their occupational health COTR shall submit EAP statistics to the Agency EAP manager quarterly or as requested. EAP statistics shall, at a minimum, include the Center, number and types of EAP cases, referral source, primary presenting issue, and assessment/final disposition.

1.3.3.2 Data shall be collected electronically whenever possible.

1.3.4 Drug-Free Workplace Program

1.3.4.1 The overall responsibility for NASA's Drug-Free Workplace Program (DFWP) lies with the Office of Human Capital Management (OHCM). The OCHMO shall support this program by developing, administering, and evaluating the Agency-wide Medical Review Officer (MRO) function as it relates to drug testing, as well as by mandatory referrals to the EAP when positive test results are noted.

1.3.4.2 The Center MRO is usually the Center Medical Director. The MRO shall receive test results directly from the certifying drug test laboratory, confirm positive test results, and review as needed with the Agency MRO, who is appointed by the CHMO, prior to notifying the Center. The validity of positive and negative test results shall be confirmed administratively. When the Center MRO is someone other than the Center Medical Director, the Agency MRO shall approve the person's credentials.

1.4 Credentialing, Education, and Training of Occupational Health Professionals

1.4.1 Policy

1.4.1.1 All Occupational Health (OH) professional disciplines (Occupational Medicine (OM), Environmental Health (EH), Employee Assistance Program (EAP), Workers' Compensation (WC), Fitness, etc.) shall maintain all appropriate credentials and licenses and remain current in their respective fields.

1.4.2 Responsibilities

1.4.2.1 The CHMO shall provide oversight in the area of credentialing, education, and training of OH professionals and shall assess compliance with this policy.

1.4.2.2 The CHMO shall maintain minimum credentialing, education, and training requirements for each primary OH discipline.

1.4.2.3 The CHMO shall work with the NASA Centers to determine the most appropriate education and training opportunities. CHMO shall provide accessible professional development training opportunities and resources on a routine basis to include training courses, video conferences, meetings, Web-based training, and other educational opportunities. CHMO shall actively promote appropriate professional certifications in all disciplines by emphasizing certification, procuring resources to prepare for certification, and by recognizing certified personnel.

1.4.2.4 Centers shall establish and maintain effective organizations to fulfill OH requirements using professionally qualified persons and allocating sufficient resources for the OH program. NASA Centers shall ensure all current professional licensures, certifications, and accreditations necessary for professional operations are maintained. Maintaining required licensure and certification dictates certain continuing education requirements for OH professionals.

1.4.2.5 Center OH managers shall conduct assessments of professional and career development needs to determine the training required of their OH staff. These needs shall be communicated to Center management in an effort to secure adequate resources.

1.4.3 Process Description

1.4.3.1 NASA installation hiring policies shall comply with Federal and NASA requirements for professional education standards and, where applicable, with state licensure statutes.

1.4.3.2 NASA installations shall hire OH professionals with experience and credentials commensurate with program requirements and minimum standards as established by the OCHMO.

1.4.3.3 NASA Center OH managers shall design, implement, and maintain minimum education, training, and credentialing requirements for all OH program personnel, civil service personnel, or contractor commensurate with program requirements and minimum standards as established by OCHMO.

1.4.3.4 NASA Center OH managers shall ensure a process is in place for evaluating compliance with all OH program education, training, and credentialing requirements. This includes both civil service personnel and contractor personnel.

1.4.3.5 The Center OH managers shall encourage and support all Agency educational and training activities as budgets permit such as the annual OH Meeting, Safety Directors and Occupational Health Managers meeting, Video Teleconferencing System, and OCHMO sponsored training courses. This includes both civil service personnel and contractor personnel.

1.4.3.6 The OCHMO shall perform an annual training needs assessment of OH personnel at the Centers to determine what topical areas are needed most for the training of OH staff across NASA. The results of this assessment shall be used to develop an annual training plan.

1.4.3.7 The OCHMO shall arrange and provide a variety of training programs. All programs, when appropriate, shall have continuing education credit commensurate with the OH discipline receiving the training. These training programs include, but are not limited to, the following:

a. Assuring availability of the most current and authoritative written reference materials.

b. Providing ready access to intercenter and external consultants.

c. Providing regular live and taped audio and video training that complies with Section 508.

d. Planning an annual Occupational Health Meeting covering all OHP disciplines.

e. Promoting intercenter and external events (courses, workshops, seminars) on essential topics by discipline experts.

f. Conducting hands-on training in procedures and simulation exercises to refresh and augment skills where handling of actual events is infrequent.

1.4.3.8 Questions regarding training requirements shall be directed to the individual organization training coordinator or other entity responsible for providing training.

1.5 Web Site Initiatives and Capabilities

1.5.1 Policy

1.5.1.1 The NASA OH Web site (ohp.nasa.gov) shall be the primary resource for quick dissemination of OH related information to OH personnel to assist OCHMO in communicating to NASA Centers and facilities.

1.5.2 Responsibilities

1.5.2.1 The CHMO shall be responsible for maintaining the NASA OH Web site as a means of disseminating information and providing guidance to NASA Centers and Facilities on OH related topics and policies.

1.5.2.2 The OH Support Office shall be responsible for the design and management of the NASA OH Web site.

1.5.2.3 The CHMO, OCHMO, and OH Support Office discipline-specific subject matter experts are responsible for managing the technical content of the Web site.

1.5.2 Process Description

1.5.3.1 The NASA OH Web site content shall be delivered in a reliable and responsive manner while meeting all of NASA's security, accessibility, and data privacy regulations.

1.5.3.2 The content of the OH Web site shall be designed by the appropriate discipline-specific experts to meet the needs of the NASA OH community.

1.5.3.3 The OH Web site shall be updated on a regular basis with current health news, OH discipline-related information, health promotion resources, and policies.

1.5.3.4 The OH Web site shall provide annual OH meeting information and registration for attendees.

1.5.3.5 The OH Web site shall maintain an archive of meetings, health promotion calendars, articles of interest, and OH Newsletters.

1.6 NASA Occupational Health Program Model Statements of Work

1.6.1 Policy

1.6.1.1 NASA Centers shall manage and organize OH programs via support service contracts according to Center's mission needs.

1.6.1.2 Center OH support contracts shall incorporate the service contract requirements for each OH discipline as required in the NASA OHP Standardized Statement of Work (SOW).

NOTE: This document is available on the policies page of the OH Web site [http://www.ohp.nasa.gov] for Center personnel who are preparing the requirements for OH support contracts at the Centers.

1.6.2 Responsibilities

1.6.2.1 The CHMO shall periodically revise the NASA OHP SOW document and ensure that it is current with new regulations or significant issues within the OH professions and assess compliance with this policy.

1.6.2.2 The Centers shall be responsible for ensuring their OH service contracts incorporate the minimum service requirements listed in the SOW as they are applicable to their Center's OH program needs.

1.6.3 Process Description

a. When a Center OH service contract is being prepared, the Center shall incorporate all applicable OH service requirements into the contract as identified in the NASA SOW.

b. When Center operations require deviations from the minimum OH requirements as stated in the SOW, they shall request a variance from OCHMO. Any variances must be submitted in writing to the Director of Occupational Health (DOH) for review and approval by the CHMO.

1.7 Support of Federal-wide and Interagency Initiatives

1.7.1 Policy

1.7.1.1 All NASA Centers shall adopt polices/programs in support of a healthy work environment as directed by OCHMO based on guidance from the Office of Personnel Management (OPM) pertaining to work/life issues.

1.7.2 Responsibilities

1.7.2.1 The CHMO and OHCM shall be responsible for collaborating with and supporting the OPM agenda.

1.7.2.2 The CHMO shall provide guidance and technical support to the Center COTRs as they develop their Center specific health and work/life policies. The CHMO shall communicate all initiatives from the OPM that NASA is supporting.

1.7.2.3 The COTR and the Center Medical Director shall actively support all CHMO-directed health and productivity initiatives and ensure required metrics are collected and reported to CHMO.

1.7.2.4 The Health Promotion Workgroup (HPW) Team members shall coordinate all efforts at the Center level and complete an evaluation of the process at its closure.

1.7.3 Process Description

1.7.3.1 In cooperation with the OHCM, the CHMO shall communicate all Agency-sanctioned work/life and health and productivity initiatives through the HPW Team.

1.7.3.2 The Center's HPW Team representative shall collaborate with the COTR and Medical

Director to plan and effectively implement all Agency-directed initiatives.

1.7.3.3 The Center HPW Team representatives shall collect and analyze their metrics and report the required data points to the COTR and the Medical Director prior to reporting to the OCHMO.

1.8 Occupational Health Program Audit Overview

1.8.1 Policy

1.8.1.1 The audit process shall assess compliance with all applicable regulations and requirements at all NASA Centers and facilities for the following disciplines: OM, Industrial Hygiene (IH), Health Physics, Food Sanitation, Fitness, EAP and WC.

1.8.1.2 The audit team shall conduct on-site Center audits as per Chapter 7 of this NPR.

1.8.2 Responsibilities

1.8.2.1 The CHMO shall assess the effectiveness of the Agency's OH programs at all NASA Centers and Facilities. To carry out this responsibility, it conducts periodic audits of NASA Center OH programs.

1.8.2.2 The CHMO shall perform audits as per the requirements specified in Chapter 7 of this document.

1.8.2.3 Center OH Managers shall be responsible for providing adequate provisions and resources in support of an Agency audit. This includes providing documents in a timely fashion, providing on-site office accommodations, being present for the on-site audit activities, and responding in a timely fashion to audit findings.

1.8.3 Process Description

1.8.3.1 For a detailed description of the audit process, refer to Chapter 7 of this document.

Chapter 2. Occupational Medicine

2.1 Occupational Medicine, General

2.1.1 Policy

2.1.1.1 The Occupational Medicine (OM) clinics shall meet all applicable requirements of Federal and state regulations, professional standards, NASA Medical Quality Assurance (QA) Program, and other NASA program requirements.

2.1.2 Responsibilities

2.1.2.1 The Chief Health and Medical Officer (CHMO) shall establish policy requirements for the OM programs.

2.1.2.2 The Director of Occupational Health (DOH) shall ensure the oversight, advocacy of Center OM programs through regular periodic audits.

2.1.2.3 The Medical Contracting Officer Technical Representative (COTR) at each Center shall ensure appropriate funding for meeting programmatic requirements within the scope of service being provided.

2.1.2.4 The Center Medical Director shall be responsible for meeting all Federal, state, and NASA requirements.

2.1.2.5 The NASA Occupational Health (OH) personnel shall notify the CHMO when a Medical Director change occurs at their Center.

2.1.3 Process Description

2.1.3.1 Center OM clinics shall refer to the NASA OH Web site (www.ohp.nasa.gov) for recommendations on meeting program requirements. NASA OH Document, Guidelines, and Checklists are located on the policies page of the Web site.

2.1.3.2 Center OM clinics shall have emergency preparedness policies and procedures in place for emergency operation of the clinic and support of the Center Emergency Preparedness Plan. The OM clinic roles and responsibilities shall be integrated into the Center Plan.

2.1.3.3 The Designated Agency Safety and Health Officer (DASHO) shall be copied on, or otherwise informed of, all Center communication with the Occupational Safety and Health Administration (OSHA) as specified in 29 CFR 1904.39(a) and in the case of an arrival of an OSHA Inspector on Center.

2.1.3.4 The NASA CHMO and DOH shall be informed of any of the following medical incidents at NASA Centers from:

a. Any employee death on duty;

b. Cluster investigations;

c. Infectious disease outbreaks;

d. Automatic External Defibrillator (AED) use and outcome;

e. Quality of care issues;

f. Workplace violence; and

g. Medical incident or evacuation of employee on international travel.

2.1.3.5 Center OM physicians and other healthcare providers (e.g., nurse practitioners, physician assistants) shall be appropriately credentialed and privileged in compliance with the requirements of the NASA Medical QA program. The OM staff shall be trained for the tasks they are required to perform and shall meet all regulatory training requirements. Other training and certification requirements can be found in the NASA Occupational Health Program Model Statements of Work (SOW) located on the policies page of the NASA OH Web site (www.ohp.nasa.gov).

2.1.3.6 Center COTRs shall be responsible for advocating adequate budget and resources for OM clinics to provide services. If a reduction in budget has a significant impact on the delivery of OM services, the Office of the Chief Health and Medical Officer (OCHMO) shall be informed.

2.2 Medical Quality Assurance

2.2.1 Policy

2.2.1.1 All NASA OM clinics shall establish a medical quality assurance program that meets all of the NASA Medical QA Program.

2.2.2 Responsibilities

2.2.2.1 The CHMO shall set medical quality assurance program policy.

2.2.2.2 The DOH shall ensure compliance with OH medical QA policy through regular periodic audits.

2.2.2.3 The COTR is responsible for advocating for sufficient resources to implement a medical quality assurance program.

2.2.2.4 The Center's medical staff is responsible for developing the Center policies and procedures and implementing a medical QA program.

2.2.3 Process Description

2.2.3.1 A comprehensive set of policies and procedures shall be developed to meet the quality of care standards. They shall meet all the requirements of the Employee-Directed Principles (Managing Employee Assessment, Employee Care Process, Coordinating Employee Care, Employee Care Rights, and Employee Healthcare Education) and Management-Directed Principles (Facility and Safety Management, Governance, Information Management Services, Infection Control Services, Performance Improvement Management, and Staff Qualifications and Competency) as found on the OH Web site at www.ohp.nasa.gov.

2.2.3.2 The OM clinics shall establish and monitor medical QA program metrics to evaluate the program effectiveness.

2.3 Disease and Injury Prevention

2.3.1 Policy

2.3.1.1 NASA OH programs shall encompass primary prevention, health promotion, and a comprehensive safety program that impacts both individual health and Agency wellness.

2.3.2 Responsibilities

2.3.2.1 Center Occupational Health Program (OHP) personnel on the Health Promotion Committee shall provide a variety of prevention services such as medical examinations, health and wellness promotions, immunizations, food sanitization services, assorted health screenings, and control of chemical and physical hazards.

2.3.3 Process Description

2.3.3.1 Health Promotion Programs shall be implemented through both Agency-directed and Center-planned activities.

2.3.3.2 The efficacy of primary prevention activities shall be documented with appropriately selected metrics for benchmarking, continuous improvement of programs, and resource allocation.

2.4 Diagnosis and Treatment of Occupational Illness or Injury

2.4.1 Policy

2.4.1.1 NASA Centers shall ensure timely diagnosis and treatment of occupational injuries and illnesses and act to minimize the recurrence of a similar problem in other coworkers and those in similar jobs.

2.4.2 Responsibilities

2.4.2.1 The CHMO shall set policy and provide oversight of clinical activities.

2.4.2.2 The DOH ensures the appropriate delivery of diagnostic and treatment service through regular periodic audits.

2.4.2.3 The Medical Director at each NASA Center is responsible for accurate diagnosis, timely treatment, and appropriate follow up of all occupational injuries and illnesses in employees and for reporting all work-related injuries and illnesses to Center personnel responsible for OSHA recordkeeping.

2.4.2.4 Any developing trends in occupational injury and illness shall be reported to the Center Director who informs the CHMO.

2.4.3 Process Description

2.4.3.1 The following steps shall be followed by all Centers in diagnosing and treating occupational illnesses and injuries.

a. The occupational health history shall be conducted for the assessment of work-related health problems and shall include total employment and general health histories, with a review of systems and determination of any preexisting conditions to achieve an accurate medical diagnosis.

b. After a health history is taken, an appropriate physical examination is performed with a detailed specific organ or system examination as related to the chief complaint. Laboratory and radiological testing may be used to complement the history and physical examination and to aid in the diagnosis and treatment of the condition.

NOTE: Pre-approval may be required for procedures not routinely performed in the clinic.

c. The Medical Director, or qualified designee when the Medical Director is unavailable, shall

review the care of patients for appropriateness within published clinical practice guidelines.

d. The Medical Director shall document any inconsistencies with a work-related injury or illness and report these to a safety representative for further evaluation of the injury mechanism and circumstances.

e. An assessment of the work place shall be performed by medical and/or safety personnel to enforce injury prevention and implementation of approved reasonable accommodation.

2.4.3.2 All occupational health practitioners shall become familiar with employees' work and the environment in which they work. In order to better understand specific medical issues and cases, it may be necessary for the medical staff to visit the workplace to better understand the mechanism of injury and evaluate safety and ergonomic concerns.

2.5 Immunizations

2.5.1 Policy

2.5.1.1 Maintaining immunity shall be an integral part of NASA's disease prevention and infection control programs to reduce potential health effects related to exposure to vaccine-preventable infectious agents.

NOTE: The number and types of immunizations required per employee will vary based upon exposure risk.

2.5.2 Responsibilities

2.5.2.1 The CHMO shall establish an Agency immunization policy.

2.5.2.2 The DOH shall provide oversight and interim policy, as necessary, to ensure the equitable distribution of vaccine when supplies are limited nationally.

2.5.2.3 The Center Medical Director shall establish immunization policy and procedures and ensuring immunization services are available in such areas as international travel, medical surveillance/job certification, occupational injuries/illnesses, and preventative medicine.

2.5.2.4 The Center Medical Director shall ensure the medication management process is sound, properly documented, and meets NASA Quality Assurance (QA) Program elements and in compliance with the most current Centers for Disease Control and Prevention (CDC) recommendations.

2.5.3 Process Description

2.5.3.1 Employees with a reasonable risk of occupational exposure to vaccine-preventable diseases such as tetanus, Hepatitis A, or B shall be provided appropriate immunizations, have documented immunity, or sign a declination form declining the recommended vaccine administration.

2.5.3.2 Tetanus and diphtheria status shall be reviewed during each patient encounter and immunization given, if appropriate, for all employees with tetanus prone injuries at work and those requiring routine boosters.

2.5.3.3 The patient shall be provided an opportunity to discuss any questions about the immunization procedure prior to vaccine administration.

2.5.3.4 An immunization record shall be maintained for each employee and reviewed as part of each patient encounter. The record shall reflect documented disease and immunization histories as well as

immunizations administered during employment. At each immunization encounter, the record shall be updated.

2.6 Medical Support to Emergency Preparedness Planning

2.6.1 Policy

2.6.1.1 The exact roles and responsibilities of Center OH disciplines shall be determined by the specific needs at each of the NASA Centers and Facilities. In addition to the Center-wide plan, each clinic shall address emergency preparedness as it relates to their own structure and operations.

2.6.2 Responsibilities

2.6.2.1 The CHMO shall provide technical support and policy guidance to the Center Medical and Environmental COTR to effectively negotiate and delineate the roles and responsibilities of NASA OH in relation to the Center-specific emergency preparedness plan.

2.6.2.2 The COTR shall keep the DOH current on any Center specific emergency events or any significant modifications to the plan as they relate to OH roles and responsibilities. The COTR shall serve as an advocate for OH disciplines to ensure their assigned roles and responsibilities are sound, obtain management support as needed, and to keep the lines of communication viable between the stakeholders. In essence, the COTR serves as a liaison between the Center Emergency Operations and the OH team.

2.6.2.3 The Center Medical Director, depending on the extent of medical operations engagement in the Center-wide response plan, shall ensure that the clinic staff is appropriately trained and adequate supplies are at hand.

2.6.3 Process Description

2.6.3.1 The CHMO shall provide guidance documents and contribute ideas to improve the medical response.

2.6.3.2 The COTR shall ensure the following elements are accomplished:

a. The OH roles and responsibilities in the Center-wide plan shall be reasonable and clearly stated;

b. OH disciplines shall be fairly and consistently represented in the planning process and in drills and simulations. Their comments and concerns are incorporated into the plan; and

c. Management support shall be solicited for appropriate funding for supplies, staff training, and skill mix and number.

2.6.3.3 The Center Medical Director shall:

a. Establish procedures to meet the medical expectations of the plan including, but not limited to, skill mix and number, personnel training and drills, equipment, and supplies.

b. Establish measures to safeguard and retrieve medical records in paper or electronic format as per Privacy Act and NASA Records Management requirements.

c. Support other OH disciplines in meeting their respective requirements in disaster management such as supporting the EAP in Critical Incident Stress Management training and debriefing.

2.7 Pandemic Planning

2.7.1 Policy

2.7.1.1 The clinic shall support the Center in formulating their Continuity of Operations Plan (COOP) Emergency Preparedness Plan.

2.7.2 Responsibilities

2.7.2.1 The CHMO is responsible for providing technical support and written policy direction to (OH) personnel in support of Center Emergency Preparedness Plans.

2.7.2.2 The Center Medical Director is authorized to provide expert consultation to the COOP manager and Center management on related public health and medical issues.

2.7.3 Process Description

2.7.3.1 To ensure appropriate action in a pandemic, each Center clinic shall support formulation of a Center-specific COOP plan which should be designed as an addendum to the Center's Emergency Preparedness Plan.

2.7.3.2 Communication with HQ Emergency Management shall be maintained throughout all phases.

2.8 Plan for a Drug-Free Workplace

2.8.1 Policy

2.8.1.1 The overall responsibility for NASA's Plan for a Drug-Free Workplace (DFWP) lies with the OHCM .

2.8.1.2 The OCHMO shall support the DFWP through its Medical Review Officer (MRO) and Employee Assistance Programs (EAP) as required.

2.8.1.3 The OCHMO oversees, administers, and evaluates the Agency-wide MRO function and the EAP, which provides the mandatory referrals when a positive test is reported.

2.8.1.4 The clinic Medical Director, or a designated alternate physician, serves as the designated MRO for each Center. Disputed findings shall be adjudicated and resolved by the Agency MRO when required.

2.8.2 Responsibilities

2.8.2.1 The OHCM shall be responsible for NASA's plan for a DFWP.

2.8.2.2 The CHMO shall support DFWP through its MRO and EAP, as required.

2.8.2.3 The CHMO shall designate an Agency MRO.

2.8.2.4 Each Center shall have a MRO.

2.8.3 Process Description

2.8.3.1 The Center MRO shall receive test results directly from the NASA Shared Services Center designated certifying drug test laboratory. Validity testing is performed by the certifying laboratory according to current regulatory requirements.

2.8.3.2 The MRO shall review the chain of custody documentation and contact the donor for all

positive, substituted, adulterated, or invalid test results consistent with NPR 3792.1, Plan for a Drug-Free Workplace.

2.8.3.3 After confirming the result as negative, the MRO shall report the result to the designated Center representative.

2.8.3.4 All confirmed results other than negative shall be reviewed with the Agency MRO prior to reporting the result to the Center.

2.8.3.5 For all non-negative results, the MRO shall inform the donor of his or her right to request that the split specimen be tested. If requested, the certifying laboratory shall arrange for the "B" specimen bottle to be sent to another laboratory for confirmation testing according to split specimen protocol.

2.8.3.6 When the Center MRO is someone other than the Center Medical Director, the Agency MRO shall approve the person's credentials.

2.9 Physical Examinations

2.9.1 Policy

2.9.1.1 Medical surveillance protocols shall be used at all NASA Centers and Facilities. The Physical Examination Matrix (Appendix C) provides the examination procedure basics of the most routine and specialty examinations performed at NASA Centers and facilities.

NOTE: The six categories of physical examinations provided at NASA clinics are listed in Appendix C, Physical Examination Matrix. Due to the potential for changing requirements of an actual examination protocol, the latest content of agency-provided examinations will be maintained on the OH Web site (www.ohp.nasa.gov) to ensure currency.

2.9.2 Responsibilities

2.9.2.1 The CHMO shall be responsible for establishing policy, providing requirements and oversight, and auditing Center physical examination programs.

2.9.2.2 The DOH shall ensure oversight of Center physical examinations through regular periodic audits.

2.9.2.3 The Center Medical Director shall be responsible for the overall quality of care by all clinic providers. In all situations where the decision regarding medical qualification or certification is unclear, the Center Medical Director, or qualified designee when the Medical Director is unavailable, shall review the clinical information and make the final decision.

2.9.2.4 The evaluating physician shall be responsible for interpreting all physical examination test results and determining their significance. If the examinations are not performed onsite, the Center Medical Director, or qualified designee, when the Medical Director is unavailable, reviews the results before clearance is issued to work in a hazardous environment. The evaluating physician is responsible for the preparation of any required "Health Care Professional's Written Opinion" for the pertinent standard, within the specified timeframe.

2.9.3 Process Description

2.9.3.1 Placement of employees in the various physical examination programs is determined by job category, workplace surveys, and specific exposure events.

2.9.3.2 Special Administrative Examinations and health maintenance examinations are offered according to Agency and Center policies.

2.9.3.3 Typically, workers whose jobs are thought to be associated with exposures to hazards at or above the medical surveillance action level set by the for more than 30 days per year are placed into medical surveillance for that specific hazard.

2.9.3.4 Some programs have specific guidance for placement (e.g., asbestos, organophosphates pesticide workers, hearing conservation, and radiation workers).

2.9.3.5 If insufficient monitoring data or no data is available, individuals shall be placed in medical surveillance based on potential exposures and job title. When this occurs, individuals need to be reassessed as work site monitoring data become available.

2.9.3.6 When an employee is no longer actively exposed to a hazard, it shall be up to the physician's discretion, in consultation with industrial hygiene (IH) and safety staff, whether that employee remains in the medical surveillance program or not.

2.9.3.7 The Center clinics shall meet the protocol requirements for the following job categories:

a. Specific Potentially Hazardous Exposures;

b. Hazardous Environments/Workplace Examinations;

c. Certification Examinations;

d. Flight Activities;

e. Special Administrative Examinations; and

f. Voluntary Health Maintenance Examinations.

2.9.3.8 Physical examinations shall conform to the requirements delineated in the Physical Examination Matrix (Appendix C) and the pertinent Federal regulations.

2.9.3.9 The frequency of the physical examinations varies and includes:

a. Baseline Examinations:

(1) These examinations shall be ideally performed before the employee starts work in a position with a potential for hazardous exposure.

(2) These examinations provide information necessary to determine if the employee is qualified to perform the job. It also provides a baseline against which changes can be compared.

(3) Baseline examinations and certifications shall be performed prior to engaging in any activity that could be hazardous to the employee or other employees working near or adjacent to them or in contact with them.

b. Periodic Examination:

(1) This examination shall be performed periodically during the time that a worker is employed in a job requiring an examination.

(2) The frequency and extent of periodic examinations vary depending on the work being performed, pertinent regulations, findings from previous examinations, the history of exposure, and/or the age and gender of the workers.

c. Variable or Exposure-Determined Examinations:

(1) This examination shall be conducted in response to a specific hazardous exposure incident and shall prompt the examination of all individuals with the suspected exposure, not just those already in the surveillance program.

(2) These examinations may vary significantly from routine medical surveillance protocols, are usually exposure specific, and include biological monitoring tests.

d. Exit/Reassignment Examination:

(1) This examination shall be performed when the worker terminates employment or the job position, or is permanently removed from a position which has a potential for hazardous exposure.

(2) Documentation of the worker's state of health at the termination of employment or exposure is essential for comparison purposes if the worker later develops medical problems that could be attributed to past occupational exposures.

(3) This examination is not required if a periodic examination has occurred within the prior six months.

2.9.3.11 If a physical examination has been conducted within the previous six months and has been duly recorded in the employee's health record, it may, at the discretion of the examining physician, be accepted in whole or in part as the requested medical examination.

2.9.3.12 A physical examination conducted for one purpose shall be valid for any other purpose within the prescribed validity period if that physical contains the proper data. If the examination is deficient in scope, only those tests and procedures necessary to meet the additional requirements shall be performed. The results shall be recorded and appropriate approval provided by the examining physician.

2.9.3.13 A clear determination of "Medically Qualified" (or "Medically Certified") or "Medically Disqualified" (or "Not Medically Certified") shall be made. As appropriate for the type of examination, the limiting factors or restrictions shall be noted so that reasonable accommodation may be considered as required by the Americans With Disabilities Act .

2.9.3.14 If additional tests or other actions are needed for qualification or certification (e.g., failed vision because corrective lenses are not available, additional tests are needed, or a temporary condition exists like a cold or the flu), the employee shall be placed on modified duty if the condition represents a potentially immediate hazard to the employee, fellow employees, or the success of the project/mission. A follow-up appointment shall be made to either qualify or disqualify the employee.

2.9.3.15 Where no written standard has been established for a function, the provider shall use best medical judgment to determine whether a disqualifying impairment exists. The Medical Director is responsible for review and final recommended work status in these cases.

2.9.3.16 Appeal, redress, second opinions, and challenged decisions shall be handled at the lowest level of authority at the Center.

2.9.3.17 When a Standard Written Medical Opinion is required by regulation, except for lead, bloodborne pathogens, and asbestos where the Federal Regulation (29 CFR 1910) shall be consulted, the following format shall be followed:

a. A medical condition has [has not] been detected that would place the employee at an increased risk of material impairment of the employee's health from [Specific Hazard] _____

exposure-related disease or injury;

b. There are no limitations on the employee or on the use of personal protective equipment, including respirators [or recommended limitations on the employee or on the use of personal protective equipment are: _____];

c. The employee has been informed of the results of the medical examination and of any medical conditions related to [specific hazard] ____- exposure that would require further explanation, evaluation, or treatment;

d. The employee has been informed of the results of the medical examination and of any other medical conditions that require further evaluation or treatment; and

e. The employee _____ is certified for work as _____ without limitations [or certified to work with the following job or Personal Protective Equipment (PPE) limitations: _____].

Health Care Provider Name:_____
Signature:_____ Date: _____

2.9.3.18 The employer shall provide a copy of the written opinion to the affected employee. Unless otherwise noted, the Standard Written Medical Opinion shall be sent within 14 days of completion of physical examination and receipt of laboratory studies.

2.10 Emergency Medical Services

2.10.1 Introduction

2.10.1.1 Initial clinic response in an emergency situation shall include the use of an Automatic External Defibrillator (AED) if indicated in order to stabilize the patient until the emergency transport to appropriate medical facilities arrives.

2.10.1.2 NASA clinics are not designated emergency facilities and do not provide emergency medical care as part of their regular scope of services. After stabilization, Emergency Medical Services (EMS) should always transport emergent patients to an appropriate emergency facility, never to a NASA clinic.

2.10.3 Responsibilities

2.10.3.1 The CHMO shall provide policy guidance and technical support to ensure that all NASA Centers and Facilities have emergency medical response capability that is consistent with published guidelines.

2.10.3.2 The DOH shall ensure appropriate occupational health response in an emergency medical situation through regular periodic audits.

2.10.3.3 The Center Medical Director shall provide oversight of all NASA and NASA-contracted EMS providers. This oversight involves administrative and medical review of all runs, provision of standing orders, and ensuring that the EMS are adequately staffed and equipped and comply with all NASA, state, and local EMS requirements.

2.10.3.4 The Center Medical Director shall collaborate with Center safety and security leadership to establish a First Responder Program to provide a first response that includes AED capability according to the Center-wide AED Policy.

2.10.4 Process Description

2.10.4.1 The EMS for each Center shall comply with the following minimal requirements:

a. EMS shall comply with all state and regional regulations for ambulance and EMS requirements;

b. Advanced Life Support capability shall be required with a response time within eight (8) minutes, at least 90 percent of the time;

c. First responders with AED capability shall have a response time of four (4) minutes or less for most Center personnel; and

d. The EMS provider at each NASA Center and Facility shall participate in the Center-wide Emergency Response Plan, under the direction of the on-scene incident commander. EMS providers also shall participate in emergency drills and exercises to enable full understanding of their responsibilities within the Emergency Response Plan.

2.11 Automated External Defibrillator (AED) Program

2.11.1 Policy

2.11.1.1 It is NASA policy that all Centers shall have an AED program with written policy.

2.11.2 Responsibilities

2.11.2.1 The CHMO shall establish the NASA AED policy and program requirements.

2.11.2.2 The CHMO shall audit the Center's AED programs.

2.11.2.3 The Center Medical Director shall provide oversight and medical direction for the Center AED program.

2.11.3 Process Description

2.11.3.1 A formal assessment of the Center shall be completed to determine an appropriate number of AEDs needed throughout the Center and their locations based on population and demographics, layout of facilities, and level of risk in the facility environment. AEDs should be in locations that allow for an optimal response time.

2.11.3.2 The Center shall have a written Center-wide AED program that includes roles and responsibilities, medical equipment and supplies, operational protocols, equipment maintenance, responder training and drill requirements, and a quality assurance plan.

2.11.3.3 The Center AED program shall be integrated with the Center Emergency Response Plan or as an appendix to that plan.

2.11.3.4 The written Center AED program plan shall be reviewed at least annually.

2.12 Bloodborne Pathogens

2.12.1 Policy

2.12.1.1 All NASA Centers shall develop a Center-specific Bloodborne Pathogens (BBP) plan that addresses the requirements of the BBP Standard.

2.12.1.3 Center plans may differ based on additional state and local requirements.

2.12.1.4 The BBP plan must be acceptable to CHMO and contain the primary requirements of the OSHA BBP Standard, 29 CFR 1910.1030, Bloodborne Pathogens.

2.12.2 Responsibilities

2.12.2.1 The CHMO shall provide guidance and technical support for the development and implementation of the Center-wide BBP plan.

2.12.2.2 The DOH ensures Center occupational health programs have current BBP plans through regular periodic audits.

2.12.2.3 The COTR shall require medical personnel to establish a written Center-wide BBP plan that identifies at-risk workers (those with reasonable risk of exposure). The COTR shall ensure that the Center operations are in compliance with the plan's requirements and the plan addresses the following issues:

a. A culture of open communication among Directorates and disciplines such as medical, IH, facilities operations, training coordinators, supervisors, and safety personnel;

b. Active participation in both the development and implementation phases is essential;

c. Consistent documentation and record keeping of all the requirements such as training, medical surveillance and immunization, biohazardous waste, and post exposure prophylaxis; and

d. Enforcement of medical confidentiality and security of health information as per Privacy Act requirements.

2.12.2.4 The Center Medical Director shall establish policies and procedures to ensure compliance with the plan and that treatment is available for all employees in the event of an actual exposure in compliance with the OSHA BBP Standard. This may include but is not limited to:

a. Providing oversight for the content and/or delivery of related training classes;

b. Provision and documentation of Hepatitis B vaccine to the at-risk employees free of charge;

c. Documentation of declination of offer to vaccinate and the process by which the employee can obtain the vaccine at a later date;

d. Post exposure prophylaxis plan;

e. Medical confidentiality; and

f. Issuing the medical opinion letter in compliance with the BBP Standard.

2.12.2.5 The Medical Director and the COTR shall jointly establish a process by which they can address any deviations from the Center Plan and review the plan annually in collaboration with the affected Directorates and disciplines.

2.12.2.6 Center OH personnel shall be a resource and assist in writing the Center BBP plan.

2.12.3 Process Description

2.12.3.1 The CHMO shall communicate guidance documents via the NASA OH Web site and provide oversight and evaluation of the BBP plan during the review process.

2.12.3.2 The COTR shall actively participate in the development and implementation of the written Center-wide Bloodborne Pathogen/Exposure Control Plan(s) and ensure collaboration between the

disciplines, especially when more than one contractor or tenant organization is involved. The COTR shall also advocate for a work environment conducive to the success and consistent application of the plan.

2.12.3.3 The plan must address methods of compliance in universal precautions, engineering and work practice controls, PPE, housekeeping, and biohazardous waste processing.

2.12.3.4 Medical surveillance and evaluation shall include hepatitis B immunization and declination, post exposure evaluation and treatment, necessary followup, and issuance of the written medical opinion letter.

2.12.3.5 The Center Medical Director shall specify in the plan the means to protect and train the at-risk employees.

2.12.3.6 The plan must be made accessible to the employees and should be in line with their respective employer's plan.

2.13 Infection Control

2.13.1 Policy

2.13.1.1 A systematic, coordinated, and continuous infection control program shall be instituted at all NASA Centers that focus on surveillance, prevention, and control of infections.

2.13.1.2 Center programs shall encompass activities at the direct patient care level and at the patient care support level to reduce risks of nosocomial/clinic-acquired infections in patients.

2.13.1.3 Activities shall also be designed to reduce risks of transmission of infections among civil service personnel, contractors, health care personnel, students, and visitors.

2.13.1.4 Particular focus for infection control shall be placed on direct patient care practices, ancillary services, such as laboratory, radiology, and rehabilitation, support services, such as linen supply, and fitness centers.

2.13.1.5 OH personnel shall use the checklist from the OHP Web site to facilitate implementation and assessment of infection control. The checklist is on the Policies page of the NASA OH Web site (www.ohp.nasa.gov) under Documents, Guidelines, and Checklists.

2.13.2 Responsibilities

2.13.2.1 CHMO shall establish infection control program policy and oversight and evaluation of OH infection control programs.

2.13.2.2 The DOH ensures Center has current infection control plans through regular, periodic audits.

2.13.2.3 Center Chief Medical Officers/Medical Directors shall ensure that an infection control program is established and maintained at their Centers. These officials are responsible for ensuring that adequate resources, including time and training, are available to support the program.

2.13.2.4 The infection control program shall be the responsibility of at least one person designated by the Center Chief Medical Officer/Medical Director. That individual is known as the Infection Control Officer (ICO) and is responsible for overseeing the program. Specific knowledge and training relevant to infection control will enable the designated person to keep up to date on regulatory changes.

2.13.3 Process Description

2.13.3.1 The designated ICO shall establish, maintain, and oversee and Infection Control Plan and an Infection Control Committee (ICC) consisting of a physician, a nurse, and any additional staff necessary to manage the program effectively. The ICC should coordinate all activities related to the surveillance, prevention, and control of nosocomial infections.

2.13.3.2 The Center ICO and/or ICC shall develop, implement, and maintain a plan that includes program goals, surveillance activities, infection control guidelines, infection control training, nosocomial/clinic-acquired infections reporting process, program assessment, performance improvement procedures, and program documentation.

2.13.3.3 The plan shall be reviewed based on the proceeding year's infection control data by the ICO/ICC. The review should include infectious waste disposal, shelf life of all stored sterile items, reprocessing of non-disposable items, housekeeping contract, linen services, radiology, and laboratory services.

2.13.3.4 The infection control guidelines and practices address patient care issues such as hand-washing practices, approved antiseptics and disinfectants, sterilization of equipment and disinfecting the clinic, laundry, housekeeping, ventilation, and environmental sampling. There shall be a medical surveillance program for the health care personnel, including immunizations, post-exposure protocols and work restrictions/accommodations. The Center Bloodborne Exposure Control Plan and a tuberculosis prevention and control plan are also included as part of the guidelines and practices. The infection control guidelines and practices must be reviewed and updated every three (3) years by the ICO/ICC.

2.13.3.5 Infection control issues and data, including infections and communicable diseases, immunization status of health care personnel and tuberculosis skin testing conversion data, shall be reviewed and summarized on a regular basis by the ICO or ICC to determine if trends are being formed. Appropriate action must be taken on all infection control issues or problems and a process for follow-up established to ensure effectiveness of the corrective action.

2.13.3.6 To ensure compliance with infection control standards, the ICO and/or the ICC shall conduct facility inspections at least annually.

2.13.3.7 The ICO shall ensure that all health care personnel and facilities comply with applicable Federal, state, and local regulations, including notification of the public health agency when patients or health care personnel are treated for infectious or communicable disease.

2.13.3.8 The training of health care personnel is required by Federal (OSHA) regulations. For infection control, the training shall include the following:

a. Newly assigned health care personnel shall receive infection control training within ten days of placement in clinical environment;

b. Health care personnel shall receive infection control training, including OSHA BBP, universal precautions and PPE, annually;

c. Health care personnel shall receive training when significant regulatory changes occur; and

d. Health care personnel providing direct care to patients shall receive continuing education on patient care practices to minimize the risk of nosocomial-acquired infections.

2.13.3.9 Personnel shall have copies of training materials, general, and infection control reference materials available to them. All training and continuing education records must be kept in the health care personnel records in accordance with NASA records management guidelines.

2.14 Medical Record Management

2.14.1 Policy

2.14.1.1 All NASA Centers shall adhere to the requirements for Medical Record Management established in this section.

2.14.2 Responsibilities

2.14.2.1 The CHMO shall establish medical information management policy and evaluate the Centers medical information management policy and procedures.

2.14.2.2 The DOH shall periodically, through the regular audit process, conduct an audit of Center's medical records management policies and procedures, ensuring the Electronic Health Record System (EHRS) meets Privacy Act and NASA records management requirements.

2.14.2.3 The OH COTR is responsible for ensuring that the clinic has proper resources and systems in place to meet the Agency's requirement for management of medical information and record retention.

2.14.2.4 The Center Medical Director shall ensure the clinic has a medical information management policy that specifically addresses medical recordkeeping documentation, access, release of records, retention, privacy, confidentiality, and data integrity.

2.14.2.5 Center clinical personnel shall maintain accurate and complete patient medical records and ensuring the security and confidentiality of those records.

2.14.3 Process Description

2.14.3.1 Each Center shall use the designated Agency EHRS, once it is implemented at their Center in accordance with NASA records management requirements.

2.14.3.2 An individual medical record shall be established and maintained beginning with the first patient encounter.

2.14.3.3 The medical record documentation shall include sufficient information to identify the patient, patient medical history, reason for visit, subjective and objective findings, assessment, and plan written in the Subjective Objective Assessment Plan format. In addition, the medical record may include:

a. Patient demographics;

b. History and medical questionnaires;

c. Work-related injury and illness reports;

d. Environmental hazards or conditions;

e. Occupational exposures and incidents;

f. Summary Sheet;

g. Consultation reports;

h. Signed informed consent;

i. Laboratory test and x-ray results;

j. Immunizations;

k. Medication(s) provided or prescribed;

l. Allergies; and

m. Referrals to community healthcare providers.

2.14.3.4 Medical records shall be maintained in accordance with all Federal and state laws or regulations and the NASA requirements as applicable, including, but not limited to:

a. The Privacy Act of 1974;

b. Health Information Portability and Accountability Act ;

c. Occupational Safety and Health Administration (OSHA);

d. NPR 1441.1, NASA Record Retention Schedules; and

e. NASA Medical Quality Assurance Program.

2.14.3.5 The Center shall have medical record policy and procedures addressing access to medical records, release of records, copying of records, and privacy and confidentiality in compliance with Federal and state laws and regulations.

2.14.3.6 The Center shall have a policy on managing sensitive health information per Privacy Act requirements. The policy shall address the separate storage of those records and/or coding to preclude direct identification of the patient. Sensitive health information includes mental health, chemical dependency, sexually transmitted diseases, and drug and alcohol test results.

2.15 Shift Work and Balancing Work-Rest Cycles

2.15.1 Policy

2.15.1.1 It is NASA policy that consideration of the potentially detrimental impacts of unusual shifts and prolonged work-times be given a high priority to prevent worker psychological and physiological stress and undesirable outcomes. Safe work practices that minimize human error factors, especially fatigue, require safe work-rest cycles and shift scheduling. Work-rest cycles shall take into consideration and make proper allowances for the work environment, including temperature extremes. The processes presented below are provided to ensure safe work practices and mission success.

2.15.1.2 The criteria are provided for Critical and Non-Critical positions as follows:

a. A Critical Position is one in which the worker's job performance can directly impact ground safety, flight safety, or mission success. This may include, but is not limited to, workers who:

(1) Deal directly with flight hardware, software, or ground support equipment;

(2) Have authority to make decisions regarding flight hardware or software processing;

(3) Are involved in launch and landing activities;

(4) Work in ground systems with physical or functional interface with flight systems;

(5) Work with hazardous sequences or procedures; and

(6) Work on systems with minimal or no check and balance related to employee decisions or actions.

NOTE: Personnel who are in Critical roles on a part-time basis will be considered to be in a Critical Position on a full-time basis for purposes of work-rest cycle limitations.

b. All other positions are considered to be Non-Critical.

2.15.2 Responsibilities

2.15.2.1 Center Directors and Senior Managers shall ensure that policies regarding work-rest cycles, implementation of work-rest cycles, maximum work limits, and shift schedules as required for routine and extended or emergency work scenarios are adhered to. These policies shall also establish those positions designated as Critical for each Center or Facility.

2.15.2.2 The CHMO shall issue relevant policy and directives and provides supporting advocacy and resources.

2.15.2.3 Center OH staff shall provide assistance in policy development and professional consultation to work managers and supervisors regarding requirements for standard and prolonged work schedules and work excesses.

2.15.2.4 Managers and supervisors shall ensure that all duty hours are recorded and counted toward the maximum work periods identified below. They shall also report any work-rest cycles that are not within the established policies to the designated management level for risk assessment and approval of deviations, given the current work requirements. Work time data must be available for review.

2.15.2.5 Center EH Managers assure that potential exposures are appropriately evaluated and that Occupational Exposure Limits (OEL) are adjusted as necessary from the 8-hour time-weighted average to reflect actual conditions and work shifts.

2.15.3 Process Description

2.15.3.1 For Non-Critical Positions, employees shall not work in excess of the following maximum work times:

a. 12 consecutive hours (16 consecutive hours in emergency situations with approval);

b. 60 hours during a seven (7) day work week;

c. Seven (7) consecutive days without at least one (1) full day off;

d. 240 hours during a four (4) week period; and

e. 2500 hours during a rolling 12 month period.

2.15.3.2 Deviations from these maximum work times require approval by a designated supervisor.

2.15.3.3 For Critical Positions, employees shall not work in excess of the following MWTs:

a. 12 consecutive hours (16 consecutive hours in emergency situations with approval by a supervisor capable of evaluating the human factors risk level for the Critical role. Only during a Center or Program Declared Emergency may 16 consecutive hours be exceeded with high level of designated approval);

b. 60 hours during a 7 day work week*;

c. Seven (7) consecutive days without at least 1 full day off*(deviations may be pre-approved at a

high level for up to 18 consecutive days with 2 full days off required after the extension period);

d. 240 hours during a 4 week period*; and

e. 2500 hours during a rolling 12 month period*.

NOTE: The asterisks (*) denotes pre-approval is required for deviations by a designated supervisor after consideration of human factors safety issues for the Critical Position.

2.15.3.4 Overtime may be required because of a problem during operation or because of an extended work process. In either case, overtime shall not exceed the stated guidelines.

2.15.3.5 For Center or Program Declared Emergencies, maximum work times shall only be exceeded with approval at the Deputy Center Director level or equivalent designee. Each Center should have the capability to cover unexpected absences satisfactorily without having individuals work more than 12 hours per day.

2.15.3.6 Emergency or extremely unusual circumstances can require work performance essentially at endurance capacity. This shall be invoked only for life-threatening emergencies, natural disasters, mass casualty accidents, or war.

2.15.3.7 The general safety record of the Center or Facility should be satisfactory, without significant incidents related to prolonged work shifts, rotating shifts, or insufficient off duty time.

2.15.3.8 Workers performing prolonged routine shifts shall receive training related to adequate sleep times between shifts.

2.15.3.9 The calendar year, the week, and the calendar day (which changes at midnight) shall be used for work time evaluation and maintenance of accurate time records.

2.15.3.10 Under no circumstances shall an employee be required to work such that there is not at least eight (8) hours off duty between shifts. A minimum of ten (10) hours off duty is preferred and 12 hours or more is optimal to accommodate employee commute time and domestic and sleep needs.

2.15.3.11 When the 8-hour period is shifted within the 24-hour day-night cycle (shift work), compensatory time must be allowed for circadian rhythms to adapt. Forward rotating shifts, from day to evening to night, rather than counter to it are easier for human adaption.

2.15.3.12 The traditional "standard" 5-day, 8-hour shift is becoming frequently replaced with consecutive 10 or 12-hour shifts, compensated to the worker by more time/days off.

The basic 12 hour/day schedule shall be "2-on, 2-off," "3-on, 3 off," or "4-on, 4-off." Three consecutive 12-hour shifts are optimal. Working more than 4 consecutive 12-hour shifts is associated with excessive fatigue and may result in significant impact on performance of duties, mission, and safety.

2.15.3.13 Time zone changes alter or shift natural bodily rhythms and require considerable time to reach new equilibriums as evidenced in the well-known "jet lag" syndrome. Consideration shall be given to allowing for adaptation times to avoid critical decisions in a chronobiologically impaired state. Circadian rhythms affect physical ability, mental alertness, decisionmaking, and overall well-being that can predispose to injury and adversely impact work capacity, quality, and safety.

2.15.3.14 To minimize worker stress and fatigue related to time factors, the following procedures shall be followed:

a. Define the "standard" work period for all operations and tasks, including method of shift rotation if required, as well as breaks and required rest cycles;

b. Clarify responsibilities, work expectations, and desired outcomes for any process or decision;

c. Minimize negative consequences of shifting work times by doing the following:

(1) Having an employee select preferred shifts consistent with mission needs.

(2) Considering individual circadian rhythms to insure adequate work and sleep-rest cycles.

(3) Allowing adequate time for adaptation and recovery from old to new shift or time zone.

(4) Knowing the "criticality" of the work to evaluate risk of physiological and psychological consequences of chronobiological stress.

d. Define "critical job categories" and assure that employees assigned to these categories understand the full implications of the work schedule and rest cycles. Educate employees about the importance of adequate rest for safe job performance;

e. Define "extended" work periods for job categories;

f. Allow "deviations" from standard maximum work requirements by the following criteria:

(1) Need, urgency, and benefit.

(2) Risk assessment.

(3) Prior anticipation of extended work schedules or deviations from guidelines shall be noted in position descriptions; and

g. Provide an impartial council (e.g., Center Health and Medical Technical Authority (HMTA) or the Agency DASHO) to hear and resolve disagreements related to work schedules, shift work, and rest cycles.

2.15.3.15 Maintain accurate records of work schedules and hours actually worked.

2.15.3.16 Adjustment and application of OEL's to unusual shifts shall be determined by a qualified industrial hygienist using the Brief and Scala model or other acceptable models as described in Patty's Industrial Hygiene and Toxicology.

2.16 International Travel or Assignment

2.16.1 Policy

2.16.1.1 Health services shall be offered to NASA employees on international travel or assignment in order to reduce the risk of illness or injury, prevent loss of productivity, and safeguard the health of NASA employees.

2.16.1.2 It is the traveler's responsibility to contact the NASA clinics four to six (4-6) weeks prior to scheduled travel departure to allow adequate time for vaccines if needed.

2.16.2 Responsibilities

2.16.2.1 The CHMO shall establish international travel health policy.

2.16.2.2 The DOH ensures proper execution of clinic travel policy through regular, periodic audits.

2.16.2.3 The CHMO shall maintain a contract to provide international medical evacuation to NASA civil service employee traveling internationally on official NASA-related business.

2.16.2.4 International travel services provided by occupational medical clinics shall be consistent with the current CDC Health Information for International Travel "Yellow Book."

2.16.2.5 Civil service international travelers are responsible for seeking travel medicine services and destination-specific travel information prior to going on foreign travel. They are responsible for securing compensation claims information and personal access travel cards.

2.16.2.6 Contractors are responsible for establishing their medical clearance policies and providing employees' emergency medical services and evacuation while on international travel in accordance with their contract as prescribed in NASA FAR Supplement, Clause 1852.242-78.

2.16.3 Process Description

2.16.3.1 NASA OM clinic shall establish policy and procedures for providing travel medicine services for personnel on international travel or assignment.

2.16.3.2 NASA Occupational Medicine clinics shall have the CDC publications and information, including Health Information for International Travel (Yellow Book), Morbidity and Mortality Weekly Report, Weekly Summary of Countries with Areas Infected with Disease Requiring Quarantine, Advisory Memoranda, and Biweekly Summary of Health Information for International Travel (Blue Sheet) available for their healthcare providers.

2.16.3.3 International travel services to be offered shall include the following elements:

a. General pre-travel briefing and information;

b. General health risk assessment (An assessment of the employee's potential risk for illness considers any underlying medical problems, immunization history, allergies, current medications, previous travel, and travel destination.);

c. Immunizations;

d. Traveler's diarrhea information and advice;

e. Malaria risk assessment and advice, if appropriate;

f. Air travel and health information (including "jet lag" advice);

g. Destination safety information (e.g., protective and preventative health advice, as appropriate to the destination risks);

h. Travel kits, in accordance with NASA Center policy;

i. Pre-travel evaluation of any environmental health issues/concerns, identification of PPE or training needs;

j. Medical surveillance or job-certification examinations; and

k. Other sources of health-related information including:

(1) U.S. Embassy or consulate location and telephone numbers.

(2) Hospital/clinic locations and telephone numbers.

(3) Procedures to access emergency assistance.

(4) Insurance advice.

(5) International personal access travel cards and information.

(6) Post travel followup scheduling and advice as required.

2.16.3.4 Centers are authorized to discuss and offer international travelers the CDC required and recommended immunizations for the country of destination.

2.16.3.5 Depending on the destination, pre-travel confirmation of the Tuberculosis (TB) intra-dermal skin test status with Purified Protein Derivative may be required. Centers shall follow the CDC guidance on followup for positive results and post-travel evaluation of skin test status for those who traveled to areas where there are high incidences of TB.

2.16.3.6 Centers are authorized to assemble and issue travel medical kits to NASA employees traveling on official NASA business. The instructions and contents of the medical kits shall be determined by the Center. A summary of the traveler's past and any current medical history, including allergies, medications, and special diet shall be provided to the traveler in accordance with privacy and confidentiality requirements.

2.16.3.7 Center Occupational Medicine clinics shall provide a SOS Access Cards to each civil service employee traveling internationally on official NASA business. Medical services for non-NASA-related travel are the responsibility of the employee.

2.16.3.8 NASA contractors are responsible for facilitating arrangements with a medical service provider for their employees, in accordance with their contract. Responsibility for international emergency medical services remains with the contractor and contracted employee, as specified in NASA FAR Supplement, Clause 1852.242-78.

2.16.3.9 NASA civil service employees who suffer a traumatic injury or occupational illness while in the performance of their official duties may be eligible for compensation benefits under the Federal Employees' Compensation Act. The mishap must be reported in accordance with NPR 8621.1, NASA Procedural Requirements for Mishap Reporting, Investigating, and Recordkeeping. Medical assistance shall be obtained through SOS International.

Chapter 3. Primary Prevention and Health Promotion

3.1 Primary Prevention and Health Promotion

3.1.1 Policy

3.1.1.1 It is the policy of NASA Occupational Health (OH) to promote a healthful work environment with commitment to the health and productivity of its workforce founded on a programmatic approach that is designed to increase awareness through education, foster lifestyle and behavioral modification, and create a supportive work environment.

3.1.2 Responsibilities

3.1.2.1 The Chief Health and Medical Officer (CHMO) shall establish policy requirements for primary prevention programs.

3.1.2.2 The Director of Occupational Health (DOH) shall develop a primary preventive strategy for the Agency and ensure implementation through the regular, periodic audit process.

3.1.2.3 The Center OH Contracting Officer Technical Representative (COTR) shall support the implementation of the annual health promotion plan.

3.1.2.4 The Center Medical Director or designees shall implement the annual health promotion plan.

3.1.2.5 The COTR and Medical Director shall designate a representative to serve on the Agency Primary Prevention and Health Promotion Team.

3.1.3 Process Description

3.1.3.1 The CHMO shall provide direction and guidance towards standardization of majority of health promotion and wellness activities across the Agency based on the following measures:

a. Establish an Agency-wide Primary Prevention and Health Promotion Team composed of center representatives with the charter to standardize health education programs.

b. Chair periodic Video Teleconferencing System (ViTS) meetings with the team for the purpose of educational presentations on emerging issues, discussion of new and innovative ideas, development of relevant policies and procedures, and evaluation of the existing programs and campaigns;

c. Identify and coordinate particular campaigns and initiatives for Agency-wide dissemination;

d. Develop a section or sections on the NASA OH Web site as an informational portal for health resources;

e. Ensure availability of printed health education material in support of identified campaigns and initiatives;

f. Support all health-related discipline specific efforts with printed health education material and periodic focused efforts;

g. Collaborate with leading health resource organizations and other community and national organizations, as appropriate; and

h. Identify evaluation strategies to assess the effectiveness of the health education programs.

3.1.3.2 The Center OH COTR shall support the implementation of the Agency primary prevention plan and associated activities at their respective Center.

3.1.3.3 The Center Medical Director or designee shall assess the feasibility of creating a Center specific primary prevention and health promotion team to address issues in a collaborative and systematic manner in order to:

a. Ensure that the Center's health promotion plan is relevant to their population, the Center shall complete an annual health promotion needs assessment, and

b. To evaluate the impact of the overall primary prevention and health promotion program. Both short- and long-term goals should be established in the planning stages.

3.1.3.4 The Center Medical Director or designee shall gather program evaluation data and report to Office of the Chief Health and Medical Officer (OCHMO) annually upon request.

3.2 Primary Prevention

3.2.1 Introduction

3.2.1.1 Primary prevention services are the foundation of NASA OH. These services shall encompass both health promotion and health protection directed toward enhancing employee well-being and moving toward a state of optimal health, as well as reducing health risks. Health promotion efforts are designed to increase health knowledge and support employee behavior change related to health and safety practices in the workplace and at home. Health protection measures are designed to eliminate or reduce the risk of disease in order to prevent the development of an illness or injury.

3.2.2 Responsibilities

3.2.2.1 The CHMO shall provide guidance and policy for the Agency primary prevention program.

3.2.2.2 The DOH shall assess and review primary prevention and health promotion programs through a regular periodic audit process.

3.2.2.3 The OH COTR shall advocate for adequate resources in support of primary prevention programs.

3.2.2.4 The Center Medical Director shall ensure primary prevention services are planned, implemented, and evaluated.

3.2.3 Process Description

3.2.3.1 The Center Director shall ensure the planning and implementation of worksite primary prevention programs, services, and policies designed to enhance employee well-being and optimal health, as well as to reduce health risks.

3.2.3.2 The Centers shall offer primary prevention/health promotion programs, such as nutrition, fitness, exercise, and health motivation, and targeted disease prevention programs, such as injury prevention, health risk assessment, smoking cessation, weight control, stress management, and seat belt use.

3.2.3.3 The Centers shall evaluate the effectiveness of overall primary prevention program efforts.

3.3 Fitness Centers

3.3.1 Policy

3.3.1.1 NASA Centers shall establish and maintain on-site Fitness Centers to encourage employee physical activity. Federal agencies are authorized to offer employee health services "to promote and maintain physical and mental fitness and to help prevent illness and disease," including health services and intervention programs such as exercise and weight control. Fitness programs encompass activities such as organized walking events, aerobic exercise classes, weight lifting instruction, stretching classes, fun runs, lectures on safe participation, and fitness assessments.

3.3.1.2 The OH Program Fitness Center Policy shall be based on Office of Personnel Management's (OPM) authority and incorporates industry standards (as recommended by OPM) provided by the American College of Sports Medicine (ACSM) for staffing, facility design, equipment selection and maintenance, and safety. The latest edition of ACSM standards shall be used for reference when developing and implementing a Center Fitness Program.

3.3.1.3 The Centers shall use the latest version of The U.S. Department of Health and Human Services Physical Activity Guidelines with the idea that "regular physical activity over months and years can produce long-term health benefits." The guidelines are useful in developing a Center Fitness Program.

3.3.2 Fitness Center Features

3.3.2.1 An on-site Fitness Center shall, at a minimum, consist of: separate male and female shower facilities and locker rooms; an exercise room for stretching and classes; a designated walking/jogging trail; and a variety of indoor exercise equipment such as treadmills, stair climbers, strength training machines, and free weights. Fitness Center equipment shall be of commercial quality and stand up well to wear and tear and heavy use.

3.3.2.2 Message or bulletin boards shall be used for communication and posting of relevant information about the Fitness Center or items of particular interest to Fitness Center users.

3.3.2.3 Interior physical activity areas shall have a working clock, a chart of target heart rates, and a chart depicting ratings of perceived exertion to enable users to monitor their activity.

3.3.2.4 A first-aid kit containing bandages, gloves, and a pocket mask shall be maintained and available to the Fitness Center staff for emergency use.

3.3.2.5 An Automatic External Defibrillator (AED) shall be readily available in or near the Fitness Center.

3.3.2.6 A hard-wired system with a large visible emergency button shall be available to call medical, first aid, and security. The emergency system shall include a prominently displayed sign as to its location and additional instructions. If the emergency system is inoperable or only partly functional, a sign(s) shall be posted at the Fitness Center to notify users of the status and the alternative methods to be used to summon emergency assistance. At a minimum, a sign shall be posted with this information immediately next to any device that is not fully functional. Any emergency system that is not fully functional shall be corrected as soon as possible.

3.3.2.7 OPM regulations allow for Federal agencies that do not maintain an on-site Fitness Center to authorize payment for employee use of an external Fitness Center. An external Fitness Center, the use of which is paid for by NASA, shall contain the same or comparable program components as required for a NASA Fitness Center, feature the same or comparable equipment, and utilize the same

or comparable equipment maintenance standards.

3.3.3 Fitness Center Program Components

3.3.3.1 Center Fitness Programs shall be written, maintained on-site, and periodically revised when conditions warrant. The program shall, at a minimum, include the following:

a. A statement of goals and objectives;

b. Safe, appropriate, legal, and ethical program requirements;

c. A description or list of qualified personnel to run the Fitness Center and a list of their credentials;

d. Periodic surveys of employee health needs and interests;

e. Identification of other resources, entities, agencies that are part of the program;

f. Integration of and coordination with other Agency functions or related programs (e.g., Medical, Safety, Employee Assistance);

g. The strategies used to communicate with potential and current Fitness Center users;

h. The method employed for Fitness Center operation;

i. A list and description of equipment at the Fitness Center;

j. User screening and orientation procedures;

k. Equipment repair logs;

l. Emergency response procedures; and

m. An evaluation process to be used to help in revising and improving the Fitness Center.

3.3.3.2 Fitness and health-care professionals employed at a Fitness Center who interact with Fitness Center users on a regular basis shall possess the necessary competencies for fulfilling their roles and responsibilities, normally involving a combination of education, training, certification, and hands-on experience. The fitness and health-care professionals who serve in counseling, instructional, and physical activity supervision roles for the facility shall have an appropriate level of related professional education, work experience, and/or certification.

3.3.4 Fitness Center Equipment Maintenance

3.3.4.1 Fitness Center equipment shall be maintained routinely to reduce the number of repairs and extend the life of the machinery. A visual inspection shall be conducted by fitness facility staff at least weekly to identify any broken or unsafe equipment. Broken or unsafe equipment shall be removed or prominently tagged to prevent client use. Preventive maintenance programs for fitness equipment shall include documentation describing the work performed, the date the work was performed, and the name of the individual or entity that performed the work. Records shall be kept in a log and made part of the Fitness Center's written program.

3.3.4.2 Clean towels, anti-bacterial cleaning solution, or other similar supplies shall be available to users to wipe off equipment. Users shall be encouraged to wash hands before and after workouts with soap and water or hand sanitizer and to keep skin lesions covered with a clean dry dressing.

3.3.4.3 Non-slip floors shall be the standard for all shower and locker room facilities. Floors in the showers and locker rooms shall be cleaned periodically.

3.3.4.4 Sinks, toilets, and urinals shall be cleaned and disinfected periodically.

3.3.4.5 Ventilation grills and vents in all areas of the Fitness Center shall be cleaned in accordance with Center practice.

3.3.4.6 Carpeted floors shall be vacuumed, and wooden, rubberized, and other hard floors shall be swept or dry mopped in accordance with Center policy.

3.3.4.7 Fitness Centers with saunas, steam rooms, or whirlpools shall ensure that the areas are maintained and that warning systems to notify users of any unacceptable risk and changes in temperature exist and are in working order.

3.3.5 Responsibilities

3.3.5.1 Fitness Center personnel shall include a Fitness Center Manager/Fitness Director, Federal Civil Servant COTR, Fitness Professional, or a combination thereof.

3.3.5.2 Fitness Center personnel involved in management or delivery of exercise programs to users shall be responsible for their own professional training and having the required experience as prescribed by the ACSM to ensure that users are provided with safe, effective programs and services. All personnel responsible for daily operation of the Fitness Center shall at a minimum possess and maintain Cardiopulmonary Resuscitation /Basic Life Support certification and are trained in the Bloodborne Pathogen standard.

3.3.5.3 The Fitness Center Manager or COTR shall be responsible for the overall management of the Fitness Center. The Manager or COTR shall also be responsible for fitness environment safety, emergency procedures, and ensuring that facility users and staff have received a health screening.

3.3.5.4 The Fitness Director shall possess a degree in exercise science or other health-related field with at least one year of supervisory experience in the fitness industry and shall be responsible for the Center Fitness Program design, for ensuring training is conducted, and staff supervision and accreditation. The Fitness Director shall manage exercise and activity programs. The Fitness Director shall be professionally certified at an advanced level by a nationally recognized health or fitness organization comparable to the ACSM health fitness instructor certification.

3.3.5.5 The Fitness Professional shall have a degree in exercise science or other health/fitness-related field. A professional certification from a nationally recognized health/fitness organization (comparable to ACSM exercise leader certification) is preferred. The Fitness Professional shall provide instruction to clients in safe and healthful exercise skills.

3.3.5.6 Fitness Centers that provide services in allied health fields such as nutrition or physical therapy shall employ providers who are duly certified, licensed, or registered within their state as required by law.

3.3.6 Process Description

3.3.6.1 Fitness Centers shall conduct a screening of new users to identify those at risk for a cardiovascular incident while exercising. At a minimum, new user screenings shall be conducted using such tools as the Physical Activity Readiness Questionnaire (PAR-Q) or the health screening questionnaire developed by the Wisconsin Affiliate of the American Health Association. The PAR-Q is the minimum acceptable tool for Fitness Center screening of new users. In addition to requiring a user's completion of the PAR-Q questionnaire (or implementing another equivalent or more stringent screening process), blood pressure shall also be evaluated. If any results suggest a potential medical problem, the user shall be referred to either the Center OH Clinic or their Private Medical Doctor. For any user that is referred to a Center OH Clinic or their PMD, a written medical

clearance shall be required prior to their use of the Fitness Center. All Fitness Center users shall be re-screened at least every three years (Appendix C, Physical Exam Matrix, and "Fitness Center Clearance"). The results of the periodic clearance process information shall be kept on file at the Fitness Center and readily identifiable with the user according to the rules for Personally Identifiable Information (PII). All documentation containing medical information about users shall be maintained in a secure and locked file.

3.3.6.2 A Fitness Center orientation shall be provided to each new user, including emergency procedures, a discussion of Fitness Center rules and regulations, and detailed instructions on how to safely use the Center and equipment.

3.3.6.3 A mechanism for user comments and feedback shall be implemented (e.g., annual survey for continued quality improvement).

3.3.6.4 A method shall be implemented and enforced to identify (badge, keyed lock) users who have been screened and eligible to use the facility. Users shall sign in manually or electronically each time they use the Fitness Center. Ideally, sign-in procedures are accomplished through a computerized system in which statistical information can be extracted to monitor Fitness Center use.

3.3.6.5 The Fitness Center hours of operation shall meet the majority of users' needs and work schedules. Supervisors shall encourage and support employee use of the Fitness Center and health promotion activities.

3.3.6.6 For safety reasons, using the "Buddy System" at unmanned Fitness Centers shall be discouraged.

3.3.6.7 In an emergency, a Fitness Center staff member shall remain with the client at all times during a medical emergency until assistance has arrived. A physician, registered nurse, or emergency medical technician trained in advanced cardiac life support shall be the medical liaison responsible for critiquing emergency drills and reviewing the Fitness Center medical emergency plans and incident reports.

3.3.6.8 Fitness Center staff AED training shall be conducted as soon as possible after hiring. Training renewal shall be completed by responders based on Federal and state requirements, usually every two years.

3.3.6.9 The Federal Employees Compensation Act (FECA), as amended, 5 U.S.C. S8101 et seq., provides for the payment of workers' compensation benefits to Federal employees sustaining injuries while in the performance of their duties. The Department of Labor has established guidelines defining the scope of FECA's coverage for employees injured while engaging in physical fitness activities. The FECA shall be consulted for additional details regarding the applicability of Federal employee compensation benefits in the case of an employee injury at a Center Fitness Center.

3.4 Nutrition

3.4.1 Policy

3.4.1.1 NASA's workplace nutrition program shall increase awareness through education and create a work environment supportive of preventable health practices.

3.4.2 Responsibilities

3.4.2.1 The CHMO shall provide policy guidance for promoting nutrition at NASA Centers.

3.4.2.2 The DOH shall provide technical support and consultation on food services statement of

work (SOW).

3.4.2.3 The OH COTR shall support the implementation of the Agency-wide health promotion plan and all related activities.

3.4.2.4 The Center Medical Directors shall implement nutritional awareness and education programs, advocating for a workplace environment supportive of good nutritional practices and collaborating with the food service vendor and the respective COTR.

3.4.2.5 As appropriate, the Center specific health promotion team shall be included in the development of the nutrition promotion agenda utilizing the Nutrition Technical Bulletin as a point of reference.

3.4.3 Process Description

3.4.3.1 The CHMO shall provide guidance and support to the Centers for overall planning and implementation.

3.4.3.2 The OH COTR shall review and comment on the Center's overall nutrition education agenda. The COTR shall ensure collaboration between the Clinic Medical Director or designees and the food service vendor and their respective COTR.

3.4.3.3 The Center Medical Director or designee shall develop nutrition awareness activities that:

a. Address the impact of food and supplements on disease management and prevention;

b. Provide consultation services to the food service vendor; and

c. Develop a set of metrics for program evaluation.

3.5 Solar Safe Program

3.5.1 Policy

3.5.1.1 Since the majority of the NASA Centers are located in the Sunbelt, the NASA workforce is potentially at risk for developing some forms of skin cancer. All NASA Centers shall follow the principles of Solar Safe.

NOTE: The agenda for the Solar Safe Program is found on the Occupational Health Program Web site at www.oph.nasa.gov.

3.5.2 Responsibilities

3.5.2.1 The CHMO shall provide policy guidance and technical support for implementation of the Solar Safe program at NASA Centers.

3.5.2.2 The Center OH COTR shall ensure that Center operations are conducive to the implementation of such programs and related disciplines such as medical and industrial hygiene are acting in concert to achieve maximum benefit.

3.5.2.3 The Center Medical Director shall implement the Solar Safe program. All NASA Centers must provide skin cancer screening as part of their medical services and provide ongoing activities to increase awareness through education.

3.5.2.4 The Center-specific health promotion team shall participate in the development and assessment of the Solar Safe program.

3.5.2.5 The Center Medical Director designees shall provide the CHMO with a periodic assessment of their progress and program outcome.

3.5.3 Process Description

3.5.3.1 The CHMO shall provide policy guidance and support for overall planning, oversight, and evaluation.

3.5.3.2 The Center OH COTR shall review and comment on the Center's Solar Safe program components. The COTR shall ensure collaboration between the disciplines, especially if more than one contractor is involved. When warranted, the COTR shall advocate for a work environment conducive to the success of the program.

3.5.3.3 The Center Medical Director or designee shall develop a broad plan of action to address sun safety, especially if the workforce is involved in outdoor activities in relation to job duties.

3.5.3.4 The Center Medical Director or designee shall work in partnership with related disciplines such as industrial hygiene, the employers, the supervisors, and union representatives to:

a. Build a sustainable and comprehensive program that addresses behavior modification through education and communication of relevant health information;

b. Coordinate partnerships with local specialists, agencies or non-for-profit societies such as the America Cancer Society (ACS) to offer skin cancer screening as a component of, or independent of, a periodic physical and medical surveillance examinations; and

c. Advocate for administrative measures such as work schedule changes to reduce the amount and duration of exposure between peak hours and to increase compliance with "covering up" behaviors.

3.6 Smoking Cessation

3.6.1 Policy

3.6.1.1 The implementation of smoking cessation programs shall be instituted across NASA Centers and Facilities.

3.6.1.2 The programs shall identify smokers, assess smokers' interest in quitting, and provide access to intervention programs.

3.6.1.3 NASA Centers shall either implement Center-specific, evidence-based intervention programs or they may collaborate with recognized societies such as the ACS or the American Lung Association.

3.6.2 Responsibilities

3.6.2.1 The CHMO shall provide policy guidance and technical support for implementing smoking cessation programs at NASA Centers.

3.6.2.2 The Center OH COTR shall ensure that Center operations are conducive to implementation of such programs and that related disciplines such as medical, fitness, EAP, and industrial hygiene (IH) are acting in concert to achieve maximum benefit.

3.6.2.3 The Center Medical Director shall implement a smoking cessation program, advocating for a workplace environment supportive of good health practices and ensuring program metrics are met.

3.6.3 Process Description

3.6.3.1 The CHMO shall provide policy guidance and support to the Centers for overall planning and implementation.

3.6.3.2 The Center OH COTR shall review and comment on the Center's smoking cessation agenda. The COTR shall ensure collaboration between the disciplines, especially if more than one contractor is involved. When warranted, the COTR shall advocate for a work environment conducive to the success of the smoking cessation program.

3.6.3.3 The Center Medical Director or designee shall develop a smoking cessation plan focusing on the following goals:

a. Preventing tobacco use among the workforce;

b. Promoting tobacco use cessation;

c. Eliminating exposure to secondhand smoke; and

d. Educating about tobacco-related health disparities.

3.6.3.4 The Center Medical Director or designee shall work in partnership with related disciplines such as fitness, EAP, IH, physicians, and nutritionists to accomplish these goals by:

a. Building a sustainable and comprehensive program that addresses multiple treatment modalities;

b. Communicating relevant and timely health information; and

c. Establishing partnership with local agencies or non-for-profit societies such as the American Lung Association.

3.6.3.5 The Center specific health promotion team shall be included in the development and assessment of the smoking cessation program.

3.6.3.6 The Center Medical Director or designee shall provide OCHMO with a periodic assessment of Center progress and program outcome.

3.7 Annual Immunization Program

3.7.1 Policy

3.7.1.1 Immunization practices at NASA Centers shall be based on the latest available recommendations from the U.S. Preventive Services Task Force, Centers for Disease Control and Prevention, and other leading health professional organizations.

3.7.1.2 Since flu immunization provides protection against influenza strains contained in the vaccine through one flu season, yearly immunization shall be offered to all employees without known contraindications.

3.7.2 Responsibilities

3.7.2.1 The CHMO shall provide policy guidance and technical support for the implementation of the Adult Immunization Program at NASA Centers.

3.7.7.2.1 The DOH shall ensure the effectiveness of Center flu immunization efforts through its regular periodic audit process.

3.7.2.3 The Center OH COTR shall advocate for Center operations and budgetary assignment that

are conducive to the implementation of the total immunization program, including the annual influenza immunization program.

3.7.2.4 The Center Medical Director shall implement the annual immunization program.

3.7.3 Process Description

3.7.3.1 The Center OH COTR shall review and comment on the Center's annual influenza immunization program. The COTR shall advocate for the success of the program and provide OCHMO with a periodic assessment as requested.

3.7.3.2 Preventative health activities for all NASA clinics shall include a review of immunization status as part of every clinic visit.

3.7.3.3 Centers shall develop relevant policies and procedures to address immunization services as part of their overall scope of services.

Chapter 4. Environmental Health

4.1 General

4.1.1 Policy

4.1.1.1 NASA Centers shall comply with the following applicable regulations and standards:

a. The Occupational Safety and Health Administration (OSHA) standards promulgated under Section 6 of the OSH Act of 1970;

b. 10 CFR, Chapter I, Nuclear Regulatory Commission;

c. 21 CFR Part 120, Hazard Analysis and Critical Control Point Systems; and

d. Consensus standards and recognized industry standards (e.g., American Conference of Governmental Industrial Hygienists Threshold Limit Values and Biological Exposure Indices for Chemical Substances and Physical Agents; American National Standard Institute (ANSI); the National Council on Radiation Protection (NCRP); etc).

4.1.1.2 Centers may pursue variances to OSHA and NASA standards and adopt supplemental/alternate standards as per 29 CFR 1960 and NPR 8715.1, NASA Occupational Safety and Health Program requirements.

4.1.2 Recordkeeping

4.1.2.1 Centers shall keep designated records to evaluate trends and outcomes; validate the effectiveness Environmental Health (EH) programs, document training and pertinent EH events, and provide a mechanism for active managerial control over EH programs.

4.1.2.2 All required records shall be complete, accurate, timely, and appropriate for the task and provide for a continuity of information.

4.1.2.3 All required records shall not be obliterated. When corrections are needed, a line shall be struck through the error, a correction effected, and a notation explaining the correction added. Corrections to electronic databases shall be traceable.

4.1.2.4 All EH and EH-related records shall be subject to review for quality and consistency by the Office of the Chief Health and Medical Officer (OCHMO) EH representatives and OSHA personnel when requested during a site visit or compliance inspection. Records shall be made available to employees, former employees, and their representatives upon request.

4.1.2.5 Centers shall generate, retain, and dispose of EH records according to NASA records requirements, the specific requirements of this chapter, and 29 CFR 1960, Subpart I, Recordkeeping and Reporting Requirements.

4.1.2.6 Records containing individuals' personal information shall be safeguarded in accordance with 5 U.S.C. 552a, the Privacy Act of 1974; and shall be maintained and dispositioned in accordance with NPR 1441.1, NASA Records Retention Schedules.

4.1.3 Emergency Preparedness

4.1.3.1 The Agency Security and Program Protection organization shall coordinate with the OCHMO on EH emergency preparedness efforts and requirements as requested. Corresponding Center Security and Program Protection counterparts shall coordinate with and support Center EH emergency preparedness efforts and requirements.

4.1.3.2 Center EH organizations shall develop emergency preparedness plans to implement their roles and responsibilities specified in the Center Emergency Preparedness Plan.

4.1.3.3 Center EH organizations shall participate in pertinent Center drills, followed by lessons learned to be used to improve EH emergency responses.

4.1.4 Designated Agency Safety and Health Official (DASHO) Notification Requirements.

4.1.4.1 Centers shall inform the DASHO immediately by the most expeditious means, with a simultaneous copy to the Senior Environmental Health Officer, of the following:

a. Events involving a work-related employee death or in-patient hospitalization of an employee;

b. Official visitations by any Federal or state safety or EH-related agency to Centers or any NASA facilities;

c. Center refusal of entry of any Federal or state safety or EH-related agency for an inspection;

d. Receipt of Federal or state safety or EH-related agency citations;

e. Health and safety-related reports of reprisal or discrimination;

f. Reports of Immediately Dangerous to Life and Health (IDLH) working conditions; and

g. Health and safety-related warrants/subpoenas.

4.1.4.2 Centers shall inform the DASHO of the results of OSHA inspections and investigative reports of OSHA reportable events, within ten (10) days, by letter, e-mail, or facsimile with copies to the Agency Office of Safety and Mission Assurance (OSMA).

4.1.4.3 Centers shall inform the DASHO of corrective action reports of OSHA reportable events and replies to OSHA inspections and reports of unsafe working conditions that are unresolved in 30 days, by letter, e-mail, or facsimile within 30 days with copies to the Agency OSMA.

4.1.5 OCHMO Notification Requirements

4.1.5.1 In addition to the DASHO notification requirements, notifications to the OCHMO shall be made to the Senior Environmental Health Officer (SEHO). Centers shall inform the SEHO of EH coordination, partnering, collaboration, agreements, etc., with any Federal agency (examples: FDA, NIOSH, EPA, DOT, NRC, etc.), within ten (10) days, by letter, e-mail, or facsimile.

4.1.6 Training and Certification

4.1.6.1 All personnel shall be appropriately trained for the tasks they perform and shall meet at least the minimum applicable regulatory requirements for training and certification.

4.1.6.2 Specifically, the requirements of OSHA Publication, OSHA 2254, Training Requirements in OSHA Standards, and Training Guidelines shall be met. Safety and health inspectors shall meet the requirements of 29 CFR 1960.25, Qualifications of Safety and Health Inspectors and Agency Inspections, and NPR 8715.1, NASA Safety and Health Program.

4.1.6.3 Agency personnel in charge or responsible for EH aspects shall be trained in accordance with the following OSHA requirements:

a. Top Agency management officials: 29 CFR 1960.54, Training of Top Management Officials;

b. Agency supervisors: 29 CFR 1960.55, Training of Supervisors;

c. Safety and health specialists: 29 CFR 1960.56, Training of Safety and Health Specialists;

d. Safety and health inspectors: 29 CFR 1960.57, Training of Safety and Health Inspectors;

e. Collateral duty safety and health inspectors and safety and health committee members:

29 CFR 1960.58, Training of Collateral Duty Safety and Health Personnel and Committee Members; and

f. Employees and employee representatives: 29 CFR 1960.59, Training of Employees and Employee Representatives.

4.1.7 EH Budget and Resources

4.1.7.1 The NASA Administrator shall ensure that the Agency budget submission includes appropriate financial and other resources to effectively implement and administer the Agency's EH program, per 29 CFR 1960.7, Financial Management.

4.1.7.2 The DASHO, NASA Program Managers, and Center Directors, safety and health officials at all appropriate levels, and other management officials shall be responsible for planning, requesting resources, implementing, and evaluating EH program budgets in accordance with

29 CFR 1960.7(b) and the regulations of the Office of Management and Budget Circular A-11 (sections 13.2(f) and 13.5(f) and other relevant documents.

4.1.7.3 Resources for EH programs shall include, but not be limited to, the following, in accordance with 29 CFR 1960.7(c):

a. Sufficient personnel to implement and administer the program at all levels, including necessary administrative costs such as training, travel, and personal protective equipment;

b. Abatement of unsafe or unhealthful working conditions related to Agency operations or facilities;

c. Safety and health sampling, testing, and diagnostic and analytical tools and equipment, including laboratory analyses;

d. Any necessary contracts to identify, analyze, or evaluate unsafe or unhealthful working conditions and operations;

e. Program promotional costs such as publications, posters, or films;

f. Technical information, documents, books, standards, codes, periodicals, and publications; and

g. Medical surveillance programs for employees.

4.2 Occupational Exposure Limits (OEL's)

4.2.1 Policy

4.2.1.1 At a minimum, NASA shall follow all OSHA standards promulgated under Section 6 of the OSHA Act of 1970, including the Permissible Exposure Limits (PEL's) for hazardous airborne contaminants identified in 29 CFR 1910 Subpart Z.

4.2.1.2 To more fully protect the NASA workforce, OEL's recommended and established by other acknowledged authorities or those developed specifically by NASA shall also be used.

NOTE: While the OSHA PEL's carry the weight of law, the majority of them were adopted in 1970 from 1968 consensus values and do not necessarily reflect current scientific data. Additionally, there currently are PEL's established for approximately 400 chemicals. This is a relatively small percentage of the thousands of chemicals that exist. For these reasons, use of OEL's is necessary and prudent.

4.2.2 Responsibilities

4.2.2.1 The Chief Health and Medical Officer (CHMO) shall provide oversight in the area of OEL's and shall assess compliance with this policy.

4.2.2.2 CHMO shall provide technical support to NASA Centers in developing OEL's where none exist. Support may be in the form of reference materials, literature searches, consultation with experts, etc.

4.2.2.3 CHMO shall notify all Centers when an OEL is established by one Center for a specific chemical so they can assess its applicability to their operations.

4.2.2.4 Centers shall be responsible for monitoring the workplace and workforce and to select the most appropriate and protective OEL's for the work being performed and ensuring people with appropriate training implement OEL's. They are also responsible for developing and recommending OEL's in the absence of an existing OEL for a specific chemical.

4.2.3 Process Description

4.2.3.1 NASA Centers shall utilize OSHA PEL's, Threshold Limit Values (TLV) issued by the American Conference of Governmental Industrial Hygienists (ACGIH) or specific NASA Health Standards issued by the OCHMO, whichever is more stringent.

4.2.3.2 In the absence of a specific PEL, TLV, or NASA Standard, other sources of OEL's shall be utilized. These include the following: (1) National Institute for Occupational Safety & Health's (NIOSH) Recommended Exposure Limit (REL); (2) American National Standards Institute (ANSI) Standards; (3) National Academy of Science Recommendations; (4) American Industrial Hygiene Association (AIHA) Workplace Environmental Exposure Level (WEEL); (5) Environmental Protection Agency Recommendations; (6) Deutsche Forschungsgemeinschaft (German Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area) Maximum Allowable Concentration; (7) British Health & Safety Commission and Health & Safety Executive. Occupational Exposure Limits, and (8) Chemical Manufacturers recommend exposure values.

4.2.3.3 When no established OEL exists for a specific chemical, a working OEL shall be established based on a thorough examination of the data available for that chemical and by following established industrial hygiene exposure limit setting guidelines. Only professionals that possess the appropriate degree of knowledge, experience, and professional judgment (e.g., a Certified Industrial Hygienist) shall establish a working OEL. This process shall take into account chemical analogy, animal experimentation and extrapolation, and human experience and epidemiological data.

4.2.3.4 All of the available data shall be thoroughly documented. A written rationale that considers, summarizes, and weighs the importance of all data shall be produced. Additionally, experience and professional judgment shall be applied to weigh all information and apply an appropriate safety factor, based on the strength of the available data, before an OEL is recommended.

4.3 Occupational Exposure Assessment and Management

4.3.1 Policy

4.3.1.1 NASA Centers shall employ a systematic and comprehensive approach to exposure assessment to anticipate, recognize, evaluate, and control health hazards in the workplace and effectively and proactively manage Industrial Hygiene (IH) programs.

4.3.2 Responsibilities

4.3.2.1 The CHMO shall provide oversight in the area of Occupational Exposure Assessment and Management, assess compliance with this policy, and provide leadership in this area by working to standardize data collection across the Agency.

4.3.2.2 CHMO shall assess Center compliance with the Occupational Exposure Assessment and Management policy.

4.3.2.3 Centers shall establish and implement an effective Exposure Assessment and Management Program as outlined in this policy.

4.3.3 Process Description

4.3.3.1 All Center Environmental Health (EH) programs shall establish a written Occupational Exposure Assessment and Management Program whose purpose is to collect and organize available information on the workplace; the workforce; chemical, physical, and biological agents; existing controls; historical exposure data; biological monitoring data; and any other available source of information such as OEL's. This written program shall also include program goals and objectives.

4.3.3.2 The outcome of this exposure assessment effort shall be a complete summary of available, essential information on workers, tasks, agents, potential exposures (factoring in frequency and duration) and potential health effects.

4.3.3.3 All Center programs shall create similar exposure groups (SEG's) and define exposure profiles for the identified exposure groups. All potentially exposed employees shall be in a minimum of one identified exposure group.

4.3.3.4 A determination shall be made about the acceptability, unacceptability, or uncertainty of the exposure profile defined for each SEG. Uncertain exposures lead to further information gathering. Unacceptable exposures lead to control of the exposure. Acceptable exposures lead to a programmed reassessment.

4.3.3.5 Exposure groups with unacceptable exposures shall be prioritized and a strategy developed for control.

4.3.3.6 The exposure assessment program shall have a component that involves continual information gathering for the purpose of setting priority on exposure groups for additional characterization and further information gathering. This can be either qualitative or quantitative information and is used to enhance the basic characterization and better define exposure groups, their profile, and the risk posed by the exposure profile.

4.3.3.7 When monitoring data is collected, statistical tools (such as the AIHA tool or lognorm) shall be used to aid in understanding the data and to assist in interpretation and decision making.

4.3.3.8 All workers shall be protected using personal protective equipment (PPE) or administrative controls while long-term controls are being implemented.

4.3.3.9 Exposures shall be periodically re-characterized and reassessed in order to update exposure groups and exposure profiles.

4.3.3.10 The following records shall be maintained to document compliance with this chapter in accordance with applicable NASA recordkeeping requirements:

a. Lists of SEG's;

b. Exposure profiles; and

c. Judgments of acceptability.

4.4 Sampling, Analytical Methods, and Equipment Calibration

4.4.1 Policy

4.4.1.1 Critical data integrity shall be ensured by adherence to OSHA, NIOSH, or other recognized sampling and analytical methods using properly calibrated equipment with National Institute of Standards and Technology (NIST) traceability.

4.4.2 Responsibilities

4.4.2.1 The OCHMO shall assess the quality, consistency, and effectiveness of Center programs addressing proper sampling technique, analytical methods, and equipment calibration.

4.4.2.2 Centers shall develop appropriate policy and procedures to ensure that proper sampling techniques, analytical methods, and equipment calibration are used throughout the data collection process.

4.4.3 Process Description

4.4.3.1 Centers shall develop a written policy and procedures for Sampling, Analytical Methods and Equipment Calibration utilizing methods established by professional or regulatory bodies. At a minimum, these requirements shall address sample planning, sampling methodology, pre-survey calibration, survey performance, sample collection, post-survey calibration, sample documentation, shipment of sample media, equipment calibration and maintenance, and recordkeeping.

4.4.3.2 Engineering, administrative, and PPE controls shall be applied as appropriate whenever a sample exceeds the OSHA permissible exposure limit or the ACGIH threshold limit value, or other established OEL. Engineering controls shall be applied first. If engineering controls are not feasible, administrative controls shall be used. PPE shall be used as a last control measure.

4.4.3.3 All results shall be recorded and maintained in accordance with OSHA or NASA recordkeeping requirements, whichever is more stringent.

4.5 Reproductive and Developmental Health

4.5.1 Policy

4.5.1.1 NASA shall protect the reproductive health of all employees, students, and visitors from occupational exposures to substances (chemical, biological, radiological, or physical) known or suspected of being capable of posing a hazard to human reproduction and identify potential reproductive and developmental hazards and implement appropriate exposure control measures.

NOTE: This includes protection of the unborn.

4.5.1.2 NASA shall keep exposures as low as reasonably achievable since short-term exposures to reproductive hazards can result in long-term health effects and a developing fetus may also be adversely affected by exposures lower than those generally considered safe for adults.

4.5.3 Responsibilities

4.5.3.1 The CHMO shall establish and maintain a Developmental and Reproductive Health Protection policy that is reflective of Federal guidance, provides coordination and communication with the NASA Centers, and provides technical and subject matter expertise.

4.5.3.2 The CHMO shall provide Developmental and Reproductive Health Protection oversight and assess compliance with this policy.

4.5.3.3 Centers shall develop, implement, administer, and maintain a written Developmental and Reproductive Health Protection Program that is designed to ensure employees and their unborn children are adequately protected from recognized hazards.

4.5.4 Process Description

4.5.4.1 Written developmental and reproductive health protection guidelines shall include provisions for:

a. Evaluating areas where potential chemical, biological, or physical reproductive hazards exist and determine extent of potential exposures;

b. Recommending procedures to reduce workplace exposures to reproductive hazards (i.e., engineering controls, use of PPE, job rotation, etc.);

c. Providing training on chemical, physical, and biological reproductive hazards in the work area, including proper use of PPE, safety devices, etc., and other methods of decreasing exposure;

d. Providing information regarding reproductive hazards in the workplace;

e. Providing specific radiation safety training, including information on declaration of pregnancy for radiological issues;

f. Implementing measures (for declared pregnancies) to achieve the lower exposure limit (0.5 rem to embryo/fetus during entire gestation period) and conduct dose monitoring;

g. Managing written declaration of pregnancies for workers exposed to radiological hazards.

NOTE: See Section 4.15 of this Chapter for more information on radiation;

h. Ensuring that known reproductive hazards specific to a work area are included in the written job description;

i. Ensuring that supervisors provide individual operation training;

j. Maximizing employee privacy when implementing the elements of the program;

k. Notifying Occupational Medicine regarding areas with potential exposures for medical surveillance purposes or EH regarding areas requiring a workplace hazard assessment; and

l. Ensuring that alternate job duties are considered when indicated by Occupational Medicine, designating the person responsible for arranging reasonable accommodations, if available, and designating the person responsible for counseling the employee about other options, including sick leave and family leave when a reasonable accommodation is not available.

4.5.4.2 The Center EH organization shall perform a workplace hazard assessment upon the request of an employee or when it is necessary to ensure existing controls (engineering, administrative, and PPE) are adequate to protect the employee from reproductive hazards. The hazard assessment shall include:

a. Identification of chemical, biological, physical, or radioactive agents in the workplace that present a potential exposure risk;

b. Qualitative exposure assessment of concerned employee;

c. Review of work practices and PPE used, and recommend additional control measures if needed; and

d. Review of past EH reports and historical sampling results, if available.

4.6 Nanotoxicology

4.6.1 Policy

4.6.1.1 Since nanomaterials may pose unusual risk to human health due to their unique composition, reactivity, size, and ability to cross cell membranes, NASA shall ensure that all work with manufactured nanomaterials is prudently conducted in a manner that is responsible and safe.

4.6.2 Responsibilities

4.6.2.1 The CHMO shall establish and maintain a Nanotoxicology policy that reflects Federal and best practice initiatives, provide coordination and communication with the NASA Centers, and provide technical and subject matter expertise.

4.6.2.2 The CHMO shall provide Nanotoxicology program oversight and assess compliance with this policy.

4.6.2.3 Center Occupational Health (OH) Managers shall ensure that they have a written Nanotoxicology program (if needed), designed and implemented to ensure all work with manufactured nanomaterials minimizes exposures As Low As Reasonably Achievable (ALARA) or other exposure standards described in

Section 4.2. This program can be a part of the Chemical Hygiene Plan already required by 29 CFR 1910.1450 and/or hazard review processes at the Center (Safety Permit process, etc.).

4.6.3 Process Description

4.6.3.1 All Centers shall have a written Nanotoxicology program (if needed) that encompasses the requirements of this section.

4.6.3.2 Transportation, storage, use, and disposal of manufactured nanomaterials shall be conducted in accordance with all Federal, state, and local requirements.

4.6.3.3 Laboratory personnel shall be informed of the risks associated with workplace hazards through training programs, material safety data sheets, and labeling and signage.

4.6.3.4 Use of any manufactured nanomaterials that are defined as "chemical substances" under the Toxic Substances Control Act (TSCA) and which are not on the TSCA Inventory shall be reported to the U.S. Environmental Protection Agency (EPA). A Pre-manufacture Notice shall be submitted to the EPA by anyone intending to manufacture or import a chemical substance that is not on the TSCA Inventory of Chemical Substances.

4.6.3.5 All U.S. Food and Drug Administration (FDA) regulations applying to products that utilize nanotechnology or contain manufactured nanomaterials shall be followed.

4.6.3.6 Hazard Assessments shall be conducted prior to beginning work with manufactured nanomaterials by a qualified industrial hygienist to identify appropriate work procedures, controls, and personal protective equipment to ensure worker safety. The assessment shall evaluate several factors, including, but not limited to, the physical and chemical properties of the nanomaterial, the process by which the material will be generated and/or used, and existing engineering controls (e.g., fume hood, glove box).

NOTE: In some instances, the industrial hygienist may recommend collecting occupational exposure measurements (e.g., sampling) to further understand potential hazards or to identify specific processes or equipment requiring additional engineering controls.

4.6.3.7 All exposures to manufactured nanomaterials shall be kept to a minimum by utilizing the basic hierarchy of controls described below.

a. Engineering. In order to provide a safe work environment for faculty, staff, students, and visitors, engineering controls must be maintained wherever manufactured nanomaterials are used or stored. These controls may include local exhaust ventilation and localized filtration.

b. Respiratory protection. When local exhaust ventilation and filtration is not available or feasible for work involving manufactured nanomaterials, respiratory protection shall be utilized. However, the preferred method for manipulating manufactured nanomaterials is in solution, and every effort should be made to design and implement effective engineering controls for any operation where manufactured nanomaterial are used.

c. Work Practices. The incorporation of good work practices helps to minimize exposure to manufactured nanoparticles.

d. Administrative. Although traditional PEL's exist for many of the substances that manufactured nanomaterials are made from, the PEL for a nanomaterial of these substances is not yet clear. Thus, it is important to incorporate administrative controls into most all operations.

e. PPE. Typical chemistry laboratory apparel and PPE shall be worn when working with manufactured nanomaterials. This includes long pants, shirts, and shoes, as well as safety glasses, laboratory coats, and gloves. Open sandals, shorts, and skirts are prohibited.

4.6.3.8 Spill management shall be addressed emphasizing that all debris resulting from the cleanup of a manufactured nanomaterial spill shall be handled as though it were hazardous and include procedures for access control and cleanup of both dry and wet materials.

4.6.3.9 Waste disposal shall be addressed, focusing on characterization of the manufactured nanomaterial waste as either hazardous or non-hazardous, packaging, labeling, or transportation requirements as appropriate.

4.7 Control of Hazardous Substances and Articles Acquisitions

4.7.1 Policy

4.7.1.1 It is NASA's policy to evaluate the potential health and safety compliance and exposure issues involved with the use of hazardous substances and articles at NASA and set hazard controls prior to acquisition of these substances and articles. This includes acquisition of hazardous substances and articles via all types of procurements, including credit card purchases, donations, open orders, gifts, free samples, and other acquisitions of hazardous substances and articles. This section also includes hazardous substances and articles that are otherwise brought onto NASA-managed property.

4.7.2 Responsibilities

4.7.2.1 The OCHMO shall periodically monitor Center programs, which provide for overall hazardous substance/article control, including evaluation of Center controls over procurements of hazardous substances/articles during regular OH reviews.

4.7.2.2 NASA Centers shall be responsible for the following:

a. Administering and identifying baseline hazardous substance and article acquisition programs;

b. Maintaining and monitoring the effectiveness of hazardous substance and article acquisition programs, including all mechanisms for acquisition of hazardous substances and articles;

c. At least annually, auditing the records of purchases to ensure all hazardous substances and articles acquisitions are being reviewed and approved by competent persons and health and safety requirements for acquisitions are being properly implemented prior to acquisition;

d. Complying with OSHA, EPA, Nuclear Regulatory Commission (NRC), Department of Transportation (DOT), and other pertinent regulatory requirements for the acquired hazardous substances and articles;

e. Following the manufacturer's product recommendations and requirements;

f. Monitoring conformance with the requirements of this section and reporting nonconformances to Center or Facility managers; and

g. Assuring the requirements of this section are included in all contract procurements, with provisions to extend the requirements to subcontracts.

4.7.2.3 Competent Persons are responsible for reviewing procurements of hazardous substances and articles and coordinating with Center safety and health organizations to:

a. Identify baseline hazards associated with the acquisition;

b. Identify alternatives, where available, to reduce risk;

c. Determine safety and health requirements for the safe use of the material/equipment; and

d. Disapprove acquisitions of hazardous substances/articles that cannot be safely used.

NOTE: A Competent Person is a person who has acquired through training, qualification, or experience, the knowledge and skills to identify hazardous substances/articles being requested for acquisition, and the ability to manage those purchased and brought oncenter.

4.7.3 Process Description

4.7.4.1 This section describes the minimum requirements that Centers shall implement for safe acquisition of hazardous substances and articles.

4.7.4.2 Each Center shall implement a means to positively control and regulate acquisitions of hazardous substances and articles.

4.7.4.3 Each Center shall implement a means to hold purchasers and receivers accountable for the proper and safe acquisition of hazardous substances and articles.

4.7.4.4 The following provisions shall be implemented prior to acquisition:

a. Use of a less hazardous substance or article, if one can reasonably be substituted;

b. Acquisition of the smallest reasonable amount, size, activity, or hazard potential;

c. Approval of the acquisition by a Competent Person; and

d. Completion of hazard determinations, training, and other pertinent preparations adequate to assure safe use.

4.7.4.5 Competent Persons shall be authorized by the Center or Facility to acquire hazardous substances or articles.

4.7.4.6 Only Competent Persons shall approve acquisitions of hazardous substances and articles.

4.7.4.7 Competent Persons shall have the authority to deny acquisitions of hazardous substances and articles until potentially significant hazardous conditions are eliminated or controlled.

4.8 Hearing Conservation

4.8.1 Policy

4.8.1.1 This section establishes minimum requirements for an Agency-wide Hearing Conservation Policy. It outlines NASA's requirements for primary prevention of noise-induced hearing loss where employees are occupationally exposed to hazardous noise in all occupational settings, including all ground-based operations and all aircraft operations. This section does not apply to space flight operations.

4.8.1.2 The requirements of the latest revision of 29 CFR 1910.95, Occupational Noise Exposure Hearing Conservation Amendment Final Rule and appendices, and the requirements of the latest revision of 29 CFR 1904.10, Occupational Injury and Illness Recordkeeping and Reporting Requirements, for cases involving occupational hearing loss are incorporated herein by reference and shall be followed unless otherwise specified in this section.

4.8.1.3 Where conflicts exist between other NASA health and safety requirements, 29 CFR 1910.95, Occupational Noise Exposure Hearing Conservation Amendment Final Rule and appendices, 29 CFR Part 1904.10, Occupational Injury and Illness Recordkeeping and Reporting Requirements, and this section, the most protective requirements shall apply.

4.8.1.4 Centers shall take steps to inform and protect all personnel (including aircraft pilots and crew members) from potential risks to their hearing that may be encountered in, or derived from, the workplace.

4.8.1.5 Centers shall have a written Hearing Conservation Program (HCP) which, at a minimum, addresses and applies the requirements and provisions of this section and requires their contractors to have HCPs in accordance with the NASA FAR Supplement 1852.223-70, Safety and Health.

4.8.1.6 Centers shall have OH personnel with knowledge in sound analysis, noise exposure assessment, hearing protection, audiometric testing, and noise abatement strategies.

4.8.1.7 Occupational health personnel shall review their Center's HCP, including the hearing conservation

training program, for adequacy at least every three (3) years and more frequently if program requirements change. All reviews shall be documented and available for audit by OCHMO staff.

4.8.1.8 Centers shall implement a "Buy Quiet and Quiet by Design" program.

4.8.1.9 Centers shall implement a system to effectively prioritize noise surveys and noise remediation efforts as part of their HCP and in accordance with the provisions of this section.

4.8.1.10 Communication and coordination between and among Center managers, supervisors, employees, engineers, environmental health personnel, and the Medical Director shall be implemented to properly identify, evaluate, and control hazardous noise exposures.

4.8.1.11 Center Directors and affected program and project managers shall be notified of all operations and equipment not conforming to this section or the Center's HCP.

4.8.1.12 All definitions in 29 CFR 1910.95, Occupational Noise Exposure, Appendix I, shall be applicable to this document unless otherwise defined in Appendix A of this NPR.

4.8.2 Responsibilities

4.8.2.1 The DASHO shall ensure the provision of resources for the development and review of the Agency's Hearing Conservation Policy and for implementation of the OCHMO's responsibilities contained therein.

4.8.2.2 The Agency Director of Occupational Health shall provide direction for, and approval of, the Agency's Hearing Conservation Policy.

4.8.2.3 The Senior Environmental Health Officer shall:

a. Make recommendations and provide advice concerning hearing conservation to the Director, Agency Occupational Health Program, and the DASHO when requested, and

b. Review the adequacy of HCPs at each Center as per Chapter 9, Audit Process.

4.8.2.4 The Chief Engineer and the Assistant Administrator for Infrastructure and Administration shall ensure that "Buy Quiet and Quiet by Design" provisions are integral to the site selection and design of new or modified facilities and equipment.

4.8.2.5 The Assistant Administrator for Procurement shall ensure that "Buy Quiet and Quiet by Design" provisions are included in all contracts and in the purchase of new equipment, as appropriate.

4.8.2.6 Center Directors, Component Facility Directors, and the Assistant Administrator for Infrastructure shall ensure the following:

a. Adequate resources are provided to implement Center HCPs; and

b. Approved HCPs are implemented at their Centers.

4.8.2.7 Facility Managers, design engineers, occupational health personnel, and employers of affected employees shall implement the provisions of their Center's HCP.

4.8.2.8 Contracting Officers shall ensure that Center contract requirements include provisions for written HCPs in accordance with the NASA, FAR Supplement 1852.223-70, Safety and Health.

4.8.2.9 Medical Directors shall ensure that all medical examinations relative to occupational noise are properly performed, appropriate records maintained; and that all examination results are communicated to the employee as specified herein.

4.8.3 Process Description

4.8.3.1 At a minimum, the written HCP, specified in Section 4.8.1.5, shall include provisions for:

a. Specifying the individual responsibilities of Facilities Managers, Design Engineers, Occupational Health

Personnel, Supervisors, and Employees;

b. Assuring that noisy areas are surveyed to determine if they are hazardous noise areas;

c. Affirming the criterion sound level and exchange rate;

d. Evaluating and maintaining the HCP's effectiveness;

e. Implementing "Buy Quiet and Quiet by Design" Programs;

f. Exposure monitoring;

g. Medical surveillance, including audiometric testing, review, and medical followup;

h. Notification and coordination between employees, management, and occupational health personnel of noise exposure and dosimetry monitoring and survey results, operational and design plan review results, the addition of new equipment or new operations, and any work-related STS.

i. Selection, use, cleaning, and inspection of hearing protectors;

j. Training for employees and supervisors of employees enrolled in an HCP;

k. Council for Accreditation of Occupational Hearing Conservation (CAOHC) Certification of Occupational Hearing Conservationists;

l. Recordkeeping and access to information as per NPR 1441.1, NASA Records Retention Schedules and Privacy Act requirements;

m. Policy documentation;

n. Noise control requirements and strategies;

o. Effective implementation of engineering, operational, and administrative controls; and

p. Appropriate corrective actions for employees who violate requirements of this section, the Center's HCP requirements, or 29 CFR 1910.95, "Occupational Noise Exposure Hearing Conservation Amendment Final Rule," and appendices.

4.8.3.2 Whenever an employee is occupationally exposed to noise equal to or exceeding the NASA action level of 82 dBA Time-Weighted Average (TWA) for 30 days or more per year or can be expected to be exposed to 85 dBA TWA for any one day, Centers shall administer a continuing, effective HCP in conformance with the requirements of this section with all the affected employees included in the program. Exposures shall be computed without regard to any attenuation provided by the use of personal protective equipment.

4.8.3.3 NASA's allowable noise exposure limit is the equivalent to an 85 dBA, 8-hour TWA exposure using a 3 dB exchange rate as shown in Table 1 below.

Table 1
Noise Exposure Limits

Exposure level (dBA)	Hours	Minutes	Seconds
81	20	10	0
82	16	0	0
83	12	42	0
84	10	5	0
85	8	0	0

86	6	21	0
87	5	2	0
88	4	0	0
89	3	10	0
90	2	31	0
91	2	0	0
92	1	35	0
93	1	16	0
94	1	0	0
95	0	47	37
96	0	37	48
97	0	30	0
98	0	23	49
99	0	18	59
100	0	15	0

a. Table 1 contains noise exposure levels and durations that are equivalent to this limit as calculated by the following formula where L stands for exposure level and T for duration: $T (min) = 480/2^{(L-85)/3}$;

b. Exposures exceeding the equivalent exposures in Table 1 shall be controlled, reduced, or eliminated through a hierarchical combination of engineering controls, administrative controls, and hearing protection devices;

c. Noise dose shall include all impact/impulse noise measured up to and including 140 dB peak; and

d. The action level is 82 dBA, 8 hour TWA.

4.8.3.4 "Buy Quiet and Quiet by Design" Programs shall:

a. Meet realistic and achievable baseline noise criteria and optimize noise emission criteria based on individual and specific operational and site conditions;

b. Encompass design and development, or selection and purchase, of a broad variety of fixed and portable equipment purchased for use by Centers, including equipment purchased by contractors, to minimize noise-exposure hazards to personnel;

c. Require all equipment expected to produce noise which is approaching hearing conservation levels of 80 dBA and higher under a variety of site and operational considerations.

d. Identify noise emission and control requirements for equipment procurement, specifications, and design;

e. Contain provisions for "Buy Quiet and Quiet by Design" program support, promotion, training, and management sponsorship;

f. Be individualized to meet Center-specific needs, configuration, and other relevant factors;

g. Contain provisions for a documented waiver process that accommodates specialized research project items or flight hardware.

4.8.3.5 Engineering Controls shall:

a. Be the first and primary means of controlling hazardous noise. The feasibility and cost of engineering controls may be considered when making decisions about these controls;

b. Attempt to reduce noise emissions (measured at operator position or equivalent) to below 85 dBA; and

c. Be reviewed to assess the adequacy of precautions that are planned and/or undertaken to control noise exposures.

4.8.3.6 Engineering projects, drawings, and operational plans, including noise control measures, shall be coordinated with affected management organizations and occupational health personnel in the early stages of the design and/or planning process and prior to contract award and/or authority to proceed.

4.8.3.7 Organizations responsible for introducing changes to facilities, operations, or procedures shall notify occupational health personnel of:

a. Any changes in operations or equipment that increases noise levels; and

b. Any new, uncontrolled, or previously unidentified areas, operations, or equipment that may produce hazardous noise or may not comply with the requirements of this section.

4.8.3.8 If engineering controls fail to reduce sound levels within the requirements specified in this section, administrative controls shall be utilized. Examples of administrative controls include access restrictions and time limitations in the hazardous noise area. Specific requirements for administrative controls include:

a. Maximizing the distance between the employee and the hazardous noise source to the extent practical; and

b. Identifying hazardous noise areas according to the following criteria:

(1) Areas determined to be hazardous noise areas shall be identified by posting with signs that conform to 29 CFR 1910.145, Specifications for accident prevention signs and tags requirements.

(2) Signs shall clearly indicate the presence of hazardous noise and state the requirement to wear hearing protection. The signs shall be posted at the entrance(s) to or the periphery of hazardous noise area(s).

(3) Decals or placards with similar statements shall be affixed to power tools and machines that produce hazardous noise levels, and caution signs shall be posted in areas where hazardous noise-producing tools and machines are used.

4.8.3.9 If both engineering and administrative controls fail to reduce sound levels to 85 dBA, 8-hour TWA or below, personal hearing protection shall be used to bring exposures to acceptable levels in accordance with the following:

a. All personnel who enter designated areas or who perform tasks where exposure to noise is greater than or equal to 82 dBA, regardless of the duration of exposure, shall be provided with personal hearing protection;

b. All personnel who enter designated hazardous noise areas or who perform tasks where exposure to noise is greater than or equal to 85 dBA or 140 dB peak, regardless of the duration of exposure or number of impulses, shall be provided with and required to wear personal hearing protection;

c. Earplugs shall be for the exclusive use of each employee and shall not be traded or shared;

d. Hearing Protection Devices (HPDs) shall attenuate employee noise exposure to an 8-hour, TWA of 85 dBA or less. For those employees with a Standard Threshold Shift (STS), HPDs shall attenuate exposure to an 8-hour, TWA of 82 dBA or less. HPD attenuation shall be determined by one of the following methods:

(1) The published Noise Reduction Rating (NRR) value may be used in accordance with the guidance in this section. When using the NRR of a hearing protector to predict protected exposure levels, the following de-rating criteria shall apply for all types of HPDs, where "NRR" is the manufacturer's Noise Reduction

Rating. Required NRR = [(LA - 85) x 2] + 7, where LA is the measured ambient sound level to which the employee is exposed.

(2) Where it is not possible to provide the calculated value of Required NRR in (i) above, the Required NRR may be calculated using the employee's unprotected TWA exposure in place of LA. Required NRR = [(TWA - 85) x 2] + 7, where TWA is the employee's unprotected TWA exposure level. TWA values that are used in the calculation of required NRR shall reflect actual hours worked and all contributions to the employee's exposure.

(3) Real-world attenuation of a particular employee's field-fit HPD may be determined experimentally using a commercial fit-check system or other published method, such as those described in ANSI S12.68. Protected exposures shall be calculated from experimentally-derived attenuation data in accordance with the guidance provided by the particular method chosen.

e. The adequacy of HPD attenuation shall be re-evaluated whenever employee noise exposures increase;

f. Special hearing-protective equipment, such as sound-suppression or noise-cancellation communication headsets, shall be regularly inspected if they are used in hazardous noise areas;

g. Sound-suppression and noise-cancellation headsets that have been damaged, altered, or modified in any way that affect the attenuation characteristics shall not be used; and

h. Where sound-suppression and noise-cancellation headsets are not permanently issued to individuals, such equipment shall be cleaned and sanitized before re-issuance.

4.8.3.10 Noisy areas shall be surveyed to determine if they are hazardous noise areas in accordance with the following requirements:

a. Measurement of potentially hazardous sound levels shall be conducted when any information, observation, or calculation indicates that an employee may be exposed to noise at or above the action level. This includes, but is not limited to, times where there is a need to document representative noise exposures, where employees complain of excessive noise, or where it is difficult to understand a normal conversation when the speaker and listener face each other at a distance of 3 feet;

b. Noise surveys shall also be conducted whenever any changes to facilities, equipment, work practices, procedures, or noise-control measures alter potential noise exposures. A review of hazardous noise sources and controls, employee exposures, and work practices and procedures shall be conducted for changed conditions whenever an employee experiences an STS;

c. In determining TWA exposures, all continuous, intermittent, and impulsive sound levels, from 80 dBA to 140 dBA, shall be integrated into the noise measurements;

d. Octave band analysis shall be conducted, as necessary, to establish the characteristics of the noise source and to help determine appropriate abatement techniques;

e. When a noise survey is performed, it shall determine the presence of compounding hearing-related circumstances present in the environment (e.g., certain solvents, heavy metals, carbon monoxide, heat, and vibration) to ensure proper mitigation;

f. Exposure monitoring shall be conducted when a noise survey shows that any employee or group of employees may be exposed to noise at or above 82 dBA, 8-hour TWA. The purpose of such monitoring is to determine the noise dose of the exposed employee and the representative exposure of similarly exposed employees and to determine appropriate noise abatement techniques;

g. All noise surveys and personal noise dosimetry monitoring shall be conducted in accordance with 29 CFR 1910.95 requirements, unless otherwise specified in this section;

h. Operational plans shall be reviewed to assess the adequacy of precautions that are planned and/or implemented to control noise exposures;

i. Baseline surveys shall be conducted of each operation, job, or procedure having the potential to create hazardous noise;

j. New equipment, operations, jobs, or procedures, with the potential for creating hazardous noise, shall be evaluated with regard to noise emissions prior to operational start up;

k. Employees and/or their representatives shall be provided an opportunity to observe noise dosimetry and area monitoring activities;

l. Affected employees shall be notified in writing of the results of noise dosimetry monitoring;

m. Employers of affected employees and the appropriate occupational health program managers shall be notified when noise measurement data indicate that noise exposures equal or exceed the action level or the limitations of Table 1. Written reports of the hazardous noise surveys that identify all survey observations, findings, and conclusions shall also be provided to affected employees; and

n. Hazardous noise areas shall be selected, surveyed, and documented each year.

4.8.3.11 All instruments used to measure workers' noise exposures shall adhere to the following requirements:

a. All instruments shall be field-calibrated prior to each use;

b. Instruments shall be checked and calibrated at least annually by the manufacturer, a representative of the manufacturer, or an approved laboratory; and

c. Sound-level meters used to measure worker noise exposures shall be set at "slow" response and A-weighting.

4.8.3.12 Audiometric test equipment shall be calibrated to meet the requirements specified in the latest revision of ANSI S3.6, Specification for Audiometers.

4.8.3.13 Ambient noise levels in audiometric test rooms and booths shall meet the specifications in the latest version of ANSI S3.1, Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms.

4.8.3.14 Medical surveillance shall be provided to all employees enrolled in an HCP in accordance with the following requirements:

a. Employees receiving medical surveillance shall undergo a baseline audiometric examination before beginning work assignments in hazardous noise areas;

b. If it is not possible to obtain the baseline prior to noise assignment, then employees shall undergo a baseline audiometric examination within 30 days of initial exposure to hazardous noise. During this 30-day period, employees shall wear personal HPDs, which reduce their exposure to 82 dBA TWA or below. When it is discovered that personnel have already been assigned to a position that may expose them to hazardous noise but have not yet had an audiometric examination, audiometry shall be conducted within 30 days of the discovery, and employees shall wear personal hearing protection that reduces their exposure to 82 dBA TWA or below;

c. Audiometric examinations shall include an audiogram, an otoscopic examination by an audiologist, physician, or CAOHC Certified Occupational Hearing Conservationist to determine any existing medical pathology of the ear, and an update to their medical history (occupational and personal) to document past noise exposure and other otopathological factors;

d. The employee shall have no apparent or suspected ear, nose, or throat problems that might compromise the validity of the audiogram. When an employee has an acute disease that may compromise the validity of the test, the audiogram shall be delayed until the condition has abated;

e. The exposure history taken at the time of the audiometric examination shall include ototoxic medications and exposure to ototoxic substances;

f. Personnel suffering from acute diseases of the ear shall not be placed in hazardous noise areas until the condition has abated, particularly if such diseases preclude the wearing of hearing protectors;

g. Centers shall take all possible measures to assure that employees who have participated in the HCP medical surveillance program receive a final audiometric examination prior to termination of employment, transfer to duties not involving noise exposures, transfer to another installation, or retirement. An annual audiogram, if completed within six (6) months of the termination, transfer, or retirement date, may be substituted for the final audiogram; and

h. When employees at a Center retain their "work role position" but change employers due to contract award to a new employer, all medical records applicable to hearing conservation shall follow them to their new employer, including their current baseline threshold.

4.8.3.15 Audiometric testing shall be performed upon initial assignment, and annually thereafter, in accordance with 29 CFR 1910.95, Sections (g) and (h) and as follows:

a. An audiologist or physician knowledgeable in hearing conservation shall oversee all audiometric testing conducted by CAOHC-certified Occupational Hearing Conservationists;

b. Personnel who conduct audiometric testing shall be familiar with the provisions of this section;

c. All baseline audiograms and confirmation audiograms following the identification of a STS shall be preceded by a period of at least 14 hours during which there is no known exposure to noise above 82 dBA TWA, on or off the job. Hearing protectors that lower workplace noise to the equivalent of 82 dBA TWA, using the appropriate noise-reduction rating, may be used to conform to this requirement;

d. An STS shall be logged as an OSHA-recordable event in accordance with 29 CFR 1904.10 if the answers to ALL of the questions below are "yes:"

(1) Did an annual age-corrected audiogram reveal a STS (10 dB shift or greater, averaging 2k, 3k, and 4k Hz) relative to the baseline audiogram in one or both ears? (Age correction permitted.)

(2) Is the employee's uncorrected hearing threshold level (averaging 2k, 3k, and 4k Hz) 25 dB or greater above audiometric zero in the same ear as the STS? (Age correction NOT permitted.)

(3) Is the STS work-related as determined by physician or other licensed health care professional, in consultation with the employer? This determination must be made in accordance with CFR 1904.5.

e. If during any medical evaluation or audiometric examination, the employee is identified as potentially unable to perform the job safely or has a hearing profile equal to or worse than that listed in Table 2 below, the employee and employer shall receive a written notification of the requirement to perform an Ability and Risk Evaluation. The written notification shall include results of the medical and work history with special emphasis on the association of any health conditions that may impair ability to safely perform the work expected in the position held (e.g., hear commands or signals) or the ability to wear appropriate personal hearing protection equipment in a hazardous noise area.

Table 2

Frequency (Hz)	500	1000	2000	3000	4000	6000
Hearing Threshold Level (dB)	25	25	25	35	45	45

4.8.3.16 The requirements for handling threshold shifts are as follows:

a. The STS may be computed using the age corrections described in OSHA 29 CFR 1910.95, Appendix F;

b. Each employee's annual audiogram shall be compared to his/her baseline audiogram to determine if the audiogram is valid and to determine if an STS has occurred;

c. The baseline of each ear shall be separately tracked;

d. A physician, audiologist, or CAOHC-certified Occupational Hearing Conservationist shall perform the hearing test and the comparison;

e. If an STS is identified and a confirmation audiogram is not performed within 30 days, the STS shall become a confirmed STS by default;

f. If the identified STS is followed by a confirmation audiogram and the confirmation audiogram does not confirm the STS, this second audiogram replaces the first one that suggested the STS;

g. If the identified STS is followed by a positive confirmation audiogram, the better of the two shall become the confirmed STS;

h. An audiologist or physician with hearing conservation experience shall review problem audiograms, including those showing an STS (either by confirmation within 30 days or by default) and shall determine whether there is a need for further evaluation.

i. When further evaluation is warranted, the employee shall be referred to an otolaryngologist or other qualified physician, or to an audiologist for further medical evaluation. See Section 4.8.3.l7, Referrals; and

j. A new baseline reference audiogram shall replace the original or previous baseline audiogram (in separate ears and not both ears, unless both ears meet criteria listed below) when:

(1) The reviewer determines that an STS is persistent on a retest (conducted no sooner than six (6) months later). The baseline shall be revised to the lower (more sensitive) value for the average. Employees assigned a new baseline audiogram, as a result of an STS, shall receive an audiometric re-evaluation six (6) months after this assignment to determine if a further STS has occurred.

(2) A "significant improvement" is shown if the average of thresholds at 2000, 3000, and 4000 Hz for either ear shows an improvement of 5 dB or more from the baseline and the improvement is persistent in the next test. The baseline shall be revised to the lower (more sensitive) value for the average. Age corrections shall not be used when determining "improvement."

(3) An audiologist or physician determines that reasons exist for not revising an employee's baseline audiogram. In such cases, the audiologist or physician must document the reasons for not revising the baseline.

k. The employee, employer, and environmental health staff shall be notified of an STS in writing within 21 days of the determination of the STS;

l. If the employee's uncorrected hearing threshold level, without age correction (averaging 2k, 3k, and 4k Hz) is 25 dB or greater above audiometric zero in the same ear as the STS, a work-relatedness determination shall be made for purposes of OSHA recordability. Based on the best available information, a physician or other licensed health care professional, in consultation with the employer, shall determine, in accordance with CFR 1904.5, whether the noise-induced STS is work-related;

m. Unless a physician has determined that the STS is not work-related, the following actions shall be taken:

(1) The employee's management and responsible safety and health office shall be notified of the occurrence of an STS or other work-related hearing loss.

(2) The work-related hearing loss shall be relayed to the Center's mishap reporting system.

(3) The employee shall be notified and examined by a physician or an audiologist for proper HPD fit.

(4) HPDs shall be re-evaluated for effectiveness, and the employee shall be refitted as necessary with HPDs offering a greater sound attenuation.

(5) The employee shall be trained or retrained on the hazardous effects of noise and the need to use hearing

protection.

(6) The work environment(s) shall be investigated to determine if work practices or changes in equipment or procedures have increased the noise hazard. Abatement actions shall be instituted, as necessary, with engineering controls employed first to reduce the potential for exposure to the action level.

(7) Any administrative and work practices being utilized to reduce noise exposures shall be re-evaluated for effectiveness.

n. When an OSHA-recordable STS has occurred, the employer shall record the condition as a hearing loss on the OSHA 300 Log and maintain the record in accordance with 29 CFR 1904, Recording and Reporting Occupational Injuries and Illnesses;

o. The Medical Director shall determine if reassignment to work in a low noise area is indicated to prevent further hearing impairment and shall advise the employer accordingly;

p. The employer shall have ultimate authority and responsibility for employee reassignment; and

q. Where the same employee experiences any subsequent work-related STS as a result of occupational noise exposure, the work environment(s) shall be re-evaluated. If the employee continues to work in the hazardous noise area(s), engineering and/or administrative controls shall be employed that reduce that employee's noise exposure to no more than 50 percent of what was previously allowed for that employee.

4.8.3.17 Employees shall be referred to an otolaryngologist or other physician knowledgeable in hearing conservation or to an audiologist based on the following criteria:

a. Where further medical testing or referrals are needed, the employee shall be notified of the reason for the testing or need for referral;

b. When the examining physician refers an employee to a specialist, communication of relevant medical data shall be provided to the specialist; and

c. The following criteria are based upon the American Academy of Otolaryngology-Head and Neck Surgery referral criteria and shall be used for referral to a qualified physician or otolaryngologist for more comprehensive testing and/or treatment.

(1) Average hearing threshold level at 500, 1000, 2000, and 3000 Hz greater than 25 dB HTL in either ear (Baseline Audiogram).

(2) Difference in average hearing threshold level between the better and poorer ears of more than 15 dB HTL at 500, 1000, and 2000 Hz (Baseline Audiogram).

(3) Change for the worse in average hearing threshold level in either ear compared to the baseline audiogram of more than 15 dB at 500, 1000, and 2000 Hz or more than 20 dB at 3000, 4000, and 6000 Hz (Periodic Audiograms).

(4) Variable or inconsistent responses or unusual hearing loss curves (Periodic Audiograms).

(5) History of ear pain; drainage; dizziness; severe, persistent tinnitus; sudden, fluctuating or rapidly progressive hearing loss; or a feeling of fullness or discomfort in one or both ears within the preceding 12 months (Any Audiogram).

(6) Earwax accumulation sufficient to completely obstruct the view of the eardrum with otoscopy or foreign body in the ear canal.

(7) Failure of any of the above criteria accompanied by ear pain; drainage; dizziness; or severe, persistent tinnitus (Any Audiogram).

(8) When an employee suspects that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors (Any Audiogram).

4.8.3.18 The latest edition of the American Medical Association Guides to the Evaluation of Permanent Impairment shall be used as a guideline in determining hearing impairment.

4.8.3.19 All HCP/hazardous noise training shall be conducted based on the criteria of this section.

a. Each Occupational Hearing Conservationist shall receive CAOHC certification training. A CAOHC refresher course shall be taken every five (5) years, at a minimum;

b. Occupational health personnel who conduct assessments shall receive initial training on their Center's hearing conservation program and in the hazards of noise exposure;

c. Employees and supervisors of employees enrolled in an HCP shall receive annual training in the hazards of noise exposure; and

d. Annual training in the hazards of noise exposure shall include, at a minimum:

(1) An overview or review of the 29 CFR 1910.95, the Center's and employer's (if a contactor) HCP, and this section.

(2) The effects of hazardous noise and ototoxic substances on hearing (including permanent hearing loss).

(3) Identification of the hazardous noise sources in the employee's work areas.

(4) Factors that may contribute to hearing loss.

(5) Noise-control principles.

(6) An explanation of the audiometric testing procedure and the purpose of audiometric testing.

(7) The employee's role and responsibilities in the HCP.

(8) The purpose of HPD's including:

(a) The advantages, disadvantages, and attenuation characteristics of various types of HPD's;

(b) Instructions on selection, fit, use, and care of HPD's; and

(c) The recommendation that employees use hearing protection whenever there is exposure to hazardous noise during off-duty activities (e.g., lawn mowing, use of firearms).

4.8.3.20 Accurate HCP records shall be maintained as specified in the applicable records retention schedules in NPR 1441.1 and 29 CFR 1910.95 (m), Recordkeeping.

4.8.3.21 Records kept shall fall within the guidelines of NPR 1441.1, NASA Records Retention Schedules and include, but are not limited to:

a. The Center's written HCP and subsequent revisions;

b. A comprehensive registry of all personnel placed in the HCP;*

c. Audiometric tests and records;*

d. Background sound pressure levels of audiometric test rooms;

e. Data and information concerning repair of audiometers;

f. Hazardous noise areas and noise levels recorded in those areas;

g. Survey and dosimetry results and recommendations;*

h. Data and information concerning calibration and repair of sound-measuring equipment;

i. The employee's most recent noise-exposure assessment;

j. Special noise studies;

k. Remedial actions recommended/taken;

l. Engineering controls installed;

m. Results of design and operational reviews;

n. Training; and

o. Hearing protector selection.

NOTE: Items above marked with an asterisk (*) shall be maintained for at least 30 years.

4.8.3.22 Documentation of other official HCP-related activities shall be as follows:

a. Audiometric test records shall include, as a minimum:

(1) Hearing threshold levels at 500, 1000, 2000, 3000, 4000, 6000, and 8000 Hz.

(2) The audiometric reference level to which the audiometer was calibrated at the time of testing.

(3) The date of the audiogram.

(4) The name, employee number, and job classification of the employee tested.

(5) The examiner's name and position.

(6) The date of the last calibration of the audiometer.

b. Audiograms and noise-exposure records shall be maintained as a permanent part of an employee's medical record;

c. When noise-exposure-measurement records are representative of the exposures of other individuals participating in the HCP, and to the extent allowable by the Privacy Act, the range of noise levels and the average noise doses shall be made a permanent part of the medical records of those other individuals; and

d. Consistent with the requirements of the Privacy Act and the restrictions in the "Annual Notice and Amendment to Systems of Records," published in the Federal Register, copies of this section, 29 CFR 1910.95, and any other records required by this section, shall be provided upon written request to:

(1) Employees and former employees and their representatives.

(2) Representatives of the U.S. Department of Labor.

(3) The National Institute for Occupational Safety and Health (NIOSH).

(4) NASA Occupational Health Program personnel.

4.9 Ergonomics

4.9.1 Policy

4.9.1.1 To prevent musculoskeletal disorders (MSD) in the workplace, Centers shall implement an ergonomics program to ensure proper fit between the job tasks, equipment, and the worker performing the duties.

4.9.2 Responsibilities

4.9.2.1 The CHMO shall establish and maintain an ergonomic policy that reflects Federal guidance and best practice initiatives, provide coordination and communication with the NASA Centers, and provide technical and subject matter expertise.

4.9.2.2 OCHMO shall also assess Center compliance with this policy.

4.9.2.3 Center OH Managers shall be responsible for developing and maintaining a written ergonomic program, which complies with the requirements stated in this policy and is consistent with current professional guidance from organizations such as OSHA and NIOSH.

4.9.3 Process Description

4.9.3.1 Each Center shall have a written ergonomics program that includes at least the following elements:

a. Management support and employee participation;

b. Worksite analysis;

c. Job analysis;

d. Medical management;

e. Training; and

f. Program evaluation.

4.9.3.2 Management support of the ergonomics program shall be demonstrated at a minimum by approving a Center ergonomic policy. This starts at program/project initiation with the incorporation of ergonomic principles and requirements in procurement of furniture and equipment. Employees (and their designated representatives) shall have ways to report "MSD signs and symptoms," obtain responses to reports, and participate in developing, implementing, and evaluating each element of the program. Policies or practices shall not discourage employees from participating in the program or from reporting MSD's signs or symptoms. A method for employees to report MSD signs and symptoms and to get prompt responses shall be established. Employee reports of MSD signs and symptoms shall be evaluated to determine whether a MSD has occurred. Information to employees shall be periodically provided that explains how to identify and report MSD signs and symptoms.

4.9.3.3 A worksite analysis shall be performed where existing hazards and conditions exist, and where operations or areas with the potential to create hazards exist. This includes scrutiny and tracking of injury and illness records to identify patterns of traumas or strains that may indicate the development of MSD's. Whenever new ergonomic hazards are introduced to operations, a worksite analysis shall be performed.

4.9.3.4 Operations with significant ergonomic risk factors present shall be analyzed to fully define the ergonomic risk factors that result in MSD hazards. The ergonomic hazards must be eliminated, reduced to the extent feasible, or materially reduced using an incremental abatement process.

4.9.3.5 A medical intervention/management system shall be designed and implemented to eliminate or reduce the risk of development of MSD's through early identification and treatment by qualified medical providers. Concerted efforts shall be made to return employees to work as soon as possible.

4.9.3.6 Employees shall be provided proper ergonomic training to make employees aware of the ergonomics program, MSD hazards, and methods for eliminating MSD hazards.

4.9.3.7 The Ergonomic Program shall be re-evaluated periodically and identified deficiencies corrected. Metrics that document the efficacy of the ergonomics program shall be maintained and used to improve the program and to reduce MSD risks.

4.10 Indoor Air Quality (IAQ)

4.10.1 Policy

4.10.1.1 NASA recognizes the negative impact poor IAQ can have in the workplace on injuries, illnesses, and adverse health symptoms affecting employee productivity, morale, and absenteeism. This requirement

establishes minimum standards for all NASA Center IAQ programs with regard to complaint investigation, IAQ testing, communication of IAQ information to employees, mold remediation, recordkeeping, and general requirements.

4.10.2 Responsibilities

4.10.2.1 The CHMO shall establish and maintain an IAQ policy that is reflective of Federal guidance, provide coordination and communications with the NASA Centers, and provide technical and subject matter expertise.

4.10.2.2 The CHMO shall provide IAQ program oversight and assess compliance with this policy.

4.10.2.3 Centers shall ensure that they have a written IAQ program that is designed to ensure all indoor environments are safe and free from recognized hazards for human occupancy.

4.10.2.4 Centers shall ensure that their IAQ programs include provisions for:

a. Investigating IAQ complaints, offering technical guidance and support on minimizing the impact of constructions, renovation, and maintenance activities on IAQ, and recommending corrective actions to resolve all IAQ problems;

b. Evaluating the medical condition of employees who are potentially affected by exposure to indoor air contaminants;

c. Ensuring building heating, ventilation, and air-conditioning (HVAC) system designs and modifications meet recommended standards, including the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) guidelines for relative humidity and temperature, and do not adversely affect local exhaust ventilation systems used to control hazardous materials;

d. Providing housekeeping services that minimize dust accumulation and food wastes and maintain carpets in a manner which is sufficient to minimize the likelihood of IAQ complaints; and

e. Ensuring indoor work areas are free from contaminants (i.e., visible mold, pesticides, ozone from copiers, open chemical containers, outdoor sources, etc.) that contribute to IAQ problems.

4.10.3 Process Description

4.10.3.1 General IAQ investigations shall involve the cooperation of several organizations at a Center, including the affected individuals, industrial hygiene (IH), occupational medicine, building managers, janitorial staff, maintenance, and operations staff.

4.10.3.2 IAQ investigations shall follow four basic steps (these are not necessarily distinct stages and some may be intermixed depending on the situation and discretion of the investigator):

a. Identification of an IAQ concern;

b. Investigation of the IAQ concern. This shall be done by the appropriate IH organization;

c. Collection of appropriate and representative samples; and

d. Evaluation of data, recommendations and conclusions, and report generation.

4.10.3.3 An open, transparent, and effective communication process with affected occupants regarding an IAQ investigation's findings and subsequent correct actions shall be developed and followed for IAQ problems that have affected a significant amount of NASA facility occupants and/or raised serious health concerns. This process shall include both verbal and written communication and shall be continued until the IAQ concern is effectively resolved. Communication efforts shall start at the earliest stages of an IAQ investigation.

4.10.3.4 Employees shall be notified about building conditions and policies that may have a significant adverse IAQ impact (e.g., planned renovation, remodeling, maintenance or pest control activities) on indoor

air quality and operational activities.

4.10.3.5 An effective process for moisture control and mold remediation shall be developed at all Centers. When mold is found to be present, the Center shall work with their industrial hygiene organization to develop a plan for remediation. The methods used for mold remediation depend on the type of material and the extent of the area with mold growth but shall be appropriate with current professional guidelines (see Section 4.11.5, References).

4.10.3.6 The following general IAQ requirements shall be incorporated into each Center's IAQ program:

a. Construction and maintenance activities in occupied buildings shall be planned and managed to minimize the release of dust, vapors, fumes, and other air contaminants to protect workers and building occupants. For example, paint vapors shall be minimized using low-emitting products and scheduling or ventilation;

b. The purchase of building and office materials such as carpet, upholstery, cushions, adhesives, and furniture shall be low volatile organic compound emitting and shall not significantly contribute to IAQ problems;

c. Carpet maintenance shall be maintained in an effort to ensure carpets do not become a source of dust, mold, bacteria, and other indoor air contaminants;

d. Integrated pest management techniques shall be used to reduce IAQ problems created during pesticide applications;

e. Parked vehicles, such as those in loading docks, shall not be allowed to remain running in close proximity to building air intakes where exhaust contaminants may get entrained into the building;

f. Designated smoking areas shall not be near air intake systems or entry/exit doors where smoke may be entrained into the building;

g. Water spills and leaks shall be immediately attended to and water leaks reported without delay; and

h. Decorative plants shall be maintained properly as to not create an environment for mold or bacteria.

4.10.3.7 At the conclusion of the IAQ investigation, results shall be evaluated and conclusions and recommendations derived. A summary of this information shall be compiled into a report and distributed to all affected parties.

4.10.3.8 Records shall be maintained to document compliance with this chapter. The following records shall be maintained for all IAQ investigations in accordance with NPR 1441.1, NASA Records Retention Schedules and other applicable NASA recordkeeping requirements:

a. A log of IAQ complaints;

b. All IAQ interview questionnaires and forms;

c. Any monitoring and IH sampling conducted during the investigation; and

d. All IAQ reports with conclusions and recommendations.

4.11 Biosafety

4.11.1 Policy

4.11.1.1 It is NASA policy to protect the health of workers and the public from the risks associated with the use of hazardous biological agents by minimizing or eliminating exposure of workers, other persons, and the outside environment.

4.11.1.2 The scope of this policy is limited to projects that involve direct work and handling of biological hazards. This includes, but is not limited to, non-medical biological laboratory workers and animal handlers.

This section encompasses ground processing aspects of biological agents intended for use on flight experiments.

4.11.1.3 This policy does not apply to potential or incidental exposure to biological hazards because of a complication to one's normal industrial work (such as a plumber or custodian) or to clinical medical functions. These aspects shall be covered under program- or project-specific plans and procedures.

4.11.2 Responsibilities

4.11.2.1 OCHMO is responsible for:

a. Assessing biosafety as a portion of their periodic onsite reviews;

b. Reviewing and approving all intended uses of prions prior to their use at any NASA Center or Facility, or by any NASA or NASA Contractor personnel; and

c. Reviewing and approving all uses of Biosafety Level 3 (BSL-3) agents and Animal Biosafety Level 3 (ABSL-3) animals prior to their presence at any NASA Center or Facility, or use by any NASA or NASA Contractor personnel.

4.11.2.2 Center Medical Directors are responsible for:

a. Designing medical support services in consultation with representatives from the institutional environmental health and safety and principal investigators;

b. Approving all uses of BSL agents and ABSL animals on a case-by-case basis prior to their presence on Center;

c. Approving uses all of genetically-modified agents or recombinant deoxyribonucleic acid (DNA) molecules on an each case basis prior to their presence on Center;

d. Ensuring the clinic is cognizant of potential hazards encountered by the biohazard workers; and

e. Reviewing affected workers previous and ongoing medical conditions, current medications, allergies to medicines, animals, and other environmental proteins and prior immunizations; and determining what medical services are needed to permit safe performance of the duties of the position.

4.11.2.3 Center Environmental Health organizations are responsible for:

a. Reviewing and approving all proposed facility designs and equipment purchases for use with genetically-modified agents or recombinant DNA molecules or Biosafety Level 2 (BSL-2) or higher agents and ABSL or higher animals, prior to their procurements;

b. Reviewing and approving all proposed uses, operational tasks and associated equipment, and containment controls of genetically modified agents or recombinant DNA molecules prior to their use;

c. Reviewing and approving all proposed uses, operational tasks and associated equipment, and containment controls of genetically-modified agents or recombinant DNA molecules or BSL-2 or higher agents and ABSL or higher animals prior to their use. Particular attention shall be given to procedures that impart energy to a microbial suspension or that produce aerosols and the knowledge and experience of the intended user; and

d. Inspecting and certifying biological safety cabinets (BSC) and other containment devices before use and at least annually to ensure they conform to the requirements of this section.

4.11.2.4 Supervisors shall be responsible for:

a. Providing a description of the requirements, proposed tasks, and responsibilities of each position involving hazardous biological agents to the clinic to guide the evaluation; and

b. Cooperating with environmental health professionals to identify the potential worksite health hazards.

4.11.3 Process Description

4.11.3.1 Except as otherwise defined in this policy, Centers shall classify biosafety levels (BSL); provide levels of containment; use the standard practices, safety equipment, facility requirements and training requirements; and handle biological agents, according to the recommended criteria in the Centers for Disease Control (CDC) publication, Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th Edition. In particular, the standard practices and recommendations for safety equipment and facility requirements in Section IV and Table 1 shall be followed.

4.11.3.2 For purposes of this policy, the risk associated with Animal Biosafety Levels (ABSL) and the BSL described in the CDC BMBL are equivalent. All BSL requirements apply to ABSLs. Equivalent control measures shall be taken to assure personnel safety from potential exposures to animal borne biological agents. The co-application of BSL's and ABSL's shall be determined by a protocol driven risk assessment. The hazard and exposure controls shall be adjusted accordingly.

4.11.3.3 For purposes of this policy, the applicable recommended practices, requirements, safety equipment, training, and facility safeguards described in the latest edition of the following documents and their appendices are mandatory.

(1) Centers for Disease Control (CDC) publication, Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th Edition, http://www.cdc.gov/od/ohs/biosfty/bmbl5/bmbl5toc.htm.

(2) NIH Guidelines for Research Involving Recombinant DNA Molecules, http://www4.od.nih.gov/oba/rac/guidelines/guidelines.html.

(3) United States Department of Transportation (DOT), http://www.dot.gov/.

(4) International Civil Aviation Organization http://www.icao.int/ requirements for transportation of etiologic agents, and infectious substances.

(5) Foreign governments, and the International Civil Aviation Organization, http://www.icao.int/.

(6) Public Health Service Foreign Quarantine regulations, http://www.cdc.gov/ncidod/dq/isolation_quarantine/index.htm.

(7) United States Department of Agriculture requirements, http://www.usda.gov/wps/portal/usdahome.

(8) National Academies Publication, Guide for the Care and Use of Laboratory Animals, http://www.nap.edu/readingroom/books/labrats/.

(9) Public Health Service Foreign Quarantine regulations, http://www.cdc.gov/ncidod/dq/isolation_quarantine/index.htm.

4.11.3.4 Centers and Facilities shall make mandatory use of the required documents in this section for all work with experimentally infected animals housed in research facilities and in the maintenance of laboratory animals that may naturally harbor zoonotic infectious agents.

4.11.3.5 Centers shall develop a written Biosafety Plan that outlines their plan for adhering to the mandatory requirements of the CDC, National Institutes of Health, and United States Department of Agriculture, including provisions for administrative controls, engineering controls, work practices, decontamination, infectious waste management, and disposal.

4.11.3.6 Centers using biologically hazardous substances, agents, and/or animals shall develop a biosafety operations manual that identifies all of the hazards that may be encountered and that specifies practices and procedures designed to minimize or eliminate exposures to those hazards.

4.11.3.7 A risk assessment based on the origin of the cells or tissues (species and tissue type), as well as the source (recently isolated or well characterized) shall be conducted for all work with mammalian tissues or cells. Human and other primate cells shall be handled using BSL-2 practices and containment. All work shall

be performed in a BSC and all material decontaminated by autoclaving or disinfection before discarding. Personnel working with human cells and tissues shall work under the policies and guidelines established by the Center's Biosafety Plan and Operations Manual.

4.11.3.8 Centers shall have integrated pest management (IPM) programs that integrate housekeeping, maintenance, and pest control services to control pests such as flies and cockroaches. Each IPM program shall be site-specific, and tailored to the environment where applied. IPM issues and requirements shall be addressed in a facility's planning, design, and construction to provide an opportunity to incorporate features that help exclude pests, minimize pest habitat, and promote proper sanitation in order to reduce future corrections that can disrupt operations.

4.11.3.9 The following biological agents are prohibited from use at all NASA Centers:

a. Selected Agents covered under 42 CFR part 73, http://www.cdc.gov/od/sap/42_cfr_73_final_rule.pdf; 7 CFR 331 and/or 9 CFR 121, http://a257.g.akamaitech.net/7/257/2422/01jan20051800/edocket.access.gpo.gov/2005/pdf/05-5063.pdf ;

b. Prions causing transmissible spongiform encephalopathies; and

c. BSL- 4 biological agents.

4.11.3.10 Centers shall conform to the following requirements when transportating infectious and/or etiologic agents:

a. Materials known to contain or reasonably expected to contain a pathogen (including bacteria, viruses, rickettsiae, parasites, fungi) or other agent, such as a prion, that can cause disease in humans or animals, or infectious substances as purified or concentrated cultures, body fluids, or tissues, shall be appropriately packaged for transportation; and

b. Packages shall be designed to withstand rough handling and other forces experienced in transportation, such as changes in air pressure and temperature, vibration, stacking, and moisture. Hazard communication shall include shipping papers, labels, markings on the outside of packaging, and other information necessary to enable transport workers and emergency response personnel to correctly identify the material and respond efficiently in an emergency situation.

4.11.3.11 Centers shall adhere to the following training requirements when using biologically hazardous substances, agents, or animals:

a. Personnel using biologically hazardous substances, agents, or animals shall be educated about the biohazards to which they may be occupationally exposed, the types of exposures that place their health at risk, the nature and significance of such risks, as well as the appropriate first aid and follow up for potential exposures. They shall read and follow the required practices and procedures and shall consult with safety or health professionals with regard to risk assessment prior to use of those substances or organisms;

b. Refresher training shall be provided at least annually, at the time of any significant change in job responsibility, and follow recognized and suspected exposures;

c. Centers or Facilities conducting BSL 1-3 and ABSL 1-3 level experiments shall use personnel who are adequately trained and experienced in this special work;

d. Personnel using viable biological agents, laboratory animals, genetically modified organisms, and/or recombinant DNA molecules shall be accordingly experienced and knowledgeable in their use; and

e. NASA and NASA Contractor shippers and carriers shall be trained on the applicable transportation regulations so they can properly prepare shipments and recognize and respond to the risks posed by these materials.

4.11.3.12 The following criteria for medical support shall be met by all Centers for work involving hazardous biological agents, substances, and animals:

a. Personnel working with human cells and tissues shall be enrolled in an occupational medicine program specific for bloodborne pathogens. Reference NPR 1800.2, Section 3.2 and Appendix F;

b. Personnel using BSL or ABLS agent, laboratory animals, genetically modified organisms, and/or recombinant DNA molecules shall be fully informed of the available medical support services and encouraged to utilize them;

c. Personnel, who may be occupationally exposed to human pathogens in research settings, shall receive a pre-placement medical evaluation;

d. Medical support services shall be based upon detailed risk assessments and tailored to meet the organization's need and shall be provided for all personnel regardless of employment status. Occupational medical care provided for contractors, students, and visitors by their employers or sponsors shall be equivalent to that provided by NASA for exposures, injuries, or other emergencies experienced at the worksite. Plans for providing medical support for workers shall be completed before work actually begins. The medical provider shall be knowledgeable about the nature of potential health risks in the work environment and have access to expert consultation; and

e. Medical support services for biomedical research facilities shall be evaluated annually. Joint annual review of occupational injury and illness reports by healthcare providers, environmental health, and safety representatives shall be performed to assist in revision of exposure prevention strategies to minimize biological health hazards that cannot be eliminated.

4.11.3.13 Disposal of wastes contaminated with biological agents, genetically modified agents, recombinant DNA molecules, and/or potentially infectious materials shall be handled in accordance with the Center's infectious, biological, and/or hazardous waste disposal procedures and policies. Prion-contaminated instruments and other materials shall be discarded and destroyed by incineration with a minimum secondary temperature of 1000 degrees C (1832 degrees F).

4.12 Food Safety

4.12.1 Policy

4.12.1.1 NASA shall mitigate potential food safety hazards by establishing a primary prevention approach to food safety that encompasses planning and reviews of all proposed projects, processes, and procedures to mitigate potential food safety hazards.

4.12.1.2 The Food and Drug Administration (FDA) Food Code shall be the minimum standard for food service operations at NASA facilities.

4.12.1.3 Food safety shall be accomplished through the implementation of Hazard Analysis Critical Control Point (HACCP) principles, risk-based inspections and controls, and FDA-recommended program standards.

4.12.1.4 Overall authority for Agency food safety is delegated to the NASA Senior Environmental Health Officer (SEHO) by the NASA Director of Occupational Health.

4.12.1.5 Where conflicts between the latest FDA Food Code, this section of NPR 1800.1 and any additional state or local "food code" requirements exist, whichever is most protective shall be applied. Centers shall coordinate questionable conflicts between the latest FDA Food Code and this section of NPR 1800.1 with the SEHO and shall coordinate questionable conflicts between either the FDA Food Code or this section of the NPR with state and local "food code" with the local authorities.

4.12.1.6 This section does not apply to spaceflight operations.

4.12.2 Responsibilities

4.12.2.1 The CHMO shall be responsible for managing, evaluating, and reviewing the NASA Food Safety Program to ensure compliance with regulatory and Agency requirements. Specifically, the CHMO shall be

responsible for:

a. Providing technical guidance to Centers' food service organizations on related food safety matters/concerns;

b. Periodically conducting surveys/inspections of each Center's food services for compliance with NASA requirements and applicable local, state, and Federal regulations;

c. Investigating Agency-wide complaints associated with food safety concerns;

d. Coordinating with outside agencies, as applicable, on food safety and related environmental health matters; and

e. Notifying, by the most expeditious means, the Agency Director of Occupational Health of food-related incidents as they are reported by the Centers.

4.12.2.2 Center Directors, including Headquarters (HQ) and Component Facility Directors, shall be responsible for:

a. Ensuring compliance with the provisions in this section; and

b. Ensuring all Center Food Safety Program elements are implemented and maintained.

4.12.2.3 Centers shall be responsible for:

a. Providing for design/procedure reviews, technical assistance, and consultation with all Center organizations on matters concerning food sanitation;

b. Performing at least quarterly, onsite, risk-based, food safety audits of food establishments; identifying and assessing the hazards and associated risks; determining and implementing critical controls and procedures necessary to reduce risk of foodborne illness; and providing a program of active managerial control;

c. Maintaining accurate and complete survey and inspection data records for the last three months or last three inspections, whichever time span is greater;

d. Providing consultation in the preparation of state and/or local permit applications for food service activities and maintaining copies of those documents and permits, with associated records, to ensure compliance monitoring and reporting is carried out in a timely manner;

e. Identifying and providing support concerning certification and training requirements for food managers and food service workers in order to promote a comprehensive awareness and active managerial control of risk factors most commonly associated with foodborne illnesses;

f. Notifying, by the most expeditious means, the CHMO of major food-related incidents as they are reported;

g. Correcting all inspection violations in a reasonable length of time;

h. Notifying their local and state health departments, the CDC, and/or the Department of Homeland Security, as applicable, of foodborne disease outbreaks;

i. Assuring that food handler physical examinations are provided to food services workers, through NASA Health Clinics, for individuals who work at food establishments on NASA property or under NASA jurisdiction and conducted in accordance with the requirements of Chapter 2.9 of this NPR;

j. Maintaining current food safety policy, and/or procedures, which assign responsibility, accountability, and authority to pertinent Center organizations, departments, and employees;

k. Assuring that Center Senior Management is routinely appraised of the status of food safety issues and problems;

l. Assuring that food sanitation personnel and food inspection personnel are included in the procurement of

food establishment equipment and facility design reviews;

m. Assuring that food establishments implement food management plans that incorporate active managerial control, HACCP principles, training requirements, hygiene standards, cleaning and sanitary practices, illness reporting agreements, food hazards of significance, monitoring procedures, record keeping, corrective action processes, and proper certification of food service workers and food inspection personnel;

n. Assuring that food service personnel report symptoms of illness that may be transmissible through food; and

o. Assuring that Critical Control Points and Critical Limits are included in recipes or recipes are controlled via an overall policy that provides time and temperature limits based on the current FDA Food Code.

4.12.3 Process Description

4.12.3.1 All food served or vended at NASA Centers and Component Facilities shall be clean and free of pathogenic organisms, contamination, and organic or inorganic toxins (including those of bacterial origin). This applies to transporting, storing, preparing, serving, and vending of food provided/available at NASA Centers and Component Facilities. This applies equally to all appropriated funded, non-appropriated funded, organizational, contractor, and/or private association food activities held on NASA Centers and Component Facilities.

4.12.3.2 Centers and Component Facilities shall comply with HACCP principles and the United States Department of Health and Human Services (HHS), FDA Food Code.

4.12.3.3 Centers shall have a written food safety policy that requires them to ensure that an HACCP or equivalent management system includes and implements a process of self-inspection and continuous improvement. The management system shall provide for active managerial control and the purposeful incorporation of specific actions or procedures into the operation of food service establishments to attain control over foodborne illness risk factors. Unique conditions within each facility shall be considered during the development of food safety plans. A generic plan is not acceptable. The food safety plan shall identify potential hazards of significance and include preventive measures to ensure and improve food safety. Critical Control Points shall be effectively controlled.

4.12.3.4 Constraints/controls imposed upon substances/operations subject to the provisions of this section shall be no less than those required by applicable regulatory authorities and shall include any additional special constraints deemed necessary by the NASA SEHO as a result of unique or operational characteristics.

4.12.3.5 All records generated by following these procedural requirements, including but not limited to those required by local, state, or Federal statute or regulation, and the most recent edition of the FDA Food Code, shall be maintained in accordance with NPR 1441.1, NASA Records Retention Schedules.

4.12.3.6 All records shall be available for review by the NASA SEHO or designee and Federal, state, and/or local food safety inspectors. Examples of records include applicable training records, inspection records, temperature logs, food receiving logs, maintenance logs, and dishwasher logs.

4.12.3.7 Waivers from some or all NASA Food Safety Program requirements described in this section shall be determined on a case-by-case basis by the NASA SEHO. Requests for waivers shall be submitted to the NASA SEHO in writing for approval by the CHMO prior to their initiation. Authorizations may be withdrawn at any time for violations of the granted waiver or other regulatory non-compliance. Centers shall provide copies of requests for waivers to the OSMA if they are deemed to affect the NASA workforce, and the appropriate union, as applicable.

4.12.3.8 Where Agency surveys or inspections indicate non-compliance with NASA-approved procedures and controls, the responsible organization for that activity shall correct all discrepancies and notify the NASA SEHO and the Center OH Office when remediation has been completed.

4.12.3.9 The NASA SEHO and the Center OH Office shall be immediately advised of major accidents,

incidents, or emergencies involving food safety.

4.12.3.10 Centers shall:

a. Ensure that the requirements and provisions of this section are included in all food and beverage services contracts, subcontracts, and other applicable contracts;

b. Conduct a continuing program of inspection and surveillance of all food establishments by individuals who are qualified by training, certification, or standardization to conduct food service inspection and surveillance.

c. All Center food service establishments shall meet or exceed the minimum acceptable requirements established by NASA directives, as well as applicable Federal, state, and local regulations for the safe handling of food;

d. Remove from service or sale all food items suspected to be contaminated, unwholesome, or otherwise deemed unfit for consumption;

e. Ensure design reviews are conducted for new or redesigned food establishments, as well as for facilities that intend to make significant changes to the existing menu or theme;

f. Review plans for temporary events and provide recommendations concerning food safety provisions;

g. Ensure that Center policy requires prompt notification of a responsible individual in the event of an emergency that might contaminate food or prevent potentially hazardous food from being held at safe temperatures;

h. Ensure that training is provided to maintain any certification requirements food service employees may need;

i. Maintain the most recent copy of the inspection form and have it available for review by inspection personnel and food installation customers;

j. Ensure all food handlers report to the Center medical clinic or their personal physician when any symptoms of infections and/or communicable diseases are present;

k. Ensure that all food handlers returning to work after an illness-related absence associated with any of the conditions below are medically cleared:

(1) A diagnosed illness of Norovirus, typhoid fever (Salmonella typhi), shigellosis (Shigella spp.), E. Coli O157:H7 infection (or other EHEC/STEC (enterohemorrhagic or Shiga

toxin-producing E. Coli), or hepatitis A virus (hepatitis A).

(2) Symptoms of gastrointestinal illness such as diarrhea, fever, vomiting, jaundice, or sore throat with fever.

(3) A lesion, boil, or wound containing pus that is open or draining and is on the hands, wrists, or exposed portions of arms.

(4) Illness from consuming food that was implicated in or caused an outbreak.

l. Ensure that organizations operating vending machines that dispense food or beverages provide the Center OH Office with a list of onsite vending machines and their locations where potentially hazardous food items are dispensed;

m. Ensure that food handler physical examinations are provided and Hepatitis A inoculations made available to food services workers through NASA Health Clinics for individuals who work at food establishments on NASA property or under NASA jurisdiction;

n. Maintain current food safety policy, and/or procedures, which assign responsibility, accountability, and authority to pertinent Center organizations, departments, and employees;

o. Ensure that Center Senior Management is routinely apprised of the status of any food safety issues;

p. Ensure that food establishments' food management plans are established to implement sound food safety practices;

q. Ensure that Critical Control Points and Critical Limits are included in recipes or an overall food policy provides time and temperature limits based on the current FDA Food Code; and

r. Ensure that vermin are controlled to prevent the creation of a health hazard to humans.

4.12.4.11 New and redesigned facilities shall be reviewed by the Center OH Office and meet the principles outlined in state and local codes and the FDA Food Code, unless they cannot be technically accomplished. All design deviations and changes that may affect the Center's Food Safety Program requirements shall be coordinated with appropriate Center personnel and approved in advance by the Center's OH representative.

4.12.4.12 All Centers' bottled water dispensers shall be in compliance with Federal, state, and local regulations.

4.12.4.13 Only bottled water approved by the Center shall be placed in bottled water dispensers. Under no circumstances, shall empty bottles be refilled by anyone other than the processor.

4.12.4.14 All organizations procuring bottled water shall ensure that:

a. No bottled water dispensers are allowed or bottles of water stored in areas where general hazards or contamination of any kind pose a threat to users under normal operations;

c. Bottled water dispensers are maintained in a sanitary condition; and

d. All dispensers have equipment numbers.

4.13 Radiation, General

4.13.1 Policy

4.13.1.1 NASA Centers shall maintain and preserve the health of the NASA workforce by minimizing occupational exposures, eliminating unnecessary exposures, and reducing the potential for accidental exposures to ionizing and non-ionizing (laser, radio frequency, and non-laser optical) radiation.

4.13.1.2 Exposures to ionizing radiation shall be kept ALARA.

4.13.1.3 NASA Centers shall achieve these objectives by the use of firm management controls, safe operating procedures, appropriate equipment, a comprehensive maintenance and surveillance program, adequate shielding, and distance or by limiting personnel exposure time.

4.13.2 Responsibilities

4.13.2.1 The CHMO shall establish and maintain a system of procedures and guidance based on Federal and state regulations and national and international radiation protection standards and recommendations.

4.13.2.2 The SEHO shall serve as the Agency Radiation Safety Manager providing program oversight and assessing compliance.

4.13.2.3 The OSMA shall maintain purview concerning the launching of radioactive materials in accordance with NRP 8715.3 NASA General Safety Program Requirements.

4.13.2.4 Centers shall establish radiation protection programs, staffed with competent personnel, for centralized control and accountability over sources of ionizing and non-ionizing radiation and ensure compliance with applicable Federal, state, and local requirements through independent quality assurance checks. Centers shall also ensure that adequate personnel, facilities, equipment, training, and operational and

emergency controls are maintained for all operations utilizing ionizing or non-ionizing radiation and that such sources are used safely and in accordance with written procedures based on sound radiation protection and engineering principles.

4.13.3 Process Description

4.13.3.1 Each Center in which operations exist which expose workers or the public to ionizing and non-ionizing radiation shall administer a comprehensive radiation protection program to identify and control those radiation exposures in accordance with this chapter.

4.13.3.2 The radiation protection program shall be implemented by written procedures and reviewed at least once every 12 months to evaluate its content and implementation. Whenever practical, this review shall be performed by personnel who do not have direct responsibility over the program. At a minimum, the review shall cover procedural compliance, technical adequacy, implementation, and effectiveness of the program. The annual review shall be documented and provided to the Agency Radiation Safety Officer.

4.13.3.3 Training shall be provided according to the following criteria:

a. Only persons qualified by training shall be authorized to use ionizing or non-ionizing radiation;

b. Training shall be commensurate with the potential hazards and provided prior to unescorted access to restricted areas and prior to receiving occupational exposure during access to restricted areas;

c. Initial and recurrent training shall provide the knowledge, skills, and abilities necessary for maintaining radiation individuals' doses below applicable limits. It shall also provide workers with an understanding of the risks associated with radiation and the means for recognizing and addressing workplace hazards that may lead to increased risks; and

d. Female radiation workers who may be occupationally exposed to the radiation dose threshold (i.e., 100 millirem [mrem]) and their supervisors shall also receive special instructions on the potential health risks of prenatal exposure to ionizing radiation.

4.13.3.4 Physical examinations shall be conducted in accordance with the requirements of Chapter 2.9.

4.13.3.5 A comprehensive inventory of all hazardous ionizing, laser, and Radio Frequency (RF)/microwave sources shall be maintained and periodically verified.

4.13.3.6 A formalized approval process based on hazards analyses shall be implemented prior to the authorization of any source of hazardous ionizing and non-ionizing radiation.

4.13.3.7 To the maximum extent practical, hazards to personnel shall be eliminated by engineering design.

4.13.3.8 Procedures shall be developed or equipment provided to mitigate those hazards that cannot be eliminated by engineering design.

4.13.3.9 Work activities shall be conducted as specified by the controlling written authorization.

4.13.3.10 All sources of ionizing and non-ionizing radiation, whether in use or in storage, shall be controlled and secured from unauthorized access or removal according to the following criteria:

a. Controls shall be commensurate with the hazards and provide flexibility for consideration of other hazards (e.g., industrial safety, industrial hygiene, environmental hazards);

b. Use and storage locations shall afford adequate safety and security;

c. Postings and labeling shall be done in compliance with applicable regulations, this NPR, and other appropriate NASA policies;

d. Restricted areas shall be established and posted to warn individuals that they are entering areas controlled for radiation protection purposes. Access shall be limited to authorized personnel;

e. Smoking, eating, and drinking are prohibited in restricted areas; and

f. Any activity involving ionizing or non-ionizing radiation determined to be a threat to health or property shall be immediately terminated.

4.13.3.11 Written operating, maintenance, service, and emergency procedures shall be provided and maintained with the ionizing or non-ionizing radiation source for easily accessible reference. These procedures shall be commensurate with the hazards, activity, and the education, training, and skills of the individuals who are exposed to the hazards.

4.13.3.12 Personnel trained to evaluate and document the magnitude and extent of radiation emissions and potential radiological hazards and to verify the efficacy of controls and procedures shall periodically perform surveillance and monitoring of approved facilities, equipment, and operations in accordance with the following specifications:

a. Surveillance and monitoring shall be conducted at a frequency based on applicable regulatory requirements, and license conditions and that is commensurate with the potential for changes in the radiation fields and the potential magnitude of the changes;

b. Instrumentation that is used to perform radiation surveys shall be capable of measuring accurately the types of radiation, at the dose rates and under the environmental conditions that may be encountered;

c. Instruments and equipment used for quantitative radiation measurements shall be calibrated for the radiation measured at intervals not to exceed 12 months or per the manufacturer's recommendation;

d. When any component affecting the radiation safety of a system is serviced or replaced, a qualified expert shall perform a survey of the installation to ensure continuity of adequate personnel radiation safety; and

e. Surveillance and monitoring results shall be evaluated and investigations initiated to resolve unexpected results.

4.13.3.13 Exposures to ionizing and nonionizing radiation in excess of the applicable regulatory limits shall be reported to the appropriate regulatory authorities and to OCHMO.

4.13.3.14 Records shall be maintained to document compliance with this chapter, applicable regulations and standards, and with the provisions of Center radiation protection programs. Unless otherwise specified in this chapter, records shall be retained until final disposition is authorized by NASA per NPR 1441.1D, NASA Record Retention Schedules.

4.14 Radioactive Materials

4.14.1 Policy

4.14.1.1 It is NASA policy that the receipt, use, storage or transfer of radioactive materials, or equipment containing such materials, be controlled.

4.14.1.2 NASA Centers shall consider the following as radioactive materials: byproduct, source, or special nuclear material; naturally occurring radioactive material in any other form, or quantity/concentration greater than that found in the natural environment; accelerator-produced radioisotopes; generally licensed items or devices acquired under the general license provisions of Title 10 Code of Federal Regulations (CFR) Part 31, "General Domestic Licenses for Byproduct Material," or issued under the provisions of an Agreement or Nonagreement State; and radioactive waste.

4.14.2 Responsibilities

4.14.2.1 Center Senior Management shall designate competent and qualified personnel to administer a program for control and accountability of radioactive materials.

4.14.2.2 Center Radiation Safety Officer (RSO) and/or Radiation Safety Committee, if applicable, shall

oversee ionizing radiation safety; approve radioactive material usage; ensure activities involving radioactive materials are conducted in accordance with applicable NRC, OSHA, DOT, International Air Transport Association (IATA), state, and NASA requirements, and take prompt corrective measures to appropriately manage or control hazards.

4.14.3 Process Description

4.14.3.1 Each Center with operations potentially exposing workers or the public to ionizing radiation from radioactive materials shall develop written procedures to identify and control those radiation exposures in accordance with this chapter. Operations and activities shall include reasonable controls directed toward reducing exposure, preventing the spread of radiological contamination, and minimizing the generation of contaminated wastes and the release of effluents.

4.14.3.2 All personnel dosimeters that require processing to determine the radiation dose and are used to comply with dose limits shall be processed and evaluated by a dosimeter processor holding current personnel dosimetry accreditation from the National Voluntary Laboratory Accreditation Program (NVLAP) of NIST.

4.14.3.3 Activities involving radioactive materials shall be conducted in accordance with applicable NRC or NRC Agreement State issued licenses for radioactive materials. Installations using sealed gamma-ray sources shall comply with American National Standard N43.3-2008.

4.14.3.4 Personnel using radioactive material must receive radiation safety training in accordance with 10 CFR 19. The training shall also be reflective of guidance contained in NRC Regulatory Guide 8.29. In addition, special training consistent with NRC Regulatory Guide 8.13 shall be provided to females who may be occupationally exposed to the radiation dose threshold (i.e., 100 mrem) and their supervisors.

4.14.3.5 The following criteria shall be met for all operations involving radioactive materials:

a. All procurement, use, storage, transfer, and disposal of radioactive materials shall be pre-approved by the RSO or Radiation Safety Committee, as appropriate;

b. Radioactive materials shall be shipped in accordance with requirements of the DOT as specified by Title 49 of the Code of Federal Regulations (CFR) Part 172, Subpart H and the NRC as specified by 10 CFR 71.5 and 10 CFR 20.1906;

c. Control of radioactive contamination shall be achieved by using engineering controls and worker performance to contain contamination at the source, reducing existing areas of contamination, and promptly decontaminating areas that become contaminated. A surface shall be considered contaminated if either the removable or total radioactivity exceeds NRC Regulatory Guide 1.86 levels. Contaminated surfaces shall be controlled in a manner commensurate with the physical and chemical characteristics of the contaminant, the radionuclides present, and the fixed and removable contamination levels. Contamination levels caused by ongoing work shall be monitored and maintained as ALARA. Additional contamination limits are provided in Appendix Q of NUREG 1556, Volume 7;

d. The dose limits in 10 CFR 20 shall not be exceeded;

e. Operations must be conducted in a manner to maintain exposures ALARA;

f. Radiation levels in unrestricted areas shall be controlled and demonstrate that no person in an unrestricted area can receive a dose equivalent of 2 mrem in any one hour or 100 mrem in one year;

g. To accomplish NASA's objective of maintaining individual doses below regulatory limits and ALARA, each Center shall establish administrative control levels below the regulatory dose limits; and

h. Radiation protection to the embryo or fetus of a pregnant female worker shall be provided in a manner that does not discriminate against the rights of the declared pregnant radiological worker.

4.15 Radiation-Generating Equipment

4.15.1 Policy

4.15.1.1 It is NASA policy that radiation protection requirements be instituted for electronic radiation-generating equipment (e.g., x-ray machine, particle beams) and equipment that produces radiation incidental to its operation (e.g., electron microscope).

NOTE: Radiation-generating equipment is defined as devices which produce ionizing radiation without the use of radioactive material.

4.15.2 Responsibilities

4.15.2.1 Center Senior Management shall designate competent and qualified personnel to administer a program for control and accountability of radiation-generating equipment.

4.15.2.2 The Center RSO and/or Radiation Safety Committee (as applicable) shall oversee ionizing radiation safety; approve radiation generating equipment usage; ensure activities involving radiation-generating equipment are conducted in accordance with applicable OSHA, state, and NASA requirements, and take prompt corrective measures to appropriately manage or control hazards.

4.15.3 Process Description

4.15.3.1 Each Center with operations potentially exposing workers or the public to ionizing radiation from radiation-generating equipment shall develop written procedures to identify and control those exposures in accordance with this chapter.

4.15.3.2 All personnel dosimeters that require processing to determine the radiation dose and are used to comply with the dose limits shall be processed and evaluated by a dosimetry processor holding current personnel dosimetry accreditation from the NVLAP of the NIST.

4.15.3.3 Personnel using radiation-generating equipment must receive radiation safety training in accordance with 10 CFR 19. The training shall also be reflective of guidance contained in NRC Regulatory Guide 8.29. In addition, special training consistent with NRC Regulatory Guide 8.13 shall be provided to females who may be occupationally exposed to ionizing radiation and their supervisors.

4.15.3.4 The following criteria shall be met for all radiation-generating equipment:

a. All procurement, use, transfer, and disposal of radiation-generating equipment shall be pre-approved by the RSO or Radiation Safety Committee, as appropriate;

b. Design and operation of installations using non-medical x-ray shall comply with American National Standard N43.3-2008;

c. Design and operation of installations using x-ray diffraction and fluorescence analysis equipment shall comply with the requirements contained in American National Standard N43.2-2001;

d. Certified cabinet x-ray systems shall be surveyed at intervals not to exceed 12 months to ensure compliance with 21 CFR 1020.40 performance standards;

e. Diagnostic x-ray systems shall be surveyed at intervals not to exceed 24 months to ensure compliance with 21 CFR 1020.30 and 1020.31 performance standards;

f. Diagnostic x-ray systems shall be operated in accordance with a 21 CFR 1000.55 compliant quality assurance program;

g. Special considerations for particle accelerator operations shall include the presence of extremely high dose rates, high energy and heavy particles, activation products, and detection and monitoring difficulties associated with pulsed or high energy radiation;

h. The dose limits in 10 CFR 20 shall not be exceeded;

i. All operations involving ionizing radiation shall be conducted in a manner to maintain exposures ALARA;

j. Radiation levels in unrestricted areas shall be controlled and demonstrate that no person in an unrestricted area can receive a dose equivalent of 2 mrem in any one hour or 100 mrem in any one year; and

k. Radiation protection to the embryo or fetus of a pregnant female worker shall be provided in a manner that does not discriminate against the rights of the declared pregnant radiological worker.

4.16 Laser and Non-laser Optical Radiation

4.16.1 Policy

4.16.1.1 NASA centers shall implement protective requirements for use of lasers and sources of hazardous non-laser optical radiation.

4.16.2 Responsibilities

4.16.2.1 Agency Radiation Safety Manager shall resolve conflicts between NASA, Federal Aviation Administration (FAA), U.S. Space Command, and U.S. Military.

4.16.2.2 Center Senior Management shall designate competent and qualified personnel to administer a program for control and accountability of laser and non-laser optical radiation sources.

4.16.2.3 Center Laser Safety Officer (LSO) or Laser Safety Committee (LSC), as applicable, shall oversee laser and non-laser optical radiation source safety; approve laser and non-laser optical radiation source usage; ensure activities involving laser and non-laser optical radiation sources are conducted in accordance with applicable OSHA, state, and NASA requirements; and take prompt corrective measures to eliminate hazards.

4.16.3 Process Description

4.16.3.1 Each Center with operations potentially exposing workers or the public to laser or hazardous non-laser optical radiation shall develop written procedures to identify and control those radiation exposures in accordance with this chapter. Requirements shall be based on laser classification and ancillary non-beam hazards.

4.16.3.2 General laser operations and hazard evaluations shall conform to the principles and requirements set forth in ANSI Z136.1.

4.16.3.3 Outdoor laser operations shall follow the requirements of ANSI Z136.6.

4.16.3.4 All personnel working with class 3b and 4 lasers and hazardous sources of non-laser optical radiation shall be appropriately trained in safe work practices for controlling or mitigating personal exposures. Training shall be provided to employees working with or potentially exposed to Class 1M, Class 2, Class 2M, or Class 3R laser radiation if used outdoors. The level of training shall be commensurate with the degree of potential laser hazards, both from the laser radiation and non-beam hazards.

4.16.3.5 All uses class 3b and 4 lasers and laser systems shall require a hazard assessment and approval by the LSO or LSC, as appropriate, whether indoors, outdoors, ground based, or airborne.

4.16.3.6 Prior to approval of the Use Authorization, hazards to personnel shall be eliminated, or procedures shall be developed and equipment provided to control those hazards that cannot be eliminated by engineering design.

4.16.3.7 Protective measures shall be employed to ensure that personnel are not exposed to laser and non-laser optical radiation in excess of the maximum permissible limits.

4.16.3.8 Except for lasers used in research, only laser products that comply with Federal Performance Standards shall be procured or manufactured, unless a specific exemption is obtained from the FDA.

4.16.3.9 Class 1 laser systems containing embedded lasers shall be controlled according to the classification

of the embedded laser when engineering controls (e.g., enclosures, interlocks) are defeated.

4.16.3.10 All outdoor laser operations shall meet the following requirements:

a. All outdoor uses of outdoor lasers require LSO and/or LSC approval prior to use. Caution shall be exercised to prevent visual interference in flight hazard zones established around airports;

b. A comprehensive outdoor laser use assessment shall be documented for all Class 3b and Class 4 outdoor lasers;

c. To ensure against inadvertent laser emissions and to mitigate potential catastrophic events, approval of airborne laser operations shall rely on a combination of interlocks and high-speed shutdown systems, as deemed necessary by engineering analyses;

d. Software shall be utilized to provide safety precautions for fast-moving lasers and prevent misdirected laser operation. Laser software development shall be subjected to a software safety analysis per NPR 8715.3, Chapter 3, NASA General Safety Program Requirements. Existing systems are exempt but shall be reviewed to ensure the provision of safety precautions; and

e. Centers shall advise the Agency Radiation Safety Officer of all outdoor laser coordination with the FAA, U.S. Space Command, and/or local military commands and shall copy the Agency Radiation Safety Officer on all outdoor laser correspondence with the FAA, U.S. Space Command, and/or local military commands. This includes all requests for letters of non-objection from the FAA and all other coordination of matters arising from outdoor lasers. Objections to the use of specific outdoor lasers by the FAA or the U.S. Military shall be honored until the CHMO, in conjunction with other NASA organizations, reviews the complaint and authorizes continuation of operations.

4.16.3.11 Maximum permissible exposures for laser radiation are given in ANSI Z136.1. The occupational exposure limits for non-laser optical radiation are contained in ACGIH Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices.

4.17 Radio Frequency Electromagnetic Radiation

4.17.1 Introduction

4.17.1.1 NASA Centers shall implement radiation protection requirements to prevent or control potential risks associated with exposure to electromagnetic fields from RF and microwave sources that operate in the frequency range of 3 kHz and 300 GHz, including, but not limited to: radar systems; spacecraft and vehicle telemetry and communications systems; earth stations; microwave diathermy units; radio frequency generators; and RF heat sealers. Hazards of electromagnetic radiation to ordinance are beyond the escape of this document. Refer to the NASA Explosives Safety document, NSS 1740.12.

4.17.2 Responsibilities

4.17.2.1 Center Senior Management shall designate competent and qualified personnel to administer a program for control and accountability of RF and microwave radiation devices.

4.17.2.2 The Center Radio Frequency Safety Officer shall oversee RF and microwave safety; approve RF and microwave radiation equipment usage; ensure activities involving RF and microwave equipment are conducted in accordance with applicable OSHA, state, and NASA requirements, and take prompt corrective measures to eliminate hazards.

4.17.3 Process Description

4.17.3.1 Each Center with operations potentially exposing workers or the public to non-ionizing radiation from RF and microwave generating equipment shall develop written procedures to identify, document, and control those radiation exposures in accordance with Institute of Electrical and Electronics Engineers (IEEE) Standard C95.7.

4.17.3.2 Techniques and instrumentation for the measurement and computation of potentially hazardous RF radiation both in the near field and the far field of the RF or microwave source, including contact voltage and contact and induced currents, shall be in accordance with IEEE Standard C95.3.

4.17.3.3 All personnel likely to exceed 20 percent of the maximum permissible exposure limit for controlled environments shall be appropriately trained in safe work practices for controlling or mitigating personal exposures.

4.17.3.4 RF and microwave radiation source approvals shall be based on documented RF exposure assessments which include direct measurements when practicable.

4.17.3.5 Operations and activities shall include reasonable controls directed toward reducing exposure. Such controls include engineering and administrative controls as well as the use of personal protective equipment, placement of appropriate RF safety signage, designation of restricted access areas, the use of personal RF monitors, and RF safety awareness training.

4.17.3.6 The beam height of RF and microwave transmitters shall be maintained at a level that does not intercept occupied facilities or structures, or personnel within the identified hazard distance.

4.17.3.7 Limits for maximum permissible exposure and induced and contact RF currents shall be derived in accordance with IEEE Standard C95.1.

4.17.3.8 Limits for lower frequency electromagnetic fields and static magnetic fields shall be in accordance with American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.

Chapter 5. Employee Assistance Program (EAP)

5.1 General

5.1.1 Policy

5.1.1.1 The NASA EAP shall ensure that employees and their immediate families are provided assistance with confidential, short-term psychological assessment and referral and short-term resolution of issues related to work and family life that may affect employee health and well-being, the safety of the employee and co-workers, or job performance, attendance, and productivity. 5 U.S.C. 7901, Health Service Programs, authorizes expansion of Agency EAPs to address other employee issues such as family, financial, and marital problems. NASA EAP services shall be private and confidential, free, and strictly voluntary, unless a mandatory supervisor referral. The program is available to all NASA Civil Service employees, immediate family members, and contractors at some Centers according to contract specifications.

5.1.2 EAP Contractor Statements of Work shall incorporate the requirements listed in this chapter, as well as other applicable NASA contract requirements.

5.2 EAP Confidentiality

5.2.1 The Privacy Act covers all EAP records. Employees with alcohol and drug issues are further protected by 42 CFR Part 2, "Confidentiality of Alcohol and Drug Abuse Patient Records." Under the Health Insurance Portability and Accountability Act of 1996 (HIPAA), employees have the right to request restrictions on certain uses and disclosures of EAP information. Depending on the location of EAP services, additional protection may be provided by state laws, state regulations, and/or professional association guidelines.

5.2.2 Center managers and supervisors shall inform employees about the availability and confidential nature of EAP services. During orientation and training activities, human resources representatives or EAP Officers or Clinicians shall also relay information to employees about the confidentiality policies and procedures associated with the EAP.

5.2.3 At the initial visit to the EAP, Clinicians shall inform employees about the procedures and laws affecting the EAP system of records, and employees shall be provided with a written Statement of Understanding concerning the confidential nature of EAP records. The Statement of Understanding shall contain elements reflected in 42 CFR Part 2. Instances where discreet employee information discussed in counseling may be disclosed to a third party (e.g., danger to self or others, suspected child abuse or neglect) shall also be provided in the Statement of Understanding.

5.3 EAP Record Access

5.3.1 EAP Clinicians shall not release any information without a signed consent from the employee, regardless of the issues discussed during counseling, except when required by law.

5.3.2 The NASA EAP Administrator, EAP Clinicians, and Center EAP Officers (frequently the occupational health Contracting Officer Technical Representative (COTR) shall serve as resources

for employees and their representatives (e.g., legal or union) for details on how to legally access EAP records.

5.3.3 Employees shall have the right to access their own EAP records. The employee shall submit a formal written request to the NASA EAP Manager with information that includes the Center at which the services were provided and the estimated dates of service. The exception to this policy is, when in the clinical judgment of the EAP Clinician, it may cause additional harm to the client.

5.3.4 Regular and routine access to EAP records is limited to EAP Clinicians working directly with EAP clients.

5.3.5 The NASA EAP Manager and NASA EAP Officers shall have access to "redacted" Center EAP client records for the purposes of EAP oversight, evaluation, and quality assurance. Redacted records shall not contain any employee-identifying information and shall be appropriately sanitized by the Center EAP Clinician.

5.3.6 Records disclosure with consent (except where disclosure without consent is allowed) requires that an employee's written consent be obtained before any release of EAP information can be made. This applies to all releases, including those to supervisors, treatment facilities, and family members, without regard to the type of issue the individual is experiencing. An employee's written consent is required to discuss any confidential information with human resources, union representatives, and other similar offices or programs. All consent forms shall meet the requirements of 42 CFR Part 2.

5.3.7 Records disclosure without the employee's written consent is only permitted in a few specific instances. Any need for EAP records disclosure without consent shall be treated with the strictest confidence and comply with applicable Federal and individual state laws. Nothing in this regulation restricts or prevents an EAP practitioner from complying with the duty to report that is mandated by Federal or state law. Any request or subpoena for records should be forwarded to the Office of the Chief General Counsel at the applicable Center or to the Office of the General Counsel at Headquarters. The Chief Health and Medical Officer (CHMO) shall be notified when a determination for disclosure of an EAP record without consent has been made.

5.3.8 Records disclosure may be made to individuals, such as law enforcement authorities and those persons being threatened, but the disclosure shall not identify the EAP client as an alcohol or drug abuser.

5.4 Release of Case Information and Secondary Disclosure

5.4.1 In cases where employees are referred to the EAP by supervisors because of work performance and/or conduct issues (except as provided in 5.3 above), no information shall be released to supervisors without the employee's written consent except whether or not employees made or kept appointments during official duty hours or any sick leave (for Drug-Free Workplace cases only).

5.4.2 Employees shall not be required to release information to supervisors. If employees choose to disclose their EAP file information, a consent form shall be signed by the employee to allow the release of information. The process is as follows:

a. If employees choose not to sign consent forms, the EAP shall not disclose any information to employee supervisors;

b. When employee consent is given to disclose information to supervisors, the EAP Clinician shall limit the discussion to attendance at the EAP, cooperation with the program, treatment plans that may interfere with the workplace, and work performance or conduct issues. The information provided by EAP Clinicians shall give supervisors a general idea of the kind of progress employees

are making; and

c. Supervisors shall be encouraged to notify the Center EAP Clinician of any changes in an employee's work performance or conduct and any corrective actions taken, since these actions may have an impact on an employee's treatment.

5.4.3 Disclosed information shall include a written statement prohibiting further secondary/additional disclosure unless the employee has expressly provided written consent and allows for further disclosures.

5.4.4 Secondary/additional disclosure statements shall be attached to all information released in writing or sent separately if the information was released orally.

5.4.5 A copy of the signed release and a description of the material released shall be placed in the employee's EAP record.

5.5. EAP Roles

5.5.1 The Occupational Health Director oversees the Agency's EAP and directs the EAP Administrator.

5.5.2 NASA Center Management shall meet with EAP Clinicians and/or EAP Officers at least twice per year to discuss the mental health of the Center's workforce.

5.5.3 The NASA EAP Administrator is an Agency position and coordinates with, provides assistance to, and communicates with Center EAP Officers. This position reports to the CHMO through the NASA Occupational Health (OH) Director.

5.5.4 EAP Clinicians are licensed mental health practitioners who counsel and communicate with employees to assist them with issues that may impact their performance and productivity at work. Clinicians implement NASA's EAP policies and programs, including programs for counseling and assisting employees with alcohol and drug abuse problems. Clinicians educate and provide guidance to Center supervisors and managers to assist them in dealing with employee work-related issues. EAP Clinicians may be Civil Service personnel or contractors.

5.5.5 NASA Center EAP Officers conduct administrative responsibilities. In some cases due to certain Center staffing scenarios, the EAP Officer is the Center's COTR or the EAP Clinician.

5.6 Responsibilities

5.6.1 NASA Center Management shall, at a minimum, be responsible for:

a. Providing resources and EAP professional staff sufficient to ensure an effective EAP for the number of individuals able to access the service;

b. Encouraging employees to use the EAP by making services convenient and available to employees;

c. Ensuring that a Critical Incident Stress Management (CISM) Program is in place; and

d. Ensuring that employees dealing with critical incidents have access to EAP support.

5.6.2 EAP Officers, including those who are also EAP Clinicians shall, at a minimum, be responsible for:

a. Administrative support, including coordinating with management regarding EAP outreach and initiatives;

b. Attending Agency meetings regarding Center-wide EAP issues;

c. Attending external training programs to enhance knowledge about current EAP issues;

d. Serving as a liaison between the Center and the NASA EAP Administrator regarding utilization reports and data;

e. Coordinating with appropriate Center program representatives and management to establish a Critical Incident Stress Debriefing (CISD) process that includes the designation of responsibilities for all team members, including management officials, emergency operations responders, medical first responders, human resources personnel, and supervisors; and

f. Providing pre-incident planning including CISD team member training, establishing links with community partners, and identifying at-risk populations within the Center.

5.6.3 The Agency EAP Administrator shall, at a minimum, be responsible for:

a. Implementing Agency EAP plans;

b. Providing assistance to EAP professionals regarding Center-wide external training programs;

c. Implementing specific Center initiatives such as smoking cessation, workplace violence prevention, and stress reduction;

d. Conducting periodic meetings with all Center EAP staff to discuss current issues, trends, staff changes, and administrative matters related to EAPs;

e. Providing the status of any issues related to the Agency's EAP and the results of Center by Center utilization reports to the Agency Occupational Health Director;

f. Supporting Critical Incident Stress Management coordination to ensure each Center's participation;

g. Advocating for individual Center contract adjustments, as appropriate;

h. Assisting with Center EAP training initiatives; and

i. Periodically assessing Center programs and policies that deal with minimizing the impact of harmful stress on the workforce.

5.6.4 EAP Clinician responsibilities shall include, at a minimum, the following:

a. Serving as the initial Point of Contact (POC) for EAP assistance;

b. Participating in meetings regularly scheduled by the EAP Administrator;

c. Being familiar with all EAP related laws and regulations, including NPR 3792.1B Plan for a Drug-Free Workplace and drug treatment/rehabilitative insurance coverage that are available to employees through the Federal Employee Health Benefits Program;

d. Being qualified and trained in counseling employees in the occupational setting and being familiar with identifying evidence of illegal drug use;

e. Being responsible for providing assessments, short-term counseling, referral, and educational and outreach activities to employees, including supervisors and managers;

f. For EAP Clinicians located offsite, being readily accessible to NASA employees and being responsible for regularly communicating and coordinating with an onsite Center representative, such as the COTR or EAP Officer, to ensure the continuity and quality of the EAP;

g. Developing or participating in work/life programs, including programs such as Critical Incident Response, Prevention/Threat Assessment, Americans with Disabilities Act, and the Drug-Free Workplace Program;

h. Ensuring that Center management and employees are notified about EAP programs available and offered training on early intervention and awareness;

i. Offering training and consultation to employees and supervisors;

j. Establishing employee feedback and quality control measures to document the degree of effectiveness of EAPs while assuring confidentiality;

k. Monitoring cases to ensure that continuity of care is provided or identifying reasons the client did not complete care;

l. Collecting metrics consistent with confidentiality standards that include numbers and types of cases, mandatory and non-mandatory referrals, and general demographic data;

m. Soliciting confidential client feedback and initiating quality control measures to document the degree of effectiveness of programs;

n. Providing quarterly utilization reports to the EAP Administrator, either directly or through their Center's COTR or EAP Officer; and

o. Ensuring that procedures are in place that ensure professional mental health assistance is available to Center employees during regular business hours, whenever the EAP Clinician is unavailable due to vacation, illness, offsite training, emergency, or other event wherein there is no office phone or in-person coverage. Provisions for this alternative coverage shall be outlined in the contract between NASA and the Contractor in the Statement of Work.

5.7 Program Elements

5.7.1 There are several types of EAP referrals, all of which are ultimately voluntary:

a. Self-Referral: self-seeking EAP assistance by an employee who thinks that he/she may have an issue that should be discussed with a mental health professional;

b. Management Referral: referral to the EAP by a supervisor, usually as a result of a performance or conduct deficiency or an employee who is identified as using/abusing drugs in accordance with Executive Order 12564;

c. Self Identification: self-seeking EAP assistance by an employee who admits to drug abuse to his/her supervisor or to others and seeks rehabilitative assistance in accordance with Executive Order 12564 prior to being identified through other means;

d. Mandatory Referral: a referral by an employee's supervisor due to an employee's positive drug test, performance issues, or other events that are deemed contrary to NASA policy and procedures. Although the actual referral is "mandatory," there is no requirement to compel an employee to partake in EAP services/assistance, since EAP participation shall always be voluntary. However, an employee's failure to cooperate with a mandatory referral to EAP for assistance may have adverse consequences for the employee; or

e. Other Referral: employee referral to the EAP by a union official, medical review officer, health professional, or through any means other than a self-referral or supervisory referral.

5.7.2 NASA employees are afforded an opportunity to meet with an EAP professional (not all EAP offices are onsite) during normal business hours. Between 5:00 p.m. and 8:00 a.m. on weekdays, weekends, and Federal holidays, employees may contact an on-call EAP professional, using a toll-free number, who provides short-term assistance until the Center's EAP professional is available.

5.7.3 EAP services shall include four types of core services:

a. Individual services shall include assessment, treatment planning, referral, short-term counseling, followup, and coordination with other NASA offices such as human resources regarding case planning and outcomes;

b. Managerial/supervisory services shall include assistance in employee EAP referral, employee support guidance, back-to-work meeting assistance, employee conduct and performance guidance, and supervisor training and education;

c. Organizational assistance shall include violence prevention, crisis management, critical incident assistance, support groups, employee orientations, education and outreach, and special auxiliary services (e.g., drug-free workplace, smoking cessation, job transitions); and

d. Administrative.

5.7.4 EAP professionals shall work cooperatively and establish partnerships with other offices such as Human Resources, Employee Relations, Equal Opportunity, Safety, and Occupational Medicine in work-related issues that potentially affect employee performance.

5.7.5 Critical Incident Stress Management (CISM) Program

5.7.5.1 A CISM Program shall be developed and implemented at each NASA Center as part of other employee EAP assessments and short-term counseling services offered within an environment of confidentiality. A CISM Program addresses the immediate and subsequent impact of catastrophic events on individuals or groups. The goal of a CISM Program intervention is to minimize the occurrence of post-trauma resulting from any critical incident and to augment recovery activities for populations having normal reactions to abnormal events.

5.7.5.2 A Center CISM Program shall be written and reviewed and updated annually.

5.7.5.3 A Center's CISM Program shall be made a part of the Center Emergency Response Plan. Examples of critical incidents that could impede an employee's ability to function include natural disasters (e.g., tornadoes, hurricanes, floods, fires and earthquakes), manmade disasters, major mission failure, terrorism, homicide, sudden death, suicide, victim or witness to violence, kidnapping, or hostage situations.

5.7.5.4 A Center's CISM Program shall include the following information and components:

a. Procedures that include the following:

(1) Education and coordination methods to be used among Center Management, EAP Clinicians, Emergency Preparedness and Response personnel, Medical First Responders, Occupational Medicine personnel, Human Resources, and Supervisors to ensure methods are in place to cover all aspects of a critical incident response management.

(2) Establishing, training, and maintaining a Critical Incident Stress Debriefing (CISD) team and designating a CISD Team Lead.

(3) Providing direction and coordination to the CISD team.

(4) Pre-crisis education and pre-deployment briefing sessions.

(5) Identifying and coordinating with local community health providers (e.g., safety, security, mental health professionals) to establish a resource network for CISD team members.

(6) Providing information to affected personnel regarding Center efforts to identify the scope of an incident and actions being taken to support the workforce.

(7) Notification methods and timelines used for community partners during or after an incident had occurred.

(8) Assessment, triage, treatment, referral, and followup of affected employees for up to one year, or longer if deemed necessary.

(9) Conducting meetings and post-incident intervention planning.

b. A description of the duties of the EAP Clinician (in certain Center staffing scenarios, an EAP Clinician may also serve as the Center's EAP Officer) that shall include the following:

(1) Developing CISM procedures.

(2) Establishing, providing training for, and maintaining a CISD team.

(3) Coordinating with Center Officials to establish the process for creating CISD teams.

Team members shall generally be drawn from the Center's personnel, health, safety, and security communities.

(4) Establishing links with community partners.

(5) Outlining the responsibilities for all participants, including Management, Emergency Operations Responders, Medical First Responders, Human Resources personnel, and Center Supervisors.

(6) Identifying at-risk populations within the Center.

(7) Meeting with Center Emergency Preparedness personnel, Medical First Responders, and Management to assess impact and identify affected employees on notification of a critical incident.

(8) Compiling a list of the individuals to participate in CISD Team Member briefings.

(9) Notifying the CISD team and any community partners to establish a meeting place for the Team and participants.

(10) Leading the CISD team in providing defusing and debriefing sessions, as well as providing one-on-one interventions, referral, and follow-up services.

(11) Making requests to the Agency EAP Administrator for additional CISD training or additional temporary EAP Clinician support to respond to a critical event.

c. A description of Center Management duties that shall include the following:

(1) Ensuring the Center workforce dealing with critical incidents has access to EAP support.

(2) Ensuring that the Center maintains a written and current CISM policy.

d. A description of CISD team member duties that shall include the following:

(1) Providing CISD services under the direction of the Center EAP Officer or EAP Clinician.

(2) Assisting in identifying individuals in need of additional EAP services.

(3) Being familiar with CISM components, including procedures and protocol.

(4) Participating in initial and periodic planning meetings.

(5) Providing support for a CISD exercise following a critical incident, including follow-up monitoring of impacted employees.

(6) Coordinating with and executing guidance from the EAP Clinician or appointed CISD Team Lead.

(7) Participating in debriefings for CISD team members.

e. A description of Center Emergency Preparedness and Medical First Responder Personnel responsibilities that shall include the following:

(1) Familiarization with Center CISD services.

(2) Notifying the Center EAP Officer or Clinician of critical incidents and coordinating the arrangement of meeting facilities for CISD exercises.

(3) Assisting the EAP Officer or Clinician in coordinating CISM efforts, along with a designated Human Resources Officer.

(4) Identifying impacted employees.

(5) Participating in post-incident demobilization, defusing, and debriefing exercises as requested by the CISD Team lead.

f. A description of Center Human Resource Officer responsibilities that shall include the following:

(1) Notifying the Center EAP Officer or EAP Clinician of any known critical incidents.

(2) Assisting in identifying individuals or groups impacted by a critical incident.

(3) Informing supervisors and employees of the availability of CISM services.

g. A description of Center Supervisor responsibilities that shall include the following:

(1) Notifying the Center EAP Officer or EAP Clinician, along with other designated contacts (e.g. safety, security, medical, personnel) of any critical incidents.

(2) Assisting in the identification of individuals or groups impacted by a critical incident and providing incident information facilitating the debriefing process.

(3) Encouraging and granting time for employees to participate in Center-sanctioned CISM service.

(4) Notifying the Center EAP Officer or EAP Clinician of any difficulties an employee may be experiencing (e.g., changes in performance or behavior) following a critical incident.

5.7.6 Workplace Violence

5.7.6.1 Pursuant to NASA's Office of Human Capital NPD 1600.3, Policy on Prevention of and Response to Workplace Violence, NASA Centers shall implement and maintain a Workplace Violence Prevention Program, which provides Center Directors with the discretion of designating a Center EAP as a permanent member of the Center's Threat Assessment Team. To assist in this

capacity, EAP Clinicians shall:

a. Consult the most recent version of the NASA Desk Guide for the Prevention of and Response to Workplace Violence Center for additional information on the Agency's workplace violence prevention procedures and resources;

b. Assist other Center offices, such as Human Resources, Security, Safety, and Public Affairs in required annual workplace violence prevention training and other awareness and prevention activities for employees;

c. Assist with the review and assessment of incidents involving psychiatric, alcohol, or drug-related behavior;

d. Ensure that stress, grief, and security concerns are addressed with employees during and after workplace violence events;

e. Consult with the Center Threat Assessment Team when a potential for violence exists or an actual incident is reported;

f. Consult with Center Incident Response teams when a potential for violence exists or an actual incident is reported;

g. Participate in CISD teams in the event of a violent situation;

h. Consult with Center Supervisors to identify specific problem areas, develop action plans to resolve problems in the early stages, and encourage employees and supervisors to contact the EAP for individual counseling; and

i. Help in the prevention of workplace violence through: early involvement in organizational changes; training employees in dealing with angry co-workers and customers, conflict resolution, and communication skills; training supervisors to deal with problems as soon as they surface without diagnosing the employee's problem; making recommendations to address workplace stress and violence issues; identifying ways to deal with uncomfortable or threatening situations; discussing with employees problems that can adversely affect job performance and conduct, and help employees with other problems (e.g., marital or financial issues) that may underlie potentially violent situations.

5.7.7 Domestic Violence Awareness

5.7.7.1 NASA Centers shall conduct domestic violence awareness training programs for their workforce. Domestic violence and emotional abuse are behaviors used by one person in a relationship to control the other. Individuals may be married, not married, living together, separated, or dating. Violence may be criminal and includes physical assault (hitting, pushing, shoving), sexual abuse (unwanted or forced sexual activity), and stalking. Emotional, psychological, and financial abuses are not criminal behaviors but are forms of abuse and can lead to criminal violence. Occurrence and severity of domestic violence may increase with stress, financial difficulties, and job insecurity.

5.7.7.2 Domestic Violence Awareness Training shall be provided by the Center EAP and/or Human Resources and include:

a. A review of the Center's domestic violence policy and procedures;

b. Resources available for victim assistance;

c. Resources for emotional support and self-esteem or empowerment;

d. A discussion of the dynamics of abuse and barriers to ending domestic abuse;

e. Resource for financial, legal, and advocacy; and

f. A discussion of security and confidentiality issues.

5.7.7.3 All Center Medical staff and healthcare workers shall be knowledgeable about the serious nature of and physical and behavioral signs of domestic violence and shall request training from the Center EAP Clinician whenever necessary.

5.7.7.4 The Center EAP shall provide training to supervisors about the nature and dynamics of domestic violence and how to identify behavior exhibited by employees through unusual performance or emotional instability, or through physical evidence of trauma.

5.7.7.5 All reports of abuse shall be taken seriously and the victim referred for assistance.

5.7.7.6 Center EAP Clinicians shall provide confidential consultation to management regarding employee problems related to domestic violence.

5.7.7.7 Victim assistance provided by the Center to ensure their safety shall include:

a. Center Human Resources, Legal, and Security personnel assistance when an abuser has access to the Center at which the victim is employed;

b. Availability of information at various Center offices regarding the procedures and resources to be used (e.g., telephone numbers) for assistance. A list of community resources shall be available onsite, as well as in confidentially accessible locations such as bathroom and locker facilities; and

c. Center EAP assistance to confidentially assess the risk to victims, providing contacts and telephone numbers to victims to assist them and encouraging victims to memorize emergency numbers, arranging for onsite contacts if community resources are not easily available, and working with victims to develop a "safety plan" that includes:

(1) Preparation to leave the abusive situation, including financial planning, rehearsing, arrangements for any children involved in the victim's home, legal, or enforcement assistance notification and requirements, important documents to take, and a contingency plan if the initial plan cannot be implemented.

(2) Protection during violent incidents.

(3) Safety in the home, work, and public places.

5.7.7.8 Short-term counseling shall be available to victims of domestic violence and may involve from one to several sessions, over a discrete period of time, as determined by the EAP Clinician. Counseling does not include a clinical evaluation or diagnosis. Counseling shall include at least the following:

a. Counseling of employees referred to the EAP by self-referral or by supervisory referral;

b. Informing clients of confidentiality rights and of the duration and type of services provided by the EAP;

c. Providing problem assessment, using constructive confrontation and short-term intervention and assisting with providing information for referrals directed to community-based resources; and

d. Referring clients for other assistance and treatment, and advising on the potential cost of outside treatment which must be borne by the client.

5.7.7.9 Employees shall be screened for evidence or history of domestic abuse, with appropriate actions taken if domestic violence is suspected.

5.7.7.10 Centers shall develop and maintain a domestic violence policy with a multidisciplinary approach to identify, address, and ensure Center safety for domestic abuse victims. The policy shall include the following:

a. Maintenance of victim confidentiality;

b. Security of the victim and co-workers, especially if the abuser works at or has access to the Center;

c. Provisions for victim access to Center resources during work hours; and

d. Description of the functions of the Center EAP, supervisory, medical, and human resources personnel in cases of domestic violence against a Center employee.

5.7.8 EAP Quality Assurance

5.7.8.1 Onsite reviews of NASA Center EAPs shall be conducted in accordance with Chapter 7 of this NPR. Reviews shall include, but not be limited to, an assessment of:

a. EAP staffing levels;

b. Annual internal or third party EAP evaluations during off-years;

c. Whether the EAP is meeting Agency objectives and goals;

d. EAP utilization rates and trends;

e. EAP availability and accessibility and conformity with NASA's culture;

f. Workforce satisfaction with program services;

g. Overall program effectiveness;

h. Maintenance of EAP Web site (where applicable);

i. Types and frequency of outreach and education programs;

j. Frequency of EAP and Center Management meetings to discuss status of workforce mental health;

k. Status of partnerships with other Center offices such as Human Resources, Equal Employment Opportunity, Medical, Fitness, Work/Life, and Workers' Compensation;

l. Case records maintenance and quality assurance;

m. Maintenance of EAP policy and procedure documents; and

n. Quarterly and annual report submittal timeliness and content.

5.7.9 Records Maintenance, Retention, Coding, Security, and Destruction

5.7.9.1 NASA EAP records are considered personal case files consisting of electronic records, handwritten notes, letters to physicians or counselors, calendar of treatment(s), authorization releases, after care information, and telephone messages. EAP records, whether written, verbal, or electronic, are covered by this NPR. This NPR covers records generated and/or maintained by EAP Clinicians who are Civil Service personnel or contract personnel.

5.7.9.2 All EAP records (electronic and hardcopy) are the property of NASA, including records

created and maintained by contractors. Contractors are only the custodians of EAP records while under contract to NASA. At contract termination, contractors shall return original records to the successor EAP Clinician or the NASA EAP Administrator consistent with the confidentiality requirements and as specified in individual Center contracts.

5.7.9.3 NASA EAP records shall be maintained in a discrete secure location. EAP records are not considered to be medical records and shall not be maintained with medical records. EAP file contents shall never be part of or stored with personnel folders, employee medical files, or any other system of records in NASA. Case files shall be handled confidentially in accordance with Section 408 of Public Law 92-155. All written case records shall be kept in separate, locked filing cabinets. Cabinets shall be locked when not in use.

5.7.9.4 Where an external EAP provider maintains EAP records for a NASA Center, the records shall be maintained separate from other customers' client records and be accessible for NASA Office of the Chief Health and Medical Officer quality assurance reviews.

5.7.9.5 EAP Clinicians shall maintain a record of cases and activities on a Government fiscal year basis.

5.7.9.6 Records shall be retained until five years after employees have ceased contact with the EAP, whether or not employees have terminated employment with NASA. At a minimum, management referral cases shall be destroyed five years after the last date in file, or upon termination of employee. At a minimum, voluntary referral cases shall be destroyed two years after the last date in the file, or upon termination of employee. Records shall be retained longer if required by state laws where the records are stored, or until any litigation involving the employee is resolved. EAP records retention is governed by NPR 1441.1, NASA Records Retention Schedules.

5.7.9.7 To ensure confidentiality, all records shall be maintained and retrieved by unique case numbering systems rather than by names. Case-coded files shall include records that have been closed but not yet destroyed.

5.7.9.8 Each employee participating in the EAP shall be assigned a unique case number.

5.7.9.9 All hard copy case materials shall be placed in a folder and labeled with this unique case number. Computer files shall also be labeled with this unique case number.

5.7.9.10 The list of unique case numbers that correspond to the employees' names shall be maintained in a locked or secure file, separate from the case folders. It shall be secured when not in use and shall be maintained by EAP Clinicians or authorized EAP record custodians.

5.7.9.11 All identifying information recorded in case records shall be kept to a minimum.

5.7.9.12 All contacts shall be recorded with the most recent information filed on top. Entries shall only contain the information necessary for handling cases.

5.7.9.13 All persons having access to the files shall have previous training in the proper handling of records covered by this policy. Refresher training shall be provided in the event of a policy change.

5.7.9.14 The EAP Clinician or approved EAP record custodian shall be responsible for ensuring that file cabinets are secure before leaving each day.

5.7.9.15 Confidentiality safeguards shall be implemented with the storage of electronic EAP records in accordance with NPR 2810.1A, Security of Information Technology requirements.

5.7.9.16 Paper records shall be destroyed at the individual NASA EAP sites and in accordance with a method that has been approved by NASA.

5.7.9.17 Names of the employees whose EAP records were destroyed shall be added to a record of former EAP clients. This list shall be kept with the unique case number record and the same confidentiality procedures apply. No other information about clients shall be maintained once their records have been destroyed.

5.7.10 EAP Report Requirements

5.7.10.1 EAP Clinicians shall employ EAP Caseware 20/20 software to record case data and generate reports. EAP Clinicians who do not use Caseware 20/20 shall provide reports comparable to those using Caseware 20/20 software so that data analyses performed are accurate and consistent Agency wide.

5.7.10.2 Onsite and offsite EAP Clinicians shall electronically provide an annual report of the previous fiscal year cases to their Center Management and to the NASA EAP Administrator by December 1 of each year. Data provided in the report shall include:

a. Number of cases;

b. Breakout of cases into NASA Civil Servants, Contractors, Dependents;

c. Age and gender of clients;

d. Presenting problems;

e. Assessed problems;

f. Average number of sessions;

g. Case disposition at closure;

h. Number of management referrals;

i. Number of high risk cases such as those involving potential violence, drug or alcohol concerns, and suicidal/homicidal ideation;

j. Number of management consultations;

k. CISD and other CISM activity;

l. Training offered;

m. Support/psycho-educational groups;

n. Work-Life cases such as Child Care, Elder Care, Financial Services, Legal Services, Concierge (where provided);

o. Online and Internet resources;

p. Quality assurance activity;

q. Narrative on Center trends affecting job performance;

r. How clients heard about the Center's EAP; and

s. Recommendations.

5.7.10.3 Onsite and offsite EAP Clinicians shall also provide specialized electronically generated reports at the request of the CHMO for special projects on an as needed basis.

Chapter 6. Federal Workers' Compensation (FWC) Program

6.1 General

6.1.1 Policy

6.1.1.1 Each NASA Center shall develop a written FWC Program. The program shall be reviewed and updated at least annually to account for changes in personnel, changes in roles and responsibilities, changes in Agency policies and procedures, and changes in Federal regulations. All regulatory guidance documents used to develop a Workers' Compensation Program and claims forms shall be the most recent versions. The most up-to-date versions of Workers' Compensation claim forms can be accessed at: http://www.dol.gov/esa/owcp/dfec/regs/compliance/forms.htm.

6.1.2 Safety, Health and Return to Employment (SHARE)

6.1.2.1 NASA shall process FWC claims and reports in accordance with the Office of Workers' Compensation Programs (OWCP) information and timeliness requirements. NASA shall also aim to reduce the number of FWC claims and increase the timeliness of reporting injuries and illnesses to the Department of Labor (DOL) in accordance with Presidential initiatives implemented during the past decade. The 2004 SHARE Presidential initiative mandates that agencies attempt to reduce the number and severity of claims, improve the timeliness of claim submittals, and make strong efforts to promptly return employees to their jobs. In 2006, the President extended the 2004 SHARE Initiative through Fiscal Year 2009.

6.1.3 Eligibility

6.1.3.1 All U.S. civilian employees except those paid from non-appropriated funds are covered by Federal Employee Compensation Act (FECA). Special circumstances may apply to contract employees, volunteers, and loaned employees. Coverage is extended to Federal employees regardless of the length of time on the job or the type of position held. Probationary, temporary, and term employees are covered on the same basis as permanent employees. Part-time, seasonal, and intermittent employees are also covered.

6.1.3.2 To be eligible under FECA, an injury or illness must occur on NASA's premises during working hours while an employee is performing assigned duties or engaging in an activity that is reasonably associated with their employment. Coverage extends to an employee's use of facilities for comfort, health, and convenience, as well as eating meals and snacks provided on the premises. "Premises" includes areas immediately outside an employee's workplace, such as steps or sidewalks if they are Federally-owned or maintained. Coverage extends to employees who are on the premises for a reasonable time (e.g., 30 minutes) before or after working hours. Employees injured while engaging in the internal business of a labor organization such as soliciting new members or collecting dues are not covered. NASA-owned, controlled, and managed parking facilities are considered "on premises" if an employee is injured there.

6.1.3.3 Workers performing assigned duties offsite are also covered. Examples of these instances include running errands, conducting special missions, and teleworking. Injuries occurring during an employee's lunch hour off the premises are not usually covered unless the employee is in travel status or performing their regular duties off premises. An employee in travel status is covered by FECA 24 hours per day for all activities incidental to the work assignment, including obtaining

meals, using the hotel room, and traveling between the hotel and worksite. Coverage does not include recreational or sightseeing trips. Also not included is coverage for unauthorized "off premises" activities, willful misconduct, and intoxication by alcohol or illegal drugs.

6.1.3.4 Employee injury claims involving traffic accidents shall include a diagram or map showing the location of the accident in relation to the places where official duty was last performed and next scheduled. Other potentially applicable circumstances where employees sustain injuries shall be determined on a case by case basis. Examples include employees engaged in recreational activities on NASA's premises, horseplay, assault, and emergencies.

6.1.4 Records Access and Privacy Act

6.1.4.1 Medical records shall be handled with care and with restricted access to those with a specific need to have it. Records are managed and disposed of under the provisions of NASA 10 Health Information Management Systems (HIMS) of Records.

6.1.5 Forms

6.1.5.1 Forms used for FWC claims include the following:

a. CA-1: Federal Employee's Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation;

b. CA-2: Notice of Occupational Disease and Claim for Compensation;

c. CA-2a: Notice of Recurrence;

d. CA-6: Official Supervisor Report of Employee's Death;

e. CA-7: Claim for Compensation;

f. CA-16: Authorization for Examination and/or Treatment;

g. CA-17: Duty Status Report;

h. CA-20: Attending Physician's Report (attached to Form CA-7);

i. CA-7b: Leave Buy-Back Worksheet;

j. CA-35: Evidence to Support Medical Claim;

k. OWCP-915: Claim for Medical Reimbursement; and

l. HCFA-1500/OWCP 1500: Health Insurance Claim Form.

6.1.6 Case Management

6.1.6.1 NASA Centers shall include as part of their FWC Program a case management program for short- and long-term injuries and illnesses. Prompt processing of FWC claims through a case management system assures the most expeditious authorization of medical care for the injured or ill and facilitates the return to productive employment. Case management consists of monitoring an employee's medical treatment and tracking the employee's ability to return to work.

6.1.6.2 Case management shall include the formation of a working group at each Center that meets quarterly. In addition to the Center Workers' Compensation Officer (WCO), the working group shall have representatives from the Center's Medical Clinic, the Human Resources Office, and the Safety Office, as well as the appropriate employee representatives such as the case manager, supervisor, or union representatives. The entire working group or a specific working group representative may be

requested to meet and provide assistance to the Center WCO.

6.1.6.3 Case management shall also include other forms of communication, such as telephone or e-mail contact with appropriate staff.

6.1.6.4 Case management shall include periodic visits by the Center WCO or Case Manager to the DOL OWCP regional office to review case files in order to identify the possibility of closing long-term cases.

6.2 Responsibilities

6.2.1 NASA Chief Health and Medical Office (CHMO), Occupational Health (OH) establishes the responsibilities and procedures for the Agency's FWC, evaluates workers' compensation data trends, and monitors Agency-wide costs.

6.2.2 NASA Center Senior Management ensures that (1) Center-specific guidelines for managing FWC injuries and illnesses are implemented, (2) OWCP data is provided to the Agency Workers' Compensation Program Manager, (3) a civil service or designated contractor WCO and an alternate are designated for the Center, (4) the WCO has a permanent, separate, and solid (not portable/cubicle) walled private office where employee medical data can be discussed, (5) quarterly FWC cost data and the numbers and types of injuries and illnesses that have occurred at their Center have been reviewed by appropriate Center management personnel, and (6) SHARE data for their Center has been reviewed and distributed to the appropriate Center management personnel.

6.2.3 Agency Workers' Compensation Manager shall be a civil service employee who: (1) reports to the Agency OH Director in the Office of the Chief Health and Medical Officer (OCHMO), (2) serves as the NASA liaison with the DOL, including submittal of reports, (3) determines the Center's level of access to OWCP and other organizations for Workers' Compensation data, (4) provides quarterly reports of numbers and costs of occupational-related injuries and illnesses to the OH Director, (5) provides assistance to Center WCOs in controverting questionable claims, reviewing cases of permanent disability, communicating changes in OWCP requirements/procedures/guidelines, and assisting with other FWC issues, (6) notifies OWCP of errors in chargeback billing reported by Center WCOs, (7) monitors the Agency OWCP data trends and costs and provides that data to the Agency OH Director, (8) establishes the responsibilities and procedures for the Agency FWC Program, and (9) coordinates with the Headquarters WCO when processing paperwork for Office of Inspector General employees injured on-site.

6.2.4 Center Occupational Medical Clinic Personnel: (1) work and coordinate with the Center WCO on FWC cases, (2) provide medical evaluations of employees for new limited-duty and current positions, (3) evaluate private physician medical diagnoses and recommend a course of action to Center management regarding an occupationally injured employee's return to work options, and (4) serve as the medical points of contact in FWC case management.

6.2.5 The Center Human Resources Office (HRO) works with Center Occupational Medical Clinic personnel, WCOs, and employee supervisors to recommend current and future work activities for injured/ill employees who are eligible to return to work on a modified duty status. The HRO also provides a representative to participate in the Center FWC working group.

6.2.6 Center Workers' Compensation Officer (WCO): The WCO shall be a Civil Service employee; a contractor employee may fulfill this position with management concurrence. An alternate shall also be designated and may be either a Civil Service or contractor employee. In some cases, the WCO is also the FWC Case Manager. The Center WCO (and alternate when required) shall:

a. Take initial and refresher training provided by the Center's associated regional OWCP office or equivalent;

b. Lead and participate in the Center FWC Working Group, as necessary;

c. Report Continuation of Pay (COP) and injury data to the Agency Workers' Compensation Manager and Center management quarterly;

d. Maintain records of employee claims at their Center;

e. Track COP costs and compensation costs for all active Center cases;

f. Provide quarterly reports to the Center Director and other Center Management in a format determined by the Center;

g. Maintain a history and current status of employee injury/illness and work capability and costs for all claimants except for survivor benefits;

h. Document the return to work progress for limited duty return to work where an employee cannot return to full duty;

i. Periodically review cases at the Center's associated OWCP district office (the Center Medical Director may be included if the WCO or alternate is not the Case Manager. Special efforts shall be taken to document long-term cases); and

j. Inform Center supervisors and employees about their responsibilities and rights concerning on-the-job injuries and illnesses. This may be conducted through training classes, memoranda, employee handbooks, newsletters, and similar methods.

6.2.7 Case Managers support employees throughout the FWC treatment and return-to-work process. Duties shall include monitoring appropriateness and effectiveness of medical care being provided, assessing employee compliance with treatment recommendations, and facilitating employees' return to work within medical limitations.

6.2.8 Employee Supervisors shall complete required FWC forms and assist in identifying light-duty and modified job descriptions for employees who are eligible for return to work on a limited basis.

6.2.9 Injured Employees: (1) provide information on work-related injuries and illnesses to their supervisors, (2) provide medical reports and complete DOL OWCP forms (e.g., CA-1/CA-2) with Center WCOs for evaluation, (3) request written descriptions of light duty jobs available from their immediate supervisors and provide that information to the treating physician to find out when return to work is possible (COP/compensation may be terminated if employee refuses work that is within medical restrictions provided by treating physician and without good cause or if employee does not respond within specified time limits to a job offer at the employee's NASA Center location).

6.3 Process Description

6.3.1 Each NASA Center (and component Facility, if applicable) shall have their own specific written procedures for employee reporting of work-related illnesses and injuries, as well as Center-specific written processing and reporting procedures used for FWC case management.

6.3.2 In general, the process for work-related illness and injury claims, processing, and reporting shall follow the course as described below. Because staffing resources and responsibilities differ at each Center, the process shall adhere to the procedures to the extent possible. Deadlines shall be adhered to in all cases.

6.3.3 An employee who sustains a work-related injury or illness shall report the incident to their immediate supervisor and/or the Center WCO. The employee's supervisor shall complete the front of Form CA-16 for the employee to take to a medical facility within four hours of the request whenever possible. An OWCP-1500 may also be provided to the employee at this time. If there is no time to complete Form CA-16, the completed form may be sent to the medical facility within 48 hours. In the case of serious injury/death during duty hours, the supervisor promptly notifies the Center WCO. An employee death requires the supervisor to complete a Form CA-6, Official Supervisor's Report of Employee's Death."

6.3.4 The employee shall seek treatment onsite at the NASA Center clinic or offsite using his/her private licensed physician. In emergency situations, the employee is transported offsite.

6.3.5 The employee shall provide the Form CA-16 (and the OWCP-1500, if available) to the treating physician. A Form CA-20 which is attached to Form CA-7 may also be provided to the treating physician in lieu of a Form CA-16.

6.3.6 Employees shall report work-related injuries and illnesses to the first line supervisor and the Center Health Unit immediately. After occurrence of injury or illness, employees shall be evaluated by a licensed physician at the Center Health Unit. After being seen by a licensed physician at the Health Unit, employees may be treated by a medical practitioner of their choice, including the Health Unit physician. In fitness for duty determinations, the employee may provide their physician's opinions to the Health Unit for inclusion in their medical record. Before returning to work to resume normal full-time duties after an occupational injury or illness, employees shall report to the Health Unit for evaluation/screening.

6.3.7 The OH clinic staff shall obtain a Federal employee's history, assess the injury or illness, and provide treatment if it is within the scope of the facility's capabilities. The Clinic shall review injury, illness status of claimants, provide immediate and follow-on medical care, and provide medical management of claims.

6.3.8 If the case is expected to be sent to OWCP, a medical report from the treating physician is required. The medical report from the attending physician shall include: dates of examination and treatment, history given by employee, physical findings, results of diagnostics tests, diagnosis, course of treatment, other conditions found but not due to the claimed injury, treatment given or recommendation for claimed injury treatment, medically-based physician's opinion as to the causal relationship between diagnosis and factors or conditions of employment, extent of disability affecting employee's ability to work due to injury, and the prognosis for recovery.

6.3.9 The employee shall provide medical documentation, including information on medical limitations (CA-16 or CA-20) and completed compensation forms to the Center WCO for review before a formal claim is made.

6.3.10 If the employee incurs medical expenses or loss of time from work beyond the date of injury, a Form CA-1 or Form CA-2 shall be completed by the employee and submitted to the employee's supervisor as soon as possible. Form CA-1 or Form CA-2 shall be completed no later than 30 days from the date of injury. The form may be completed by someone acting on the employee's behalf (e.g., family member, supervisor, co-worker); however the form must contain the original signature of the injured employee. If submitting a Form CA-2, a Form CA-35 "Evidence Required in Support of a Claim for Occupational Disease" form/checklist is also required.

6.3.11 The supervisor shall provide the Form CA-1 or Form CA-2 to the Center WCO within three (3) working days of receipt from the employee. The Form CA-1 serves as the employee's claim for COP. The Form CA-1 or Form CA-2 shall be sent to the appropriate DOL district office by the

Center WCO as soon as possible but no later than ten (10) working days after receipt of the form from the employee or the employee's supervisor.

6.3.12 If the injury is considered first-aid only and the employee obtains no medical care on the date of injury, and no time lost is charged to leave or COP, Form CA-1 is filed in the employee's medical file. First aid injuries include those injuries requiring two or more visits to a medical facility for exam/treatment during non-duty hours beyond the date of injury, as long as no leave/COP is charged and no medical expenses are incurred by the employee. Center WCOs shall record whether claims were first-aid only and the date (if applicable) when the first-aid injury became a nonfirst-aid reportable injury.

6.3.13 Center WCOs shall work with employees to assist in filing claims and work with the Center Medical Director and supervisor for potential cases of controversion. Controverting a claim may require consulting with the Center's Office of Chief Counsel. If the injury is found not to be work-related, the claim is controverted by the WCO. Only the OWCP has the authority to accept or deny a claim. If NASA pays or withholds a COP, OWCP has the authority to review the case. Medical evidence determines whether an accepted case will result in payment of disability benefits. The WCO shall terminate payment of COP if medical evidence of an injury or illness is not provided within ten (10) calendar days from the date the injury began.

6.3.14 The Center WCO shall use Form CA-17 to obtain interim medical reports about an employee's fitness for duty. The employee's supervisor completes NASA's portion of the form by describing the physical requirements of the employee's job and noting the availability of any light or limited duty positions or work. The Form CA-17 is then completed by the employee's physician who sends the original form to the NASA Center WCO and a copy to the appropriate OWCP district office. CA-17 forms may be sent to the employee's physician at reasonable intervals but not more than once per week to monitor the employee's medical status and ability to return to light or full duty.

6.3.15 NASA, in accordance with the DOL OWCP requirements, shall offer appropriate light or limited duty work for employees' safe and expeditious return to work. FECA provides that employees must actively seek suitable work as soon as possible. This includes returning employees from the long-term rolls (those who have been off work more than one year). Supervisors of injured employees shall make every effort possible to structure or modify an injured employee's work duties to meet medical limitations and to allow the employee to return to work. Position descriptions do not need to be modified unless the modification is long term. An injured employee must accept a reasonable offer of limited duty work that the employee can perform or provide explanation to OWCP for declining. If receiving COP and the employee refuses the limited duty work, COP is terminated upon refusal or within five (5) days of the job offer. If work is not available, OWCP provides nurse and vocational rehabilitation services to help employees return to work with NASA or another Federal or private sector employer. Employees are expected to cooperate with vocational rehabilitation efforts and FECA provides sanctions for those who do not cooperate, including the termination of compensation.

6.3.16 The Center Human Resources Office shall coordinate with Center Medical Clinic staff, the Center WCO, and employee supervisors to provide recommendations to determine an employee's eligibility to return to work on a limited basis. The Center WCO and the employee's supervisor shall identify suitable jobs and initiate efforts to re-employ the employee as soon as it is determined that this is possible.

6.3.17 An employee who sustains a disabling traumatic injury may request continuation of pay (COP) for the period of disability. If the employee cannot return to work due to the nature of the injury, and the injury continues beyond 45 calendar days, the employee must claim OWCP

compensation on Form CA-7 or use sick or annual leave or enter a leave without pay status.

6.3.18 Center WCOs shall maintain periodic contact with injured employees while they are receiving workers' compensation benefits.

6.3.19 Ongoing care and followup shall be provided to the injured employee until the employee's Maximum Medical Improvement has been reached.

6.3.20 The employee reports to the Center's Health Clinic to ensure that he/she is 100 percent fit for duty before resuming normal/unlimited duties.

6.3.21 The Center WCO shall notify the OWCP claims examiner/district office when an injured worker returns to work. A letter shall also be sent by the Center WCO to OWCP to document the case status in writing.

6.4 Reports and Recordkeeping

6.4.1 The FECA fiscal year is July 1 through June 30 for chargeback purposes. The first quarter is July 1 through September 31. The second quarter is October 1 through December 31. The third quarter is January 1 through March 31. The fourth quarter is April 1 through June 30.

6.4.2 Center WCOs shall provide quarterly claim reports to the Agency Federal Workers' Compensation Manager to show progress made toward reducing the number and costs of Workers Compensation injuries and the number of lost work hours for employees receiving benefits. Each quarterly report shall include the number of employees requiring work limitation and the number of employees returned to alternate work.

6.4.3 The Agency FWC Manager shall be notified by Center WCOs of any employee deaths, multiple injuries/illnesses from events likely to result in multiple claims, scheduled awards for injuries/illnesses in excess of $25,000, or acceptance of any hearing loss claims.

6.4.4 Quarterly reports shall be completed and submitted to the Agency Workers' Compensation Manager and also to the WCO's Center management no later than January 25, April 25, July 25, and October 25 each year. COP cases reported shall include the claimant name, hours, and cost of COP, payments made in the most recent quarter, and payments made in the previous quarter.

6.4.5 Center WCOs shall maintain records of employee injuries and dates of issue and submittal to OWCP of CA-1/CA-2/CA-16 forms. Records shall be safeguarded in accordance with all privacy statutes and requirements and retained according to NPR 1441.1 NASA Records Retention Schedules. Where the technology is available, public key infrastructure shall be used for electronic transmission of personal medical information.

Chapter 7. Occupational Health Review Process

7.1 Policy

7.1.1 The NASA Office of the Chief Health and Medical Officer (OCHMO) conducts Occupational Health (OH) reviews and defines OH "requirements" as mandatory elements for programs or functions. Requirements include NASA Policy Directives (NPDs), NASA Procedures and Requirements (NPRs) and external regulations and consensus standards applicable to NASA. This chapter establishes a method for performing and documenting the results of, and delineating the requirements for, Agency OH reviews conducted at NASA Centers/Facilities (hereinafter Centers), including NASA Headquarters (HQ) and NASA's Jet Propulsion Laboratory to the extent required in their contract.

7.1.2 The goal of the OCHMO is to ensure the protection and promotion of NASA workforce health, to improve workers' capabilities and abilities, and to ensure the maintenance of their safe and healthy working environment. Regular reviews of OH components are required to accomplish this goal, which includes verification of compliance with other Federal, state, local, and Center regulations. OH reviews help identify and mitigate risk, provide a consistent, high level of health care, and identify best practices and innovative solutions that provide greater operational effectiveness and efficiency. Achieving and maintaining sufficient resources commensurate with the Center's size, population, and mission are within the scope of OH reviews.

7.1.3 OH reviews provide a forum for NASA Center/Facility personnel and OCHMO to discuss OH-related issues for which OCHMO may be able to assist. The OCHMO OH Review Team members are advocates and provide technical help; guidance on best practices; support for Agency OH initiatives; facilitation of specialized training for emerging health threats and new requirements; and enhancement of the competency of OH employees.

7.1.4 Periodic OH program reviews shall include assessment of medical care provided at each Center's Occupational Medicine Clinic (including emergency care capability and coordination with other departments, medical quality assurance, health clinic environment of care, and childcare facility health aspects); preventive health and wellness activities; Employee Assistance Programs; Federal Workers' Compensation; fitness facilities; industrial hygiene; health physics; and food safety.

7.1.5 OCHMO Review Team Members shall be qualified to conduct review in their specific program area per NPD 1210.2, NASA Surveys, Audits, and Reviews Policy, paragraph 5 (2).

7.1.6 Each member of the OCHMO Review Team shall:

a. Maintain the standards and ethics expected of a NASA civil service or contractor employees;

b. Always act in the interest of the health and safety of workers;

c. Base judgments on scientific knowledge and technical competence, seeking specialized expert advice when necessary;

d. Refrain from any judgment, advice, or activities that may endanger the trust in their integrity or impartiality;

e. Maintain full professional independence;

f. Observe confidentiality in performing duties;

g. Treat coworkers and other individuals equitably and without any form of discrimination in accordance with NPR 2081.1, Nondiscrimination in Federally Assisted and Conducted Programs;

h. Establish and maintain clear channels of communication among the team members, OCHMO management, Center points of contact, Center management, and others;

i. Maintain high-quality review records, with the appropriate degree of confidentiality, for identifying OH findings at Centers; and

j. Provide objective evidence including, but not limited to, surveillance of working environments, personnel interviews, documentation and records, and verification of personnel certifications.

7.1.7 Appendix E contains the current Center review schedule. Due to the potential for change to accommodate coordination with the OSMA and environmental review schedules, the latest schedule of Center reviews shall be maintained on the OH Web site at www.ohp.nasa.gov.

7.2 Responsibilities

7.2.1 The Chief Health and Medical Officer (CHMO) shall be responsible for:

a. Ensuring that planned program reviews of NASA facilities are conducted;

b. Determining the value and adequacy of Center OH programs; and

c. Determining if Centers are providing adequate OH program resources.

7.2.2 The Director of Occupational Health shall be responsible for:

a. Assuring overall occupational health review process efficacy;

b. Appointing the team lead for Center reviews; and

c. Reviewing and approving occupational health review reports.

7.2.3 The OH Review Team Leader shall be the Agency's primary representative for the review process and shall be responsible for:

a. Implementing overall, the Agency's occupational health review process, including pre and post review aspects, real-time problem coordination and resolution, and briefing presentations;

b. Initiating contact with each Center prior to review;

c. Coordinating and exchanging information with each Center primary Point of Contact (POC);

d. Establishing each Center's review schedule and associated meetings;

e. Consulting with the Agency's Director of Occupational Health, as needed during the review, regarding nonconformance findings;

f. Providing the Center POC or Contracting Officer's Technical Representative (COTR) with a listing of nonconformance findings; and

g. Continually improving the occupational health review process.

7.2.4 Center Directors shall be responsible for the following:

a. Appointing a Center POC, with sufficient authority and OH knowledge to coordinate Center onsite reviews with the OCHMO, and to provide ready access to facilities and other logistical support;

b. Providing the review effort with adequate resources and personnel;

c. Attending the out-briefing or designating an alternate if he/she is unavailable;

d. Assuring the corrective action plan addresses all nonconformance findings;

e. Providing a corrective action plan to the OCHMO;

f. Providing adequate resources to resolve corrective actions;

g. Ensuring implementation of the requests for actions designated in the review; and

h. Notifying the OCHMO; Office of Safety and Mission Assurance's Safety Assurance Requirements Division, and OH Director of other Center reviews, audits, or visits from outside regulatory bodies, such as the Occupational Safety and Health Administration, the Nuclear Regulatory Commission (NRC), or state or local government organizations.

7.2.5 The Center primary POC shall be responsible for the following:

a. Coordinating and exchanging information with the OCHMO Team Leader:

(1) Providing a discipline-specific POC list to the OCHMO Review Team Leader, including names, mail and e-mail addresses, and phone numbers.

(2) Distributing review questionnaires from the Review Team Leader to Center personnel.

(3) Providing completed questionnaires and requested documentation to the Review Team Leader on time and in a concise electronic format.

b. Providing and coordinating support requirements:

(1) Arranging for badges and escort of the review team, where needed.

(2) Coordinating property and set up requirements for equipment use (e.g., laptop PCs, cameras, PDAs, wireless Internet access, etc.).

(3) Arranging for a private work area and a private interview room for the Agency Review Team.

(4) Arranging rooms and meeting announcements for in-briefings and out-briefings.

c. Supporting the onsite review:

(1) Supporting the in-briefing, out-briefing, and finding coordination meetings.

(2) Providing access to Center internal locations subject to the scope of the review.

(3) Providing onsite access to additional Center documentation, as needed.

(4) Providing wireless remote Internet access.

(5) Coordinating real-time issues and problems, as they arise, during the review process.

d. Providing postreview support:

(1) Coordinating nonconformance findings with Center Management, as needed.

(2) Overseeing preparation of the corrective action plan.

(3) Tracking Centers' nonconformance findings to closure.

7.2.6 Center discipline-specific points of contact shall be responsible for:

a. Being available during all parts of the review for their Agency Review Team counterparts;

b. Coordinating and exchanging OH discipline information with the appropriate OCHMO Review Team counterpart;

c. Supporting the review in-briefing and finding coordination briefings;

d. Providing objective evidence (e.g., documentation, all necessary records, licenses, etc.) as requested;

e. Escorting Agency Review Team personnel;

f. Reporting real-time issues and problems to the Center primary POC, as they arise, during the review process;

g. Coordinating and verifying with the Agency Review Team all specific discipline findings prior to the finding coordination meeting; and

h. Representing the Center at the finding coordination meetings, as applicable.

7.2.7 Mandatory requirements and responsibilities or individual OCHMO Review Team members and the OCHMO Secretary/Administrative Assistant to the OH Director are located in Appendix C.

7.3 Process Description

7.3.1 OH reviews shall be performed in accordance with the requirements of NPD 1210.2, NASA Surveys, Audits, and Reviews Policy, and shall compare NASA Center policies, procedures, and practices to (1) regulatory and other compliance requirements, (2) NASA Agency policy requirements, and (3) consensus standards.

7.3.2 A written report and program rating shall be prepared by OCHMO based on the OH review findings. The report and rating shall be provided to each Center, with a copy to the appropriate Mission Associate Administrator, Institutional Corporate Management, and Safety and Mission Assurance Directorates.

7.3.3 Centers are responsible for tracking and closing all nonconformance findings.

7.3.4 Table 1 provides the tasks and associated timelines for the OH review process.

Table 1

	Task	Timeline	Author
1	Memo to Center Directors with annual OH review schedule for upcoming year	By November 1 of the previous year	OCHMO

2	Electronic communication to Center COTR(s); provision of OH review questionnaires and a request for documents for OCHMO review	Approximately 60 days before OH review visit is scheduled to take place at the Center	OCHMO
3	Memo to Center Director announcing OCHMO's upcoming OH review	Approximately 30 days before OH review visit is scheduled to take place at the Center	OCHMO
4	Center-completed OH review questionnaires, requested documents, and discipline-specific POC information provided to OCHMO	30 days or more before OH review takes place or by the due date indicated in OCHMO's previous communication	Center POC/COTR
5	Written list of nonconformance findings provided to Center review POC/COTR	OH Review Formal Out brief	OCHMO
6	Memo and report to Center Director with the results of the OH review and a rating of the OH programs	Approximately 60 days after the last day of the OH review	OCHMO
7	Off-year OH self-reviews with supporting documentation, and status of previous nonconformance findings	During the off-years in the same month as the last onsite OCHMO occupational health review	Center Director

7.3.4.1 Task 1: OH reviews are conducted, by either OCHMO or the Center, annually and are set by the OCHMO, and are conducted (to the extent possible) during the same month at each respective Center. Also see Paragraph 7.1.8.

7.3.4.2 Task 2: Each Center COTR shall distribute the OH discipline-specific questionnaires and request for documents to the appropriate Centers' OH representatives. The Centers' OH representatives shall provide completed questionnaires and/or the documents requested by OCHMO to their COTR or other Center designated POC. The COTR or other Center-designated primary POC shall review the questionnaires, determine their viability, and return the questionnaires to the OCHMO Review Team Leader. Concurrently, or before the submittal of documents to OCHMO, the Center COTR or other designated POC shall also provide OCHMO with a list of OH disciplines technical POC's, Center security requirements and badging, in-brief and out-brief locations and any other logistical information needed for the OH review. All information shall be provided via e-mail or other electronic method, where feasible.

7.3.4.3 Task 3: A memo shall be sent from OCHMO to the Center Director to announce the upcoming OH review, including copies to the Center's Associate Administrator, Institutional Corporate Management, and Safety and Mission Assurance Directorates. The memo to the Center Director shall include OCHMO's detailed report of the OH review findings, including details about recurring nonconformances.

7.3.4.4 Task 4: Centers shall provide comprehensive answers to questions on questionnaire; documentation, discipline-specific POC's information, and other requested information in a concise and well organized electronic format. Questionnaires shall be in electronic format and inclusive and representative of all Center contractor and NASA activity under each OH discipline-specific questionnaire.

7.3.4.5 Task 5: A written listing of all nonconformance findings shall be provided to the Center POC or COTR at or before the out-briefing to Center management, in accordance with NPD 1210.2, NASA Surveys, Audits, and Reviews Policy.

7.3.4.6 Task 6: A memo, executive summary and comprehensive report containing the results of the review shall be provided to the Center Director.

7.3.4.7 Task 7: During years when an OCHMO-led review is not conducted at a Center, the Center shall perform an OH self-review during the same month of the regularly scheduled OCHMO onsite review and submit the review findings to the OCHMO Review Team Leader. The minimum elements of the self-review shall include: overall or general account of what was physically evaluated in each OH discipline are reviewed, names and qualifications of Center individual(s) conducting the reviews, dates and locations of each program or area reviewed, verification of compliance with other Federal, state, local, and Center regulations, a status and assessment of the previous OCHMO findings, and a corrective action plan for the nonconformance findings from the self-review. The Center report shall also describe any substantial improvement and/or degradation in each OH Program area. The Center self-review team members shall be qualified to conduct reviews in their specific program area per NPD 1210.2, NASA Surveys, Audits, and Reviews Policy, paragraph 5 (2).

7.3.5 The nonsubmittal of an OH self-review from the Center during an off-year shall be referred to the CHMO for decision on further action and reflected in the Center's subsequent onsite OH review detailed report.

7.3.6 Onsite OH Reviews

7.3.6.1 The OH review shall include an in-briefing, including introductions, the scope of the review, explanation of the mechanisms and review results, and coordination of other necessary details. The Center component of the in-briefing shall include introductions, a statement of open findings from previous reviews, and a summary of significant Center aspects affecting OH Programs since the last on-site OCHMO review. Those in attendance shall include at least one senior management representative with responsibility and authority over Center OH Programs.

7.3.6.2 The Center shall provide multidisciplinary coverage for the entire review period. The in-brief shall provide a forum for exchange of questions, information, and details regarding the review. It shall be an opportunity for the OH Review Team to offer expert information and advocacy, and to provide an opportunity for Center feedback on OH review process improvements. The Center shall present their top OH concerns and a status of any open or unresolved nonconformance findings from previous OH reviews.

7.3.6.3 Each OCHMO Team member shall coordinate with their OH discipline counterpart to confirm or clarify details of their parts of the review, discuss Center OH programs and processes, and plan area visits. OCHMO Review Team members shall collect pertinent objective evidence of their findings including, but not limited to, documentation and verification of facts through interviews, tours of work areas, observation of activities and the surrounding work environment and conditions, record reviews, and documentation accessibility and availability. Centers shall make all necessary records available to the OCHMO Review Team for review and assessment.

7.3.6.4 Center Directors shall ensure that adequate and professionally appropriate technical points of contact for each OH program are available and can participate in the OH review.

7.3.6.5 Immediately dangerous to life and health (IDLH) situations found during the OH review shall be addressed as follows:

7.3.6.6 The issues shall be immediately reported to the onsite Center supervisor responsible for the area. Subsequently, it shall be immediately reported to the OCHMO Review Team Leader and Center Team Leader. The OHMO reviewer shall not commence the review until the issue has been resolved and the situation is no longer IDLH.

7.3.6.7 The Out-briefing shall be presented by the OCHMO Review Team to the Center Director or his or her representative in a verbal executive summary format. OCHMO's presentation shall focus on the strengths, weaknesses, and significant nonconformance findings. Any best practices found during the OH review shall also be highlighted. Per NPD 1210.2, a written list of nonconformance findings shall be provided by the OCHMO Review Team Leader to the Center COTR at or before the out briefing.

7.3.6.8 A detailed written report shall be provided to the Center within approximately 60 days of the Out-brief. The written review report shall be a reiteration of the issues expressed in the Center Out-brief, including details of all review findings. The Center shall have approximately 60 days after receipt of the written report to reply to the OCHMO Review Team Leader with a corrective action plan describing remedial actions for the nonconformance findings. Center corrective action plans shall be approved and signed by the Center Director, and shall follow the narrative format and numbering system of the original OCHMO report.

7.3.6.9 The Center shall keep the OCHMO Review Team Leader informed of the status of corrective action report if a delay is anticipated. Corrective actions shall only be "closed" when the anomalous condition associated with the nonconformance no longer exists.

7.3.6.10 Findings shall be categorized as follows:

a. Commendation: A practice that exceeds requirements or is a time or cost-saving measure, without sacrificing OH objectives or requirements;

b. Recognition: The acknowledgement of a significant improvement or progress toward required Center OH program requirements or other positive noteworthy accomplishment not attaining levels commensurate with those of a commendation;

c. Opportunity for Improvement: A condition that meets compliance requirements but could or should be improved. Opportunities for Improvement are accompanied by "Recommendations" in the written report. Recommendations are not required to be addressed in the Center's corrective action plan or subsequent status reports; and

d. Nonconformance: A divergence from a compliance requirement (Federal, state, local, NASA Agency, NASA Center, etc.) or an applicable consensus standard (the American National Standards Institute, the National Institute for Occupational Safety and Health, the Environmental Protection Agency, etc.). These findings require Center response in the corrective action plan and subsequent status reports.

7.3.6.11 Working documents, reports, and results shall be permanently retained on file or in the Agency Health Electronic Database for use and future examination, unless deemed otherwise by the Director of Occupational Health.

Appendix A. Definitions

A.1 Ability and Risk Evaluations. Evaluations performed for the purpose of determining a worker's ability to perform specific job tasks (ability) and the likelihood of harm, either to the worker or others (risk), in relation to anticipated workplace exposures and job demands. Also includes the processes used to evaluate the ability of individuals to safely perform essential duties, if placed in a noisy work environment, and not pose a health or safety risk to themselves or others.

A.2 Action Level. An 8-hour time-weighted average of 82 decibels measured on the A-scale, slow response, or equivalently, a dose of 50 percent. Employee exposure at or above the action level shall trigger enrollment into a hearing conservation program.

A.3 Active Managerial Control. The purposeful incorporation of specific actions or procedures by management into the operation of their establishment to attain control over foodborne illness risk factors.

A.4 Administrative Control. Any procedure that limits noise exposure by restricting access to noise areas or by control of exposure times, distance, and/or work practices.

A.5 Audiometer. An electronic instrument used for measuring hearing threshold levels that conforms to the requirements and specification of the current American National Standard Institute (ANSI) S3.6, Specification for Audiometers standard.

A.6 Baseline Audiogram. The reference audiogram against which future audiograms are compared, typically resulting from an audiometric evaluation conducted at the time the employee is enrolled in the hearing conservation program. The baseline audiogram for one or both ears is replaced if the employee's hearing thresholds demonstrate either a persistent Standard Threshold Shift (STS) or a persistent improvement as defined in 4.8.3.l5.

A.7 Biological Agents. Pathogenic bacteria, viruses, fungi, and other microorganisms and their associated toxins that have the ability to adversely affect human health in a variety of ways, ranging from relatively mild, allergic reactions to serious medical conditions, even death.

A.8 "Buy Quiet and Quiet by Design" Program. A program that endeavors to achieve long-term reduction of employee noise exposures through purchase and design of equipment with the intention of achieving realistic and achievable noise criteria, which are considered before procurement or design, using criteria based on operational conditions as well as the noise outputs of equipment. The "Buy Quiet and Quiet by Design" approach requires designers and engineers to consider noise emission when purchasing and designing equipment that is expected to generate noise emission levels of concern for hearing conservation (80 dBA and higher).

A.9 Calibration. A check of proper functioning and stability of an audiometer, sound level meter or octave band analyzer, noise dosimeter, or audiometric test room by various means. In cases where methods or requirements vary, the methodology or specification that results in the most accurate data collection shall apply.

A.10 Competent Person. One who is capable of, and has been trained to, identify existing and predictable conditions, which may result from hazardous substances and articles.

A.11 Continuation of Pay (COP). Continuation of pay of an employee's regular pay for up to 45 calendar days due to a disability and/or medical treatment. COP is paid as salary (as opposed to compensation) and only in connection with a traumatic injury. Employees with occupational disease claims are ineligible to receive COP.

A.12 Controvert. To dispute, challenge, or deny the validity of a claim for COP on the basis of specific reasons such as: the injury occurred off premises and the employee was not engaged in authorized "off premises" duties, the injury was caused by the employee's willful misconduct or by the employee's intoxication by alcohol or illegal drugs, or the employee first reported the injury after employment termination.

A.13 Criterion Sound Level. An exposure level of 85 Decibel A-weighted (dBA) Time Weighted Average (TWA) (NASA's maximum occupational exposure level).

A.14 Decibel A-weighted (dBA). A sound level reading in decibels made on the A-weighted network of a Sound Level Meter (SLM) at slow response.

A.15 Decibels, Peak (dBP). The highest instantaneous sound level measured. Commonly used to measure impulsive or impact noise. This quantity cannot be measured on the slow response A-weighted scale.

A.16 De-rating. The process of reassigning the manufacturers' values of hearing protectors to more realistic, real-world performance values.

A.17 Design Review. A formal documented and systematic examination of a design to evaluate food service facilities and/or operations, including: food service facilities, water system construction or modifications, and sanitary facilities for buildings.

A.19 Developmental Toxicity. Adverse effects on the developing organism that may occur anytime from conception to sexual maturity and include such effects as spontaneous abortion, structural or functional defects, low birth weight, or effects that may appear later in life.

A.20 Dose. See Noise Dose.

A.21 Employer. NASA organizations and their associated contractors, to the extent specified in their respective contracts, and other Government agencies, their contractors, and tenants whose primary work is performed at a NASA Center.

A.22 Engineering Control. Any mechanical device or physical barrier that reduces the sound level at the source of noise generation or along the path of propagation of the noise to the potentially exposed individual. This does not include personal protective equipment such as earmuffs or plugs or administrative controls.

A.23 Exchange Rate. The increase or decrease in decibels corresponding to twice (or half) the noise dose. When using a 3 dB exchange rate, a dose corresponding to an exposure of 85 dBA TWA represents twice the dose associated with an 82 dBA TWA exposure.

A.24 First Aid Injuries. Those injuries wherein the employee is examined or treated at NASA's medical facilities or examined and treated by NASA contract medical providers during working hours beyond the date of injury. It also includes instances where two or more visits are made to a medical facility for examination or treatment during non-duty hours beyond the date of injury, as long as no leave or continuation of pay is charged and no medical expenses are incurred.

A.25 Food Establishment. Any operation, including childcare and NASA Exchange-operated facilities, that store, prepares, packages, vends, or otherwise provides food for human consumption at NASA facilities or on NASA property.

A.26 Food Inspectors. Persons who have received specific training in the area of food inspection and regulation, have received certification and/or standardization from an agency that regulates the food industry, or have been credentialed by a state or the National Environmental Health

Association.

A.27 Food Manager Certification. A written certification test that requires food managers to demonstrate a basic knowledge of food protection practices.

A.28 Hazard. A biological, physical, or chemical property that may cause a food to be unsafe for human consumption.

A.29 Hazard Analysis Critical Control Point (HACCP) Methodology. A prevention-based food safety management system that identifies and monitors specific food safety hazards that can adversely affect the safety of food products.

A.30 Hazardous Noise Area. Any work area where the environmental noise level is at or above 85 dBA, or where the environmental impulse noise level is at or above 140 dB peak C or linear, regardless of duration of exposure or number of impulses.

A.31 Hazardous Substance or Article. Any material, object, or agent that, because of its quantity, concentration, physical, chemical, infectious, radioactive, or toxic properties poses a significant present or potential hazard to human health and safety by its misuse or if released into the workplace or the environment. This includes, but is not limited to, any substance listed in Appendix A of this section. (A partial list of hazardous substances and articles is included in Appendix A.)

A.32 Hearing Threshold Level (HTL). The hearing level, above a reference value (audiometric zero), at which a specified sound or tone is heard by an ear in a specified fraction of the trials. For pure-tone air-conduction audiometry, hearing levels are sound pressure levels of pure tones at audiometric frequencies, such that 0 dB HTL, or audiometric zero, typifies the threshold of hearing of young otologically-normal persons.

A.33 Impulsive or Impact Noise. Variations in noise levels that involve peaks of intensity that occur at intervals of greater than 1 second. If the noise peaks occur at intervals of 1 second or less, the noise is considered continuous.

A.34 Major Food Safety Incident. Any of the following or related events occurring at an establishment on NASA property or regularly serving NASA personnel: a known poisoning resulting in hospitalization; two or more suspected poisonings; any known or suspected incident of food contamination resulting or potentially resulting in exposure to personnel; or any similar or related incidents. All major food safety incidents will be categorized and investigated based on NPR 8621.1, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping.

A.35 Maximal medical improvement. A condition or state that is well stabilized and unlikely to change substantially in the next year, with or without medical treatment. Over time, there may be some change; however, further recovery or deterioration is not anticipated.

A.36 Nanoparticles. Materials that have at least one dimension (e.g., length, width, height, diameter) that is less than 100 nanometers. Nanoparticles may be suspended in a gas (e.g., nanoaerosol), suspended in a liquid (e.g., nanocolloid or nanohydrosol), or embedded in a matrix (e.g., nanocomposite).

A.37 Nanometer (nm). 1 x 10-9 meters or one millionth of a millimeter.

A.38 Noise Dose. A measure of cumulative noise exposure over a stated time period, which takes into account both the intensity of sound and the duration of exposure. Dose is a dimensionless quantity that represents the amount of actual noise exposure relative to the amount of allowable noise exposure (criterion level) and for which 100 percent and above represents noise exposures that

are hazardous.

A.39 Noise Dosimeter. An instrument that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose.

A.40 Noise Reduction Rating (NRR). A noise reduction value, in decibels, averaged across the frequencies from 125 Hz to 8 kHz and computed from laboratory tests of the attenuation of hearing protectors measured under ideal conditions. The NRR, per a 1979 Environmental Protection Agency (EPA) regulation, is required to appear on all devices worn on the head or ear that are sold for purposes of personal noise reduction. See "Derating."

A.41 Noise Survey. A periodic or event-driven investigation of a hazardous noise, Standard Threshold Shift (STS), or other driving condition for the purposes of determining the noise levels, frequencies, and other sound characteristics as they relate to employee exposure.

A.42 Occupational disease or illness. A condition produced by the work environment over a period longer than one work day or shift. It may result from infection, repeated stress or strain, or repeated exposure to toxins, poisons, fumes or other continuing conditions of the work environment.

A.43 Occupational Hearing Conservationist (OHC). Also known as an industrial audiometric technician. A person who is certified by the Council on Accreditation for Occupational Hearing Conservation (CAOHC) and conducts the practice of hearing conservation, including pure-tone air-conduction hearing testing and other associated duties under the supervision of an audiologist or physician.

A.44 Packaged food must be labeled in accordance with respective Federal, state, and local regulations, and the FDA Food Code. Proper labeling includes name of manufacturer and an accurate statement of the contents.

A.45 Potentially Hazardous Food. A food that is natural or synthetic and that requires temperature control because it is capable of supporting the rapid and progressive growth of infectious or toxigenic microorganisms, the growth and toxin production of Clostridium botulinum, or in raw shell eggs, the growth of Salmonella enteritidis. Includes foods of animal origin that are raw or heat-treated; foods of plant origin that are heat-treated or consist of raw seed sprouts, cut melons, and garlic in oil mixtures that are not acidified or otherwise modified at a processing plant in a way that results in mixtures that do not support growth of pathogenic microorganisms as previously described.

A.46 Representative Exposure. Measurements of an employee's noise dose or 8-hour time-weighted average sound level that is representative of the exposure of other employees exposed to the same noise hazard.

A.47 Revised Baseline. The most recent audiogram that has established a persistent STS upon retest or a significant improvement. Baseline revisions shall be used as the basis of comparison for future audiograms. Since ears are considered separately when making baseline revisions, it is possible for someone to have baseline audiograms from different years, as well.

A.48 Reproductive Toxicity. Adverse effects on the health of the reproductive organs, endocrine system, or gametes (egg or sperm) from exposure to an exogenous agent that may result in effects such as menstrual dysfunction, impaired fertility, feminization/masculinization, or inability to maintain a pregnancy.

A.49 Risk-Based Inspection. An assessment of the degree of active managerial control that an operator has over the foodborne illness risk factors in the establishment; and the focusing of inspections on the control of foodborne illness risk factors, which embody a preventive rather than

reactive approach to food safety.

A.50 Risk Factor. One of the broad categories of contributing factors to foodborne illness outbreaks, as identified in the Centers for Disease Control and Prevention (CDC) Surveillance Report for 1993-1997, that directly relates to foodborne safety concerns within retail and food service establishments. The factors are: Food from Unsafe Sources, Inadequate Cooking Temperatures, Improper Holding Temperatures, Contaminated Equipment, and Poor Personal Hygiene.

A.51 Significant Improvement. A significant improvement is shown if the average of thresholds at 2000, 3000, and 4000 Hz for either ear shows an improvement of 5 dB or more from the baseline audiogram.

A.52 Sound Pressure Level (SPL). 20 times the common logarithm of the ratio of the square of the measured A-weighted sound pressure to the square of the standard reference pressure of 20 micropascals.

A.53 Standard Threshold Shift (STS). A decline 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.

A.54 Temporary Event. A food establishment that operates in conjunction with a single event or celebration.

A.55 Traumatic injury. A wound or other condition of the body caused by external force, including stress or strain. It must occur at a specific time and place and must affect a specific area or function of the body. The injury must be caused by a specific event or incident or series of events or incidents within a single day or work shift. Traumatic injuries include damage to personal appliances or devices, such as dentures, artificial limbs, eye glasses, and hearing aids when the injury ultimately required medical attention.

A.56 Vector. An organism that is capable of transmitting a pathogen from one organism to another.

A.57 Vermin. Any of various small animals or insects that are destructive or pose a health hazard to humans, plants, or animals in the environment.

A.58 Work Role Position. Any job or position at a Center that does not change appreciably when a contract is awarded to a new contractor and the same employee of the former employer occupies the position.

Appendix B. Acronyms

Acronym/ Abbreviation	Name for Acronym/Abbreviation
ABSL	Animal Biosafety Level
ACGIH	American Conference of Governmental Industrial Hygienists
ACS	American Cancer Society
ACSM	American College of Sports Medicine
AED	Automatic External Defibrillator
AIHA	American Industrial Hygiene Association
ALARA	As Low As Reasonably Achievable
ALS	Advanced Life Support
ALT	Alanine Transaminase
AME	Aviation Medical Examiner
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ATSDR	Agency for Toxic Substances and Disease Registry
BBP	Bloodborne Pathogen
Be-LPT	Beryllium Lymphocyte Proliferation Test
BMI	Body Mass Index
BP	Blood Pressure
BSL	Biosafety Level
BUN	Blood Urea Nitrogen
B2-M	Beta-2 Microglobulin in Urine
CAOHC	Council for Accreditation in Occupational Hearing Conservation
CBC	Complete Blood Count
CdB	Cadmium in Blood
CDC	Center for Disease Control
CdU	Cadmium Urine
CHMO	Chief Health and Medical Officer

CFR	Code of Federal Regulations
CISD	Critical Incident Stress Debriefing
CISM	Critical Incident Stress Management
CNS	Central Nervous System
COOP	Continuity of Operations Plan
COP	Continuation of Pay
COTR	Contracting Officer's Technical Representative
CV	Cardiovascular
DASHO	Designated Agency Safety and Health Officer
DFWP	Drug Free Workplace
DHHS	Department of Health and Human Services
DNA	Deoxyribonucleic Acid
DOE	Department of Energy
DOH	Director of Occupational Health
DOL	Department of Labor
DOT	Department of Transportation
EAP	Employee Assistance Program
ECG	Electrocardiograph
EH	Environmental Health
EHRS	Electronic Health Record System
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FDA	Food and Drug Administration
FECA	Federal Employees Compensation Act
FEHP	Federal Employee Health Program
FEHBP	Federal Employee Health Benefits Program
FEV 1	Forced Expiratory Volume in the 1st Second
FFD	Fitness For Duty
FVC	Forced Vital Capacity
FWC	Federal Workers' Compensation
g or gm	Gram
GI	Gastro Intestinal

GXT	Graded Exercise Test
HACCP	Hazard Analysis Critical Control Point
HazMat	Hazardous Materials
HCP	Hearing Conservation Program
HCT, Hct	Hematocrit
HDL	High Density Lipoprotein
HgB	Hemoglobin
HHS	Health and Human Services
HIMS	Health Information Management System
HIPAA	Health Information Portability and Accountability Act
HIV	Human Immunodeficiency Virus
HMTA	Health and Medical Technical Authority
HPD	Hearing Protection Device
HPW	Health Promotion Working Group
HRA	Health Risk Assessment
HRO	Human Resource Office
IAQ	Indoor Air Quality
ICC	Infection Control Committee
ICO	Infection Control Officer
ICP	Infection Control Plan
IDLH	Immediately Dangerous to Life and Health
IEEE	The Institute of Electrical and Electronics Engineers
IH	Industrial Hygiene
IPM	Integrated Pest Management
JSC	Johnson Space Center
KSC	Kennedy Space Center
LDL	Low Density Lipoprotein
LSC	Laser Safety Committee
LSO	Laser Safety Officer
MBOCA	4,4'-Methylenebis(2-chloroaniline)
MC	Methylene Chloride
MCH	Mean Corpuscular Hemoglobin

MCHC	Mean Corpuscular Hemoglobin Concentration
MCV	Mean Corpuscular Volume
MDA 4,4	Methylene Dianiline
MDI	Methylene Diphenyl Isocyanate or Methylene Diisocyanate
mL	Milliliter
MMR	Measles, Mumps and Rubella
MOCA	4,4'-Methylenebis(2-chloroaniline)
MRO	Medical Review Officer
MSD	Musculoskeletal Disorder
NASA	National Aeronautics and Space Administration
NCRP	National Council on Radiation Protection
NFPA	National Fire Protection Association
NIH	National Institutes of Health
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
NPD	NASA Policy Directive
NPR	NASA Policy Requirements
NRC	Nuclear Regulatory Commission
NRR	Noise Reduction Rating
NSSC	NASA Shared Services Center
NVLAP	National Voluntary Laboratory Accreditation Program
OCHMO	Office of the Chief Health and Medical Officer
OEL	Occupational Exposure Limit
OHCM	Office of Human Capital Management
OHP	Occupational Health Program
OM	Occupational Medicine
OSHA	Occupational Safety and Health Administration
OSMA	Office of Safety and Mission Assurance
PA	Posterior to Anterior (Chest x-ray view)
PAAMHR	Predicted Age Adjusted Maximum Heart Rate
PAP	Papanicolaou Smear
PAPR	Powered Air Purifying Respirator
PARQ	Physical Activity Readiness Questionnaire

PCB	Polychlorinated Biphenyls
PEL	Permissible Exposure Limit
PLHCP	Physician or other Licensed Health Care Provider
PNS	Peripheral Nervous System
POC	Point of Contact
PPD	Purified Protein Derivative used in TB Skin Testing
PPE	Personal Protective Equipment
PSA	Prostate Specific Antigen
QA	Quality Assurance
REL	Recommended Exposure Limit
RSO	Radiation Safety Officer
RF	Radio Frequency
RTW	Return To Work
SCAPE	Self Contained Atmospheric Protective Ensemble
SEG	Similar Exposure Groups
SEHO	Senior Environmental Health Officer
SGPT	Alanine Transaminase
SHARE	Safety, Health, and Return to Employment
SOAP	Subjective Objective Assessment Plan
SOW	Statement of Work
STS	Standard Threshold Shift
TAL	Transoceanic Abort Landing
TB	Tuberculosis
Td	Tetanus Diptheria
Tdap	Tetanus, Diptheria, and Pertussis
TDI	Toulene Diphenyl Isocyanate or Toluene Diisocyanate
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
ug	Microgram
um	Micrometer
USCG	United States Coast Guard

USDA	United States Department of Agriculture
USPSTF	U.S. Preventive Services Task Force
ViTS	Video Teleconferencing Service
VOC	Volatile Organic Compound
WBC	White Blood Count
WC	Workers' Compensation
WCO	Workers' Compensation Office
ZPP	Zinc Protoporphyrin

Appendix C. Physical Examination Matrix

1. Specific Potentially Hazardous Exposures

	Exam	Regulation
A.	Arsenic	29 CFR Part 1910.1018
B.	Asbestos	29 CFR Part 1910.1001 29 CFR Part 1926.1101
C.	Benzene	29 CFR Part 1910.1028
D.	Beryllium	10 CFR Part 850 (DOE) NIOSH
E.	Cadmium	29 CFR Part 1910.1027 29 CFR Part 1926.1127
F.	Chromium	29 CFR Part 1910.1026 29 CFR Part 1926.1126
G.	Ethylene Oxide	29 CFR Part 1910.1047
H.	Formaldehyde	29 CFR Part 1910.1048
I.	Hydrazines	NIOSH
J.	Isocyanates	NIOSH
K.	Lead	29 CFR 1910.1025 29 CFR 1926.62
L.	Mercury	OSHA CPL 02-02-006 NIOSH, ATSDR
M.	Methylene Chloride	29 CFR Part 1910.1052 ATSDR
N.	4,4' Methylenebis (2-chloroaniline) (MOCA, MBOCA)	NIOSH, ATSDR, OSHA
O.	4,4' Methylenedianiline (MDA)	29 CFR 1910.19, 1910.1050 and 1926.60
P.	Nitrogen Tetroxide (Dioxide)	NIOSH
Q.	Polychlorinated Biphenyls (PCB)	ATSDR NIOSH Current Intelligence Bulletin 45, February 24, 1986
R.	Silica Dust	29 CFR 1910.1000, 29 CFR 1915, OSHA CPL 2-2.7, NIOSH

S.	Trichloroethylene	NIOSH

2. Hazardous Environments/ Workplace Examinations

	Exam	Regulation
A.	Bloodborne Pathogens	20 CFR 1910.1030
B.	Chemistry Laboratory	29 CFR 1910.1450
C.	Hazardous Waste Operations and Emergency Response	29 CFR 1910.120
D.	Health Care Provider	29 CFR 1910.1030, CDC
E.	Ionizing Radiation	10 CFR 20.1502
F.	Lasers	ANSI Z 136.1
G.	Noise	29 CFR 1910.95 NPR 1800.1B Chapter 4.9
H.	Pesticides	
I.	Spray Painting	
J.	Water and Sewage	
K.	Welding	NIOSH Criteria Document No. 88-110

3. Certification Examinations

	Exam	Regulation
A.	Childcare Workers	
B.	Confined Space/Tank Entry	29 CFR 1910.134
C.	Crane Operator/Ground Floor/Remote-Operation/High/Cabin/Pulpit	NS 8719.9 ASME B30.2-2001
D.	Diver	29 CFR 1910.423 29 CFR 1910.424
E.	DOT/Commercial Driver License/Motor Vehicle Certification/Multiple Passenger Van	49CFR 391.41-49 49 CFR 240.12

F.	Down Range/Shipboard Duty	46 CFR Subpart 10 and 12
G.	Firefighter	NFPA 1582
H.	Food Handler	46 CFR 12.25-20 NPR 1800.1B Chapter 4.10
I.	Locomotive Engineer	49 CFR 240.121
J.	Motive (Heavy) Equipment Operator	
K.	Occupational Respirator Use	29 CFR 1910.134 29 CFR 1910.134 Appendix A
L.	Ordnance Handler	
M.	Primary Animal Contact	
N.	Primary Crew Contract	JSC 22538
O.	Security	
P.	Self Contained Atmospheric Protective Ensemble	29 CFR 1910.134
Q.	Soldering	
R.	Voluntary Respirator Use	29 CFR 1910.134 29 CFR 1910.134 Appendix A

4. Flight Activities

	Exam	Regulation
A.	First Class Airman's Medical Certificate	14 CFR 67 NPR 7900.3
B.	Second Class Airman's Medical Certificate	14 CFR 67 NPR 7900.3
C.	Third Class Airman's Medical Certificate	14 CFR 67
D.	Air Traffic Control Specialist or Flight Crew	OPM GS-2152
E.	Qualified Non-Crew Member	

5. Special Administrative Examinations

	Exam	Regulation
A.	Fitness for Duty	NPR 1800.1B
B.	Return to Work	NPD 1840.1B NPR 1800.1B
C.	International Travel	NPR 1810.1A

6. Voluntary Health Maintenance

	Exam	Regulation
A.	Complete Health Maintenance Examination	FEBHP NPR 1800.1B
B.	Annual Health Maintenance Examination	FEBHP NPR 1800.1B
C.	Fitness Center Clearance	NPR 1800.1B

EXAMINATION PROTOCOLS

1. Surveillance Examinations for Workers with Specific Potentially Hazardous Exposures

A. Arsenic	
Reference	OSHA 29 CFR Part 1910.1018
Frequency	1. Baseline Examination 2. Annual Exam, if less than 45 years old 3. Semiannually, if 45 years old or older, or with 10 or more years of exposure 4. Variable or Exposure-Determined Examination 5. Exit/Reassignment Examination
Laboratory	1. Chest X-ray (PA) 2. Discretionary Tests a. Pulmonary Function b. Complete Blood Count

Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on peripheral and CNS, GI system, skin including nasal mucosa, respiratory tract, and thyroid 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Liver, kidneys, skin, lungs, lymphatic system, CNS, PNS
Written Opinion	Standard Written Medical Opinion
Medical Removal	No requirement in standard

B. Asbestos	
Reference	OSHA 29 CFR Part 1910.1001 OSHA 29 CFR Part 1926.1101
Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory (TX)	1. Chest X-ray (PA) (Must be read by "B reader"): a. Baseline b. Periodic: i. 1-10 years since first exposure: 1. every 5 years ii. 10+ years since first exposure, and: 1. below age 35, every 5 years 2. age 35-45, every 2 years 3. age 45+, annually 2. Pulmonary Function 3. Discretionary Tests a. Hemocult b. PPD c. Urinalysis (dipstick)
Physical Exam	1. Required Asbestos Questionnaire (Standardized on initial exam, Abbreviated Standardized on annual exam) 2. Physical Examination with focus on respiratory, CV, and GI systems 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use

Target Organs	Respiratory/lungs, pleural (Mesothelioma), gastrointestinal
Written Opinion	Standard Written Medical Opinion for Asbestos within 30 days, including statement that employee was informed of the increased risk of lung cancer attributable to combined effect of smoking and asbestos.
Medical Removal	No requirement in standard

C. Benzene	
Reference	OSHA 29 CFR Part 1910.1028
Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination
Laboratory	1. Complete Blood Count (CBC) including a leukocyte count with differential, a quantitative thrombocyte count, hematocrit, hemoglobin, erythrocyte count, and erythrocyte indices (MCV, MCH, MCHC). (Repeat within 2 weeks if abnormal, refer to standard for action level) 2. Pulmonary Function (if employee wears respirator, initial exam and then every 3 years) 3. For Emergency Exposures Only: a. Urine sample provided at the end of employee's shift for urinary phenol test within 72 hours and urine specific gravity corrected to 1.024. b. If urinary phenol test is equal to or greater than 75 mg phenol/L of urine, repeat Complete Blood Count monthly for 3 months. 4. Discretionary Tests: a. Refer to Appendix C of standard for guidance
Physical Exam	1. Detailed Medical and Occupational History initially, brief update annually 2. Complete Physical Examination with focus on the blood, skin, CNS, and liver and kidney function 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Eyes, respiratory, CNS, skin, blood/bone marrow
Written Opinion	Standard Written Medical Opinion within 15 days
Medical Removal	Required when referred to hematologist/internist

D. Beryllium	
Reference	10 CFR Part 850 (DOE rule)
Frequency	1. Baseline Examination 2. Annual Examination for beryllium workers 3. Every 3 years for beryllium associated workers 4. Variable or Exposure-Determined Examination
Laboratory	1. Chest X-ray (PA) (Must be read by "B reader"): a. Baseline b. Every 5 years 2. Pulmonary Function 3. Be-LPT (for significant exposure)
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on skin, eyes, and respiratory tract 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Respiratory, kidney, CNS, liver, skin, eyes
Written Opinion	Standard Written Medical Opinion within 14 days of receipt of results
Medical Removal	Required based upon medical recommendation
Multiple Physician Review Process	Required if requested by examinee (see CFR)

E. Cadmium	
Reference	OSHA 29 CFR Part 1910.1027 OSHA 29 CFR Part 1926.1127
Frequency	1. Baseline Examination 2. Annual Examination 1 year following Baseline Examination 3. Biennially Examination (see standard for guidance on frequency with abnormal laboratory findings) 4. Variable or Exposure-Determined Examination 5. Exit/Reassignment Examination
Laboratory	Annual Laboratory: 1. Cadmium in urine (CdU) (See Appendix F for protocol for sample handling and laboratory selection) 2. Beta-2 microglobulin in urine (B(2)-M) 3. Cadmium in blood (CdB) 4. BUN and Serum Creatinine

	5. Complete Blood Count (CBC) 6. Chest X-ray (PA) a. Baseline b. Exit/Reassignment 7. Pulmonary Function 8. Discretionary Tests: a. Annual Chest X-ray b. PSA (for males 50 years and older) c. Urinalysis
Physical Exam	1. Cadmium Exposure Questionnaire required (Appendix D in CFR) 2. Complete Physical Examination with focus on blood pressure, respiratory, and urinary systems (refer to health effects Appendix A) 3. Prostate palpation, males 40 years and older 4. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Written Opinion	Standard Written Medical Opinion for Cadmium
Medical Removal	Required
Multiple Physician Review Process	Required if requested by examinee (see CFR)

F. Chromium	
Reference	OSHA 29 CFR 1910.1026, 29 CFR Part 1926.1126
Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory	Discretionary
Physical Exam	1. Medical and Occupational History 2. Physical Exam with focus on skin and respiratory tract
Target Organs	Respiratory, liver, kidney, eye, skin
Written Opinion	Standard Written Medical Opinion within 30 days
Medical Removal	No requirement in standard

G. Ethylene Oxide

Reference	OSHA 29 CFR Part 1910.1047
Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory	1. Complete Blood Count (CBC) with differential 2. Discretionary Tests: 3. Pregnancy test 4. Laboratory evaluation of fertility if requested by examinee and considered appropriate by provider 5. Blood Chemistry Panel 6. Urinalysis
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on pulmonary, hematologic, neurologic, and reproductive system, and eyes and skin. 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Respiratory, blood, CNS, reproductive, eye, skin, liver, kidney
Written Opinion	Standard Written Medical Opinion within 15 days
Medical Removal	No requirement in standard

H. Formaldehyde	
Reference	OSHA 29 CFR Part 1910.1048
Frequency	1. Baseline Examination 2. Annual Examination (for employees required to wear respirator, others discretionary) 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory	1. Pulmonary Function (for required respirator use) a. Baseline b. Annual
Physical Exam	1. Medical and Occupational History (nonmandatory medical disease questionnaire - Appendix D in CFR is recommended) 2. Physical Examination with focus on eyes, skin, mucous membranes, and allergies and allergic reactions 3. Evaluation of ability to wear respirator may be

	required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Respiratory, eyes, skin
Written Opinion	Standard Written Medical Opinion for Formaldehyde within 15 days of results
Medical Removal	Required
Multiple Physician Review Process	Required if requested by examinee (see CFR)

I. Hydrazines	
Reference	
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	1. Baseline Chest X-ray 2. Complete Blood Count 3. Liver Profile 4. Urinalysis with microscopic 5. Discretionary: 1. Pulmonary Function
Physical Exam	1. Medical and Occupational History 2. Physical Examination 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Eyes, respiratory, skin, CNS, liver, kidneys
Written Opinion	No requirement in standard
Medical Removal	No requirement in standard

J. Isocyanates (e.g., Methylene Diisocyanate (MDI), Toluene Diisocyanate (TDI).)	
Reference	NIOSH 78-215
Frequency	1. Baseline Examination 2. Variable or Exposure Determined Examination 3. Annual Examination
Laboratory	1. Pulmonary Function 2. Chest X-ray (PA) at 5-year intervals

Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on respiratory system, skin, and mucous membranes (Isocyanates are potent sensitizers. Acute exposures may cause severe airway obstruction.) 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Eyes, respiratory, kidney, liver, skin, CNS
Written Opinion	No requirement in standard
Medical Removal	No requirement in standard

K. Lead	
Reference	OSHA 29 CFR 1910.1025 OSHA 29 CFR 1926.62
Frequency	1. Baseline Examination 2. Annual Examination for employee's with blood lead over 40ug/100g in the preceding 12 months 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory	1. Blood Lead and ZPP (Baseline and every 6 months) 2. If Blood Lead is at or above 40ug/100g, repeat every 2 months 3. Repeat blood lead 2 weeks after any test is at or above 60ug/100g (requires medical removal) 4. During Medical Removal, Blood Lead and ZPP monthly 5. Hemoglobin and Hematocrit, red cell indices, and examination of peripheral smear morphology 6. BUN and Serum Creatinine 7. Urinalysis with microscopic 8. Discretionary Tests: a. Pregnancy/fertility testing, if employee requests
Physical Exam	1. Medical and Occupational History 2. Complete Physical Examination with focus on teeth, gums, hematological, GI, CV, renal, and neurological system. 3. Blood Pressure 4. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Pulmonary, kidney, blood, reproductive, CNS, gastrointestinal, CV, gums, teeth, eyes

Written Opinion	Standard Written Medical Opinion for all evaluations and employee written notification of blood level results over 40ug/100g within 5 business days
Medical Removal	Required (see CFR for criteria)
Multiple Physician Review Process	Required if requested by examinee (see CFR)

L. Inorganic Mercury	
Reference	OSHA CPL 02-02-06
Frequency	1. Baseline Examination 2. Annual Interim History 3. Variable or Exposure-Determined Examination
Laboratory	1. Complete Blood Count (CBC) 2. Urinalysis 3. Voluntary pregnancy test, where appropriate 4. Urine mercury level (for history of exposure, recommend all employees in given work area be tested at the same time). If exposed above PEL test every 3 months, if below PEL test every 6 months.
Physical Exam	1. Medical and Occupational History (annual interim history) 2. Physical Examination with focus on central nervous and respiratory systems, kidneys, and skin. 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Liver, kidney, CNS, PNS, lung, eye, mucous membranes
Written Opinion	Standard Written Medical Opinion
Medical Removal	No requirement in standard

M. Methylene Chloride	
Reference	OSHA 29 CFR Part 1910.1052
Frequency	1. Baseline Examination 2. Annual Medical and Occupational History Update 3. Examination Frequency Age Determined: a. Annual, if age 45 or older b. Every 36 months under age 45 4. Variable or Exposure-Determined Examination 5. Exit/Reassignment Examination

Laboratory	• Discretionary:
	  • Pulmonary Function
	  • Hemoglobin and Hematocrit
	  • ALT, SGPT
	  • Post-shift Carboxyhemoglobin
	  • ECG

Physical Exam	• Methylene Chloride Questionnaire required (annual interim history) • Physical Examination focus on employee health status and analysis of questionnaire responses • Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Respiratory, CV, liver, CNS, skin, blood
Written Opinion	Standard Written Medical Opinion for Methylene Chloride with the following within 15 days of completion of medical and laboratory findings but not more than 30 days past examination including: • Statement that the physician has informed the employee Methylene Chloride (MC) is a potential carcinogen risk • The risk factors for heart disease, and the potential exacerbation of underlying heart disease from MC exposure and its metabolism to carbon monoxide
Medical Removal	Required
Multiple Physician Review Process	Required if requested by examinee (see CFR)

N. 4,4' Methylenebis (2-chloroaniline) (MOCA, MBOCA)	
Reference	NIOSH Publication No. 78-188
Frequency	1. Baseline Examination 2. Annual Examination 3. Laboratory only every 6 months (employees working directly in production or handling for 10 years or longer)
Laboratory	1. Complete Blood Count (CBC) 2. Blood Chemistry Profile 3. Urinalysis with microscopic 4. Chest X-ray
Physical Exam	1. Medical and Occupational History 2. Focused Physical Examination
Target Organs	Liver, blood, kidneys
Written Opinion	No requirement in standard

Medical Removal	No requirement in standard

O. 4,4' Methylenenedianiline (MDA)	
Reference	OSHA 29 CFR 1910.1050
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	1. Blood Chemistry Profile 2. Urinalysis with microscopic
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on skin disease and liver dysfunction 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Skin, eyes, liver, CV, spleen
Written Opinion	Standard Written Medical Opinion required
Medical Removal	Required
Multiple Physician Review Process	Required if requested by examinee (see CFR)

P. Nitrogen Tetroxide (Dioxide)	
Reference	
Frequency	Baseline Examination
Laboratory	Discretionary
Physical Exam	• Medical and Occupational History • Physical Examination with focus on pulmonary system, skin, and eyes
Target Organs	Eyes, respiratory, CV
Written Opinion	No requirement in standard
Medical Removal	No requirement in standard

Q. Polychlorinated Biphenyls (PCB)	
Reference	NIOSH Current Intelligence Bulletin 45, February 24, 1986

Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory	1. Blood Chemistry 2. Complete Blood Count 3. Urinalysis 4. Chest x-ray (baseline) 5. Discretionary Tests: a. ECG b. Pulmonary Function c. Fecal Occult
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on the skin, liver, and nervous system. 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Skin, liver, CNS
Written Opinion	No requirement in standard
Medical Removal	No requirement in standard

R. Silica Dusts	
Reference	NIOSH Publication No. 2002-129, OSHA 29 CFR 1910.1000
Frequency	• Baseline Examination • Annual Examination • Variable or Exposure-Determined Examination
Laboratory	• Chest X-ray (Must be read by "B reader"): • Baseline • Every 5 years for workers exposed less than 20 years • Every 2 years for workers exposed over 20 years • Pulmonary Function • PPD
Physical Exam	• Medical and Occupational History • Physical Examination with focus on respiratory system • Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification

	Examination. Occupational Respirator Use
Target Organs	Lungs/respiratory, eyes
Written Opinion	Standard Written Medical Opinion including: • Signs and symptoms of silica exposure manifested by the employee • Report of chest x-ray and pulmonary function test • Opinion on whether employee has detected medical condition that may place employee at increased risk of impairment to the employees health from exposure to silica or other substances or would directly or indirectly aggravate any detected medical condition • Any recommended limitations upon employee's exposure to silica or other substances or upon use of Personal Protective Equipment (PPE) and respirators • Statement employee has been informed by the physician of any medical condition which requires further examination or treatment
Medical Removal	No requirement in standard

S. Trichloroethylene	
Reference	
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	Discretionary
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on cardiac, pulmonary, liver, and kidneys 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Respiratory, CV, kidney, liver, skin, CNS, eyes
Written Opinion	No requirement in standard
Medical Removal	No requirement in standard

2. Hazardous Environments/Workplace Examinations

A. Bloodborne Pathogens

Reference	OSHA 20 CFR 1910.1030
Frequency	1. Baseline Examination (for occupational groups covered under the standard) 2. Variable or Exposure-Determined Examination
Laboratory	1. Hepatitis B Vaccine 2. Hepatitis B Surface antibody (HepBSAb)Titer (required one time only after 3rd dose completed) 3. Declination statement must be signed if Hepatitis B Vaccine declined by employee (Appendix A of OSHA Standard) 4. Discretionary: Post-exposure a. Victim: HIV test, HepBSAb if not already documented, and HepCAb (other tests per provider) b. Source (after consent given): HIV test (rapid screen if available), HepB Surface Antigen (HepBSAg), and HepCAb (other tests per provider) c. If any HIV test is performed because of a specific occupational exposure, then a confidential ID system and a secure method to receive the test results shall be insured for both victim and source.
Physical Exam	1. Medical and Occupational History 2. Focused Physical Examination (discretionary)
Target Organs	Multiple organs
Written Opinion	Standard Written Medical Opinion required within 15 days of completion of evaluation including whether Hepatitis B immunization is indicated and if the employee has received such vaccine
Medical Removal	No requirement in standard

B. Chemical Laboratory	
Reference	OSHA 29 CFR 1910.1450
Frequency	Variable or Exposure-Determined Examination
Laboratory	1. Discretionary: a. Blood Chemistry Profile b. Complete Blood Count (CBC) c. Chest X-ray d. Pulmonary Function e. Urinalysis

	f. Visual Acuity
Physical Exam	1. Medical and Occupational History 2. Focused Physical Examination 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Multiple organs, especially eyes, skin, liver
Written Opinion	Standard Written Opinion required
Medical Removal	No requirement in standard

C. Hazardous Waste Operations and Emergency Response	
Reference	OSHA 29 CFR 1910.120, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities
Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory	1. Audiogram (Baseline) 2. Visual Acuity, Color Discrimination, Visual Fields 3. Complete Blood Count (CBC) 4. Blood Chemistry 5. Urinalysis 6. Chest X-Ray (Baseline) 7. Discretionary Tests: a. ECG b. Exercise Stress Test c. Pulmonary Function d. Other based on specific exposure (see Guidance Manual) e. Chest X-Ray (Followup)
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on worker's fitness, including ability to wear any required PPE, back or musculoskeletal problems, heat stress, claustrophobia 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use 4. Employee may also be covered by Bloodborne Pathogen standard
Target Organs	Multiple organs

Written Opinion	Standard Written Medical Opinion required including: a. Statement that the employee has sufficient strength, endurance, and emotional stability to perform the work b. Opinion that no medical condition was detected which would place the employee at increased risk of material impairment of the employee's health or would be a hazard to self or others from hazardous waste operations, emergency response, or respirator use c. Any limitations in job functions or ability to wear PPE d. The results of the medical examination and tests were also provided if requested by the employee
Medical Removal	No requirement in standard
Note regarding eligibility	Protocol covers the following employees: a. Potentially exposed to hazardous substances, without regard to the use of respirator, for more than 30 days per year b. Required to use a respirator more than 30 days per year c. Injured from exposure of hazardous substances during an emergency incident d. Members of a HazMat team Employees Not Covered in Standard: a. Emergency responders not designated members of HazMat team (e.g., security, firefighters)

D. Healthcare Provider	
Reference	OSHA 20 CFR 1910.1030
Frequency	1. Baseline Examination 2. Variable or Exposure-Determined Examination
Laboratory	1. Hepatitis B Vaccine (required or declination letter shall be completed) or demonstrated immunity 2. PPD required for baseline, periodic testing is discretionary based on risk assessment for the facility 3. Discretionary: a. Hepatitis Profile b. Measles, Mumps, Rubella Vaccine c. Diphtheria, Tetanus, and Pertussis (Td, Tdap) d. Varicella Vaccine (if no history of chicken pox)

	e. Influenza Vaccine offered annually
Physical Exam	1. Medical and Occupational History 2. Focused Physical Examination (discretionary) 3. Employee also covered by Bloodborne Pathogen Standard
Target Organs	Respiratory, blood, liver, skin

E. Ionizing Radiation	
Reference	
Frequency	Variable or Exposure-Determined Examination
Laboratory	Complete Blood Count (CBC) with Differential
Physical Exam	1. Medical and Occupational History including exposure 2. Focused Physical Examination
Target Organs	Exposure determined

F. Lasers	
Reference	ANSI Z 136.1 (2007), Required for Class 3B and Class 4 Lasers
Frequency	1. Baseline Examination (required) 2. Variable or Exposure-Determined Examination (within 48 hours)
Laboratory	1. Visual Acuity with refraction corrections to 20/20 (6/6) far and near vision (more extensive examination indicated if this is not met - see standard) 2. Amsler Grid (or similar pattern to test macular function for vision distortions and scotomas) 3. Color Vision Discrimination (Ishihara or similar color vision test) 4. Ocular fundus Examination with Ophthalmoscope or appropriate Fundus Lens at a Slit Lamp if visual acuity, macular function, or color vision is abnormal.
Physical Exam	1. Medical, Occupational, and Ocular History 2. Focused Physical Examination performed by or under supervision of ophthalmologist, optometrist, or other qualified physician 3. Limited skin examination
Target Organs	Eye, skin
Written Opinion	No requirement in standard

Medical Removal	No requirement in standard

G. Noise	
Reference	OSHA 29 CFR 1910.95, NPR 1800.1B Chapter 4.9
Frequency	1. Baseline Examination 2. Annual Examination 3. Exit/Reassignment Examination
Laboratory	1. Baseline Audiogram or within 30 days 2. Audiogram Annually 3. Retest (audiogram) within 30 days if there is a STS
Physical Exam	1. Medical and Occupational History 2. Focused Physical Examination with focus on external and tympanic membrane
Target Organs	Ears and hearing system
Written Opinions	Required within 21 days of Standard Threshold Shift (STS) determination including statement that STS has occurred, whether further evaluation and testing indicated, and opinion on work relatedness or aggravation by occupational noise exposure, and limitation in use of protective hearing equipment
Medical Removal	No requirement in standard

H. Pesticide Applicator	
Reference	
Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory	1. Baseline (required before occupational exposure) Plasma and RBC cholinesterase baselines should be established by performing each test twice (3 to 7 days between tests) and averaging the result for the baseline for each. 2. Blood Chemistry 3. Urinalysis (dipstick) 4. Discretionary Tests: a. Pulmonary Function b. RBC cholinesterase levels for recent exposure c. Plasma cholinesterase for acute exposure

Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on the skin and nervous system 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Kidney, liver, CNS, skin, lung
Medical Removal	If plasma or RBC cholinesterase activity is decreased by 30 percent or greater from baseline the employee should be removed from exposure until follow-up test levels are at least 80 percent of baseline.

I. Spray Painting	
Reference	
Frequency	1. Baseline Examination 2. Variable or Exposure-Determined Examination
Laboratory	Discretionary Tests: a. Blood Chemistry Profile b. CBC c. Chest X-ray d. Urinalysis e. Pulmonary Function Test
Physical Exam	1. Medical and Occupational History 2. Physical Examination (discretionary) 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use 4. Evaluation of other potential exposures, e.g. lead

J. Water and Sewage	
Reference	
Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination
Laboratory	1. Immunizations offered: a. Tetanus Diphtheria (Td) Vaccine b. Hepatitis A and B Vaccine 2. Discretionary Tests: a. Blood Chemistry Profile b. Complete Blood Count (CBC) c. Chest X-ray

Physical Exam	1. Medical and Occupational History 2. Physical Examination (discretionary)
Target Organs	Liver, gastrointestinal, blood

K. Welding	
Reference	NIOSH Criteria Document No. 88-110
Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination
Laboratory	1. Pulmonary Function (Base only) 2. Blood Chemistry Profile 3. Complete Blood Count (CBC) 4. Urinalysis 5. Visual Acuity, Depth Perception, and Color Discrimination 6. Chest X-ray (Baseline) 7. Discretionary a. Skin Cancer Screening
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on skin, respiratory, macular, cornea, fundus, and any condition that may interfere with ability to perform duties 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination Occupational Respirator Use 4. Evaluation of other potential exposures, e.g. metals, flux, compounds
Target Organs	Respiratory, eyes, varies with exposure type

3. Certification Examinations

A. Childcare Workers	
Reference	
Frequency	1. Baseline Examination 2. Variable or Exposure-Determined Examination

Laboratory	1. PPD every 2 years 2. Discretionary Vaccines offered: a. Influenza b. Measles, Mumps, and Rubella (MMR) c. Tetanus/Diphtheria (Td) d. Polio e. Hepatitis A f. Chickenpox g. Hepatitis B
Physical Exam	1. Medical and Occupational/Immunization History 2. Physical Exam with focus on ability to lift and bend repetitively
Written Opinion	Job Certification with any limitations.

B. Permit-Entry Confined Space/Tank Entry	
Reference	29 CFR 1910.134
Frequency	1. Variable or Exposure-Determined Examination
Laboratory	1. Audiogram 2. Visual Acuity, Depth Perception, and Color Vision (or demonstration of employee's ability to see and hear warnings, such as flashing lights, buzzers, and sirens) 3. Discretionary Tests: a. ECG b. Chest X-ray (Baseline) c. Urinalysis (dipstick) d. Pulmonary Function
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on employee's ability to carry out assigned duties and detection of any disease or abnormality that would make it difficult to work within confined spaces 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use 4. Evaluation of other exposures may be required
Written Opinion	Job Certification with any limitations

C. Crane Operators/Riggers Note: Includes ground floor, remote operation, high, cabin, ulpit	
Reference	
Frequency	1. Baseline Examination 2. Biennial
Laboratory	1. Audiogram: No hearing loss in better ear greater than 40 dB at 500, 1,000, 2,000, 3,000, and 4,000 Hz with or without a hearing aid 2. Visual Acuity: Minimum of 20/40 Snellen in each eye without correction or separately corrected to 20/40 Snellen in both eyes with or without corrective lenses 3. Depth Perception 4. Field of vision at least 70 degrees in the horizontal median in each eye 5. Color Vision 6. Discretionary Tests: a. ECG b. Urinalysis c. Pulmonary function d. Hemoglobin (Hgb) and Hematocrit (Hct) 7. Contact the Drug-Free Workplace (DFW) coordinator to arrange testing
Physical Exam	Complete examination: 1. History to ascertain any condition that may cause any sudden incapacitation or inability to perform duties 2. Evaluation for reaction time, manual dexterity, and coordination 3. No tendencies to seizures, dizziness, laustrophobia, sudden incapacitation, loss of physical control, or similar undesirable conditions such as insulin controlled diabetes 4. No evidence of physical defects, or emotional instability, that in the opinion of the examiner, would present a hazard to self or others
Written Opinion	Job Certification with any limitations or referral for further testing

D. Diver	
Reference	29 CFR 1910.401-441, Subpart T
Frequency	1. Baseline Examination 2. Annual Exam

Laboratory	1. Audiogram 2. Baseline and Annual ECG 3. Baseline Chest X-ray (PA and lateral) 4. Pulmonary Function (Vital Capacity) 5. Urinalysis (dipstick) 6. Blood Chemistry 7. Complete Blood Count (CBC) 8. PPD 9. Visual Acuity and Color Discrimination 10. Discretionary Tests: a. Exercise Stress Test
Physical Exam	1. Medical and Occupational History to include predisposition to unconsciousness, vomiting, cardiac arrest, impairment of oxygen transport, serious blood loss, or anything that interferes with effective underwater work 2. Physical Examination
Written Opinion	Job Certification with any limitations, or recommend further specialized clinical evaluation or testing

E. DOT/Commercial Driver License/ Motor Vehicle Certification/Multiple Passenger Van	
Reference	49 CFR 391.41-49
Frequency	1. Baseline Examination 2. Biennial Exam unless more frequent examination is required by the examining provider (per DOT regulations)
Laboratory	1. Audiogram: Hearing thresholds in better ear $\leq$ 40 dB at 500, 1,000, 2,000 Hz with or without hearing aid 2. Visual Acuity: At least 20/40 (Snellen) in each eye without corrective lenses or visual acuity separately corrected to 20/40 or better with corrective lenses, distant binocular acuity of at least 20/40 in both eyes with or without corrective lenses 3. Depth perception 4. Gross field of vision: 70 degrees in each eye 5. Traffic signal color perception 6. Urinalysis (dipstick) 7. Discretionary Tests: 1. Chest X-ray 2. Complete Blood Count (CBC)

	3. Blood Chemistry Profile 4. ECG 5. Exercise Stress Test 6. Pulmonary Function
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on any condition that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, dizziness, claustrophobia, loss of physical control, or similar undesirable conditions (Cannot qualify if diabetic on insulin or if currently on medication for seizure disorder/epilepsy)
Written Opinion	Job Certification with any limitations, or referral for additional specialized clinical evaluation or testing

F. Down Range/Shipboard Duty	
Reference	46 CFR Subpart 10.205; 12.02-27; 12.25
Frequency	1. Baseline Examination (temporary assignment to ships, submarines, or NASA Test Range shipboard) 2. Annual Examination (for Masters, Chief Mates, Chief Engineers, 1st Assistant Engineer, Food Handlers, or anyone 60 years and up, or temporary assignments) 3. Variable (if none of the above): a. Every 5 years for 17 to 24 years of age b. Every 3 years for 25-49 years of age c. Every 2 years for 50 to 59 years of age
Laboratory	1. Audiogram 2. Visual Acuity: 20/200 correctable to 20/40 (Snellen) for deck responsibility; correctable to 20/50 for engineering responsibility 3. PPD 4. Gross Visual Fields: If otherwise qualified, may have lost vision in one eye if remaining good eye's vision is passing 5. Color Perception (Pseudoisochromatic Plates or Eldridge--Green Color Perception Lantern) 6. Discretionary Tests: a. Chest X-ray b. ECG c. Travel Immunizations (offered)

Physical Exam	1. Medical and Occupational History 2. Physical Examination 3. Shipboard food handlers must abide by the Food Handler protocol
Written Opinion	Job Certification with limitations

G. Fire Fighter	
Reference	National Fire Protection Association (NFPA) 1582
Frequency	1. Baseline Examination 2. Annual Examination, if 40 or older 3. Biennial Examination, if between ages 30-39 4. Triennial Examination, if 29 or younger
Laboratory	1. Audiogram: Requires less than 40 dB average hearing loss at 500, 1000, 2000, and 3000 Hz in the "Better ear." 2. Full Blood Chemistry (including cholesterol, HDL, LDL, triglycerides, lipid ratios) 3. CBC 4. Chest X-Ray: a. Baseline b. Every 5 years 5. ECG 6. Pulmonary Function: Ratio of FEV1/FVC must be greater than 0.75 if both FEV1 and FVC are below normal 7. Urinalysis (dipstick) 8. Visual Acuity: Far (Snellen) at least 20/40 binocular corrected and at least 20/100 binocular uncorrected for those routinely using corrective lenses. 9. Color Perception 10. Stress test (age determined): Graded Exercise Test (GXT) with diagnostic symptom limit (95% PAAMHR) "if clinically indicated by history or symptoms" offered annually after 50 years of age 11. Discretionary Tests: a. PPD screen b. Hepatitis C ab titer c. Immunizations offered: • Hepatitis B Vaccine • Tetanus/diphtheria (Td) Vaccine • MMR Vaccine • Polio Vaccine • Varicella Vaccine

	• Influenza Vaccine d. HIV screen e. Depth perception f. Gross visual fields
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on any condition that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, dizziness, claustrophobia, loss of physical control, or similar undesirable conditions 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Written Opinion	Job Certification with: a. Statement that the employee has sufficient strength, endurance, and emotional stability to perform the work b. An opinion the employee would not be a hazard to self or others c. Any limitations in job functions or ability to wear PPE

H. Food Handler	
Reference	21 CFR 10.115; 29 CFR 1910.141(h)
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	1. PPD 2. Hepatitis A (offered) 3. Discretionary Tests: a. CBC b. Chest X-Ray
Physical Exam	1. Medical and Occupational History focusing upon transmittable infectious diseases 2. Focused Physical Examination 3. Examiner should provide counseling regarding hygiene and prevention of cross contamination/fecal-oral diseases
Written Opinion	Job Certification with statement that employee is medically cleared as indicated in the Food Safety section of this document.

Note:	For Crew Food Handler, refer to Primary Crew Contact Physical

I. Locomotive Engineer	
Reference	49 CFR 240.121 and Appendix F
Frequency	1. Baseline Examination 2. Triennial Examination
Laboratory	1. Audiogram: Hearing loss in better ear ≤ 40 dB at 500, 1,000, 2,000 Hz with or without hearing aid 2. Visual Acuity: 20/40 with or without corrective lenses 3. Visual Fields: at least 70 degrees in each eye 4. Color: Recognize and distinguish between the colors of railroad signals
Physical Exam	1. Medical and Occupational History 2. Focused Physical Examination with focus on assessing any condition affecting vision and/or hearing that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, loss of physical control, or similar undesirable conditions
Written Opinion	Job Certification with any limitations

J. Motive (Heavy) Equipment Operator **Note:** includes specialized maintenance and construction equipment such as bulldozers, dump trucks, etc.	
Reference	
Frequency	1. Pre-placement/Baseline Examination 2. Biennial Exam
Laboratory	1. Audiogram: Hearing threshold in better ear ≤ 40 dB (500, 1000, 2000 Hz) 2. ECG 3. Pulmonary Function 4. Visual Acuity: 20/40 with or without corrective lenses 5. Gross Visual Fields: 70 degrees in each eye 6. Color: Recognize and distinguish between the colors 7. Urinalysis (dipstick) 8. Discretionary Tests: a. Chest X-Ray b. Blood Chemistry Profile c. Complete Blood Count (CBC)

	d. Stress Test (age determined)
Physical Exam	1. Occupational and Medical History 2. Physical Examination with focus on assessing any condition affecting vision and/or hearing that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, loss of physical control, or similar undesirable conditions
Written Opinion	Job Certification with any limitations

K. Occupational Respirator Use	
Reference	OHSA 29 CFR 1910.134, and 29 CFR 1910.134 Appendices A, B1, B2 , C
Frequency	1. Baseline Examination 2. Baseline and annual respirator questionnaire 3. Variable or Exposure-Determined Examination
Laboratory	1. Discretionary
Physical Exam	1. OSHA Respirator Medical Evaluation Questionnaire (Mandatory: 1910.134 Appendix A) annually 2. Focused Physical Examination with a focus on employee's ability to use a respirator for baseline 3. Annual Focused Physical Examinations required only if positive responses to Questions 1-8, Section 2, Part A of Appendix C, or at the discretion of the physician 4. Discretionary Tests: a. Chest X-ray b. Pulmonary Function (spirometry)
Written Opinion	Required Standard Written Medical Opinion including: 1. Statement employee is medically able to use the respirator, or any limitations on respirator use related to a medical condition or related to workplace conditions in which respirator will be used 2. The need for any medical followup 3. A statement that employee has been given a copy of the written opinion 4. If the respirator is a negative pressure respirator and the PLHCP finds a medical condition that may place the employee's health at increased risk if the respirator is used, the employer shall provide a PAPR if the medical evaluation finds that the employee can use such a respirator; if a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then the employer is no longer required to provide a PAPR

L. Ordnance Handler	
Reference	
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	1. Audiogram 2. Visual Acuity 3. Depth Perception 4. Color Perception (as related to specific job requirements) 5. Urinalysis (dipstick) 6. Discretionary Tests: a. ECG b. Complete Blood Count (CBC) c. Blood Chemistry Profile d. Chest X-ray e. Pulmonary Function
Physical Exam	1. Medical and Occupational History to ascertain any condition that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, dizziness, claustrophobia, loss of physical control, or similar undesirable conditions 2. Physical Examination focusing on strength, endurance, agility, coordination, adequate visual acuity and hearing, and emotional stability
Written Opinion	Job Certification with any limitations

M. Primary Animal Contact Note: May have to be modified to cover the animal species and specific agents being used.	
Reference	
Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination
Laboratory	Baseline only: 1. Complete Blood Count (CBC) 2. Blood Chemistry Profile 3. Pulmonary Function 4. PPD 5. Tetanus every 10 years 6. Discretionary:

	a. Serum Sample (10 mL) for storage b. Rabies Titer c. Rubeola Titer d. Hepatitis A and B e. Offer Rabies Vaccine
Physical Exam	1. Medical and Occupational History (annual interim history) 2. Physical Examination with focus on immunization history, conditions with suppression of the immune system, allergies to animals, and prior illnesses from animal 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Written Opinion	Job Certification with any limitations

N. Primary Crew Contact	
Reference	Flight Crew Health Stabilization Program JSC 22538
Frequency	1. Mission specific: No earlier than L-21 every scheduled Space Shuttle launch 2. Permanent Primary Contacts: Annual 3. Food Depot: Every 6 months
Laboratory	Required for Food Depot only: a. CBC b. Urinalysis c. Blood Chemistry Panel and Cholesterol Panel d. TB screening (annual) e. Hepatitis A and Influenza Vaccine (offered) Discretionary Tests for all others: a. WBC count with differential b. Urinalysis c. Other serological or bacteriological testing d. TB screening
Physical Exam	Focused Physical Examination with focus on detection of infectious disease
Written Opinion	Certification status (JSC Form 270, KSC Form 13-116)

O. Security	
Reference	

Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	1. Audiogram 2. Visual Acuity, Color Vision, Visual Field 3. ECG 4. Urinalysis (dipstick) 5. PPD 6. Discretionary Tests: a. Pulmonary Function b. Exercise Stress Test
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on ability to perform the essential functions of the job and maintain emotional stability
Written Opinion	Required: 1. Certification statement that the employee has emotional stability to perform the work 2. In the opinion of the examiner that no medical condition was detected which would place the employee at increased risk of material impairment of the employee's health or would be a hazard to self or others 3. Any limitations in job functions

P. Self Contained Atmospheric Protective Ensemble (SCAPE)	
Reference	29 CFR 1910.134
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	1. Blood Chemistry Profile 2. Complete Blood count (CBC) 3. Baseline Chest X-ray 4. Pulmonary Function 5. Audiogram: Hearing threshold less than 40 dB average hearing loss at 500, 1000, 2000, and 3000 Hz in the "Better Ear" 6. Visual Acuity: a. Far (Snellen) at least 20/70 in one eye and 20/100 in the other eye corrected to 20/20 in one eye and 20/40 in the other eye b. Near vision correctable to 20/40 (Snellen equivalent) bilaterally 7. Color perception 8. Depth perception

	9. Gross visual fields intact 10. Discretionary Tests: a. Annual Chest X-ray b. Urinalysis with microscopic c. ECG
Physical Exam	1. OSHA Respirator Medical Evaluation Questionnaire (Mandatory: 29 CFR 1910.134, Appendix A) 2. Physical Examination with focus on employee's ability to use a respirator under the conditions of use (i.e., temperature extremes) 3. Have sufficient strength, endurance, agility, coordination, and emotional stability to avoid interference with performance
Written Opinion	Required: a. Statement that the employee is medically able to use the Self Contained Atmospheric Protective Ensemble (SCAPE), or any limitations on SCAPE use related to a medical condition or related to workplace conditions in which the SCAPE will be used b. Any need for medical followup c. Statement that employer/employee has been given a copy of the written opinion

Q. Soldering	
Reference	NASA STD 8739.3, Soldered Electrical Connections
Frequency	1. Baseline Examination 2. Annual 3. Variable or Exposure-Determined
Laboratory	1. Pulmonary Function (Baseline only) 2. Visual Acuity, Depth Perception, and Color Discrimination
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on skin and respiratory tract. 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use 4. Evaluation of other potential exposures, e.g. lead
Target Organs	Respiratory, skin, varies with type of solder used

R. Voluntary Respirator Use **Note: For employees requesting elastomeric respirator**

Reference	OHSA 29 CFR 1910.134 Appendix A ,B1, B2, C, D
Frequency	1. Baseline Examination
Physical Exam	1. Focused physical evaluation 2. History to ascertain any condition that may cause any sudden incapacitation, inability to perform duties. 3. Evaluation of ability to wear respirator under expected use conditions (i.e., temperature extremes). 4. OSHA Respirator Medical Evaluation Questionnaire (Mandatory: 1910.134 Appendix A)
Written Opinion	Required: a. Any limitations in job functions or ability to wear PPE

4. Flight Activities

A. First Class Airman's Medical Certificate (Airline Transport Pilot)	
Reference	14 CFR 67, NPR 7900.3 Aircraft Operations Management w/Interim Revision to Chapter 3, Appendix A, Aviation Medical Program Certification For NASA Pilots
Frequency	1. Baseline Examination (high performance aircraft requires a NASA medical evaluation in addition to the FAA certificate, see NPR 7900.3, Appendix A) 2. Every 6 months
Laboratory	1. Audiogram (see standard for other acceptable means of testing hearing) with results no worse than:

	500 Hz	1000 Hz	2000 Hz	3000 Hz
Better ear (dB)	35	30	30	40
Poorer ear (dB)	35	50	50	60

2. Visual Acuity:

a. Distant: 20/20 in each eye with or without correction
b. Near: 20/40, Snellen equivalent at 16 inches, or better in each eye with or without correction
c. Near at age 50 or older: 20/40, Snellen equivalent at 16 and 32 inches, or better in each eye with or without correction
d. Intermediate: 20/40 or better in each eye with or without correction at age 50 and over

	3. Visual Fields: Normal 4. Color Perception 5. ECG (transmitted to FAA): First examination after 35 years of age and annually after 40 years of age 6. Discretionary Tests: a. Blood Chemistry Profile (can include fasting blood sugar and blood lipid profile). b. Complete Blood Count (CBC) c. Chest X-ray d. Pulmonary Function e. Urinalysis (dipstick) f. Exercise Stress Test
Physical Exam	1. FAA Medical History Form 8500-8 2. Physical Examination by FAA certified physician with focus on any condition that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, dizziness, claustrophobia, loss of physical control, or similar undesirable conditions 3. Average BP should not exceed 155mm/95mm 4. Check references above for acceptable standards, equipment, and requirements
Written Opinion	a. Certification with any limitations, or referral to Aerospace Medical Certification Division, or Regional Flight Surgeon for possible further specialized clinical evaluation or testing. b. For waivers refer to NPR 7900.3 Appendix A c. Examinations conducted by non-NASA Aircrew Medical Examiners (AME) will require a records review by a NASA Occupational Health Clinic physician prior to recommendation to the Center Director. d. See 14 CFR 67 for Pilot Medical Standards

B. Second Class Airman's Medical Certificate (Commercial Pilot, Flight Engineer, Flight Navigator, and Air Traffic Control Tower Operator)	
Reference	14 CFR 67 Appendix A
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	1. Audiogram See FAA I 2. Visual Testing and Requirements: See FAA I 3. ECG (transmitted to FAA): First examination after 35 years of age, and annually after 40 years of age 4. Discretionary Tests: a. Blood Chemistry Profile (can include fasting

	blood sugar and blood lipid profile) b. Complete Blood Count (CBC) c. Chest X-ray d. Pulmonary Function e. Urinalysis (dipstick) f. Exercise Stress Test
Physical Exam	1. Medical and Occupational History 2. Physical Examination by FAA certified physician with focus on any condition that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, dizziness, claustrophobia, loss of physical control, or similar undesirable conditions 3. Average BP should not exceed 155mm/95mm 4. Check references above for acceptable standards, equipment, and requirements.
Written Opinion	a. Certification with any limitations, or referral to Aerospace Medical Certification Division, or Regional Flight Surgeon for possible further specialized clinical evaluation or testing. b. See 14 CFR 67 for Pilot Medical Standards

C. Third Class Airman's Medical Certificate (Private Pilot, Recreational Pilot, Student Pilot)	
Reference	14 CFR 67 Appendix A
Frequency	1. Baseline Examination 2. Every 2 years, if 40 years of age or older 3. Every 3 years, if under 40 years of age
Laboratory	1. Audiogram: See FAA I 2. Visual Acuity: a. Distant: 20/40 or better in each eye with or without correction b. Near: 20/40, Snellen equivalent, or better in each eye at 16 inches with or without corrective lens c. Intermediate: No requirement 3. Visual Fields and Color: see FAA I 4. Discretionary Tests: a. Blood Chemistry Profile (can include Fasting Blood Sugar and Blood Lipid Profile). b. CBC c. Chest X-Ray d. Pulmonary Function e. Urinalysis (dipstick) f. ECG

	g. Exercise Stress Test
Physical Exam	1. Medical and Occupational History 2. Physical Examination by FAA certified physician with focus on any condition that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, dizziness, claustrophobia, loss of physical control, or similar undesirable conditions 3. Average BP should not exceed 155mm/95mm 4. Check references above for acceptable standards, equipment, and requirements
Written Opinion	1. Certification with any limitations, or referral to Aerospace Medical Certification Division or Regional Flight Surgeon for possible further specialized clinical evaluation or testing 2. See 14 CFR 67 for Pilot Medical Standards

D. Air Traffic Control Specialist or Flight Crew (Not requiring FAA Certification)	
Reference	Office of Personnel Management (OPM) GS-2152
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	1. Audiogram or demonstrate ability to hear normal conversation in a quiet room, using both ears, at a distance of 6 feet with the examiner's back turned 2. Visual Acuity: a. Distant 20/20 in at least one eye with or without correction b. Near vision 20/20, Snellen equivalent, with or without correction 3. Visual Fields: Normal 4. Color Vision 5. Tonometry 6. ECG 7. Exercise Stress Test 8. Chest X-ray 9. Discretionary Tests: a. Blood Chemistry (can include fasting blood sugar and blood lipid profile). b. Complete Blood Count (CBC) c. Chest X-ray d. Pulmonary Functions e. Urinalysis (dipstick)

Physical Exam	1. Medical and Occupational History 2. Physical Examination (see OPM qualifications on age based blood pressure values) with focus on cardiovascular, neurological, musculoskeletal, general medical, psychiatric, and substance dependency
Written Opinion	Certification with any limitations

E. Qualified Non-Crew Member	
Reference	
Frequency	1. Baseline Examination 2. Biennial Examination

Laboratory	1. Audiogram
	2. Visual Acuity
	3. Gross Visual Fields
	4. Discretionary Tests:
	  1. Color Perception
	  2. Blood Chemistry Profile as in C above
	  3. Complete Blood Count (CBC)
	  4. Chest X-Ray
	  5. ECG
	  6. Pulmonary Function
	  7. Urinalysis (dipstick)
	  8. Exercise Stress Test

Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on assessing any condition that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, dizziness, claustrophobia, loss of physical control, or similar undesirable conditions and emotional stability to avoid interference with performance, or in the opinion of the examiner could render a hazard to self or others
Written Opinion	Certification: Opinion that the employee has no physical limitation or medical condition which would prevent employee from performing their ordinary duties or be a hazard to self or others

5. Special Administrative Examinations

A. Fitness For Duty (FFD)

Defined	Fitness for Duty (FFD) examinations are performed at the request of management when a change in work performance, productivity, or health is observed or suspected. NPR 1800.1B
Frequency	Variable upon an unexpected change in behavior or performance. The examination should be completed as soon as possible after a written request through management has been made
Scope	The physician should evaluate whether there is a medical or psychological condition impacting work performance. A job description with the physical requirements and essential job functions is an integral part of this evaluation. Cooperation and coordination with the treating physician(s), as well as other services such as the Employee Assistance Program (EAP) can be of help to an affected employee
Managers Responsibilities	The supervisor/manager requesting the FFD examination should notify the employee and have their consent, provide documentation to the physician and a copy of the employee's job description. Managers must also decide if there is a "For Cause" need for drug testing based upon performance. Since this testing is not a medical test, the manager must contact the Drug Free Workplace (DFW) coordinator to arrange testing
Laboratory	Discretionary
Confidentiality	Confidentiality is of utmost importance and all recommendations and reports must be limited to work-related matters, e.g., work limitation, modifications, or accommodations. No non-work related medical diagnosis should be released in the written opinion
Written Opinion	Required return to duty status for the employee's manager, including recommendations for work limitations or accommodations

B. Return to Work (RTW)	
Defined	RTW evaluations are usually performed when employees are returning to work after an illness or injury of greater than 3 business days
Frequency	Variable or Exposure-Determined Examination

Scope	1. Vital signs 2. The evaluation should focus on the employee's ability to perform the essential job functions with or without work limitations, modifications, or accommodations. The information from the employee's physician is reviewed, and a decision is made whether a focused physical and/or tests are necessary
Managers Responsibilities	The manager requesting the RTW examination must provide a copy of the employee's job description that includes the functional and physical requirements
Laboratory	Focused laboratory based upon the prior condition/problem of the employee
Confidentiality	Confidentiality is of utmost importance and all recommendations and reports must be limited to work-related matters, e.g., work limitation, modifications, or accommodations
Written Opinion	A RTW certificate for the employee's manager should indicate: a. A statement of work limitations (including modifications and duration) b. A statement of any Personal Protective Equipment (PPE) needed or limitations in use of PPE c. For an occupational related issue, safety, and health should receive a copy of the RTW statement

C. International Traveler	
Reference	
Frequency	1. Variable or Exposure-Determined Examination 2. Note: Medical clearance required for NASA civil service employees traveling outside the United States or its possessions, with special emphasis for those traveling to Russia or the former nations under the Soviet Union, TAL site, or any developing or medically under-served country
Laboratory	Immunizations offered based on recommended WHO and CDC country requirements
Physical Evaluation	1. Medical Record Review 2. Medical and Occupational History 3. Physical Examination (discretionary) 4. Offer HRA 5. Provide education based on health risk assessment with

	emphasis on food and water precautions and other specific issues related to travel destination
Written Opinion (Clearance)	International Travel Worksheet, NASA Form 1711

6. Voluntary Health Maintenance

A. Complete Health Maintenance Examination	
Reference	
Frequency	1. Offer every 3 years to civil servants 2. Offer at retirement to civil servants
Laboratory	1. Vital signs (weight, blood pressure, pulse rate, rhythm) 2. Offer total body skin examination 3. Skin fold or BMI 4. Baseline and when medically indicated: a. Visual Acuity b. Audiogram c. Pulmonary Function d. Exercise Stress Test 5. ECG 6. Mammograms every 1-2 years age 40 to 49, annually for age 50 to 70 7. Colonoscopy every 10 years after age 50, earlier with family history (refer to private MD) 8. Tonometry (if available) 9. Menopause counseling for females age 45 and older 10. Breast self-examination education 11. Breast examination 12. PAP smear annually (every 3 years if negative consecutively x 3) 13. PSA test for men age 50 and older 14. Digital Rectal and Testicular examination offered to men age 40 and older 15. Complete Blood Chemistry (CBC) 16. Blood Chemistry Profile 17. Urinalysis 18. Hemocult
Physical Exam	1. Medical and Family History, if history of smoking?offer smoking cessation 2. Complete Physical Examination 3. Offer Health Risk Assessment (HRA)

Target Organs	Multiple Organs
Written Opinion	A summary of examination and laboratory results sent to the employee

B. Annual Health Maintenance Examination	
Reference	
Frequency	Offer annually to civil servants
Laboratory	1. Vital signs (weight, blood pressure, pulse rate, rhythm) 2. Mammograms every 1-2 years age 40 to 49, annually for age 50 to 70 3. PAP smear annually (every 3 years if negative consecutively x 3) 4. PSA men age 50 and older 5. Digital Rectal and Testicular Examination offered to men age 40 and older 6. Complete Blood Count (CBC) 7. Blood Chemistry Profile 8. Urinalysis 9. Hemocult
Physical Exam	1. Medical and Family History, if history of smoking?offer smoking cessation 2. Focused Physical Examination 3. Offer Health Risk Assessment (HRA)
Target Organs	Multiple Organs
Written Opinion	A summary of examination and laboratory results sent to the employee

C. Fitness Center Clearance	
Reference	
Frequency	Every 3 years
Laboratory	Discretionary
Physical Exam	1. Review of Physical Activity Readiness Questionnaire (PARQ) 2. Vital signs (blood pressure, pulse) 3. Refer to NASA Occupational Medicine Clinic for clearance if PARQ responses are positive or vital signs are abnormal 4. Physical examination and appropriate testing required if referred by Occupational Medicine Clinic or

	employees healthcare provider. Documentation must be received from personal healthcare provider and reviewed by Medical Director. Medical Director responsible for final decision on fitness center clearance
Written Opinion (Clearance)	Medical clearance may specify any limitations in clearance duration (i.e., 1-year) or Fitness Center activity

Appendix D. Partial Listing of Hazardous and Potentially Substances and Articles

Articles:

- Ionizing radiation sources and devices
- Class 3b and 4 lasers and sources of hazardous non-laser optical radiation (i.e., devices which emit non-coherent radiation in the wavelength range from 180 nm to 1 mm)
- High intensity, ultraviolet, and infrared lights
- Radio frequency (RF) and microwave emitters that operate in the frequency range of 3 kHz and 300 GHz, including but not limited to: radar systems; telemetry, and communications systems; microwave diathermy units; radio frequency generators; and RF heat sealers
- Devices that produce hazardous noise
- Pyrotechnic devices and explosives
- Pressurized vessels

Substances:

- Any substance listed in 29 CFR 1910, Subpart H, Hazardous Materials, Parts 101 through 111
- Any substance defined as highly hazardous chemicals by 29 CFR 1910.119, OSHA Process Safety Management Regulation
- Any substance defined as hazardous in 29 CFR 1910, Subpart Z, Toxic and Hazardous Substances
- Any substance defined by the International Agency for Research on Cancer (IARC) Monographs on the Evaluation of Carcinogenic Risks to Humans, as Group 1, 2A, or 2B
- Any substance defined by the American Conference of Governmental Industrial Hygienists (ACGIH) as category A1, A2 or A3
- Any substance listed at a potential human carcinogen by NIOSH
- Any substance listed as a Department of Health and Human Services, National Toxicology Program Report on Carcinogens, Part A, Known to be Human Carcinogens, or Part B, Reasonably Anticipated to be Human Carcinogens
- Any substance known or suspected of being capable of posing a hazard to human reproduction, including reproductive and developmental toxins
- Any substance listed by DOT or EPA as a hazardous or extremely hazardous
- Nano and ultrafine particles
- Any infectious (Level 2 and higher biohazard) agents; any listed in 42 CFR 72, Interstate Shipments of Etiologic Agents; or any listed in 42 CFR 73, Select Biological Agents and Toxins
- Any EPA category I, II, or III toxic pesticides

YEAR I	YEAR 2	YEAR 3
JPL - January	MAF - January	ARC - January
JSC - March	MSFC - March	SSC - March
WSTF - May	HQ - May	GRC/PBS - May
WFF - June	KSC - August	LaRC - October
GSFC - October	DSFC - October	

Appendix F. References

a. 5 U.S.C. Section 7901 Health Services Programs.
b. NASA Privacy Act Regulations, 14 CFR Part 1212.
c. 29 CFR 1910.1020, Access to Employee Exposure and Medical Records.
d. OSHA Standards - 29 Part CFR 1910.1030, Bloodborne Pathogens.
e. 29 CFR Part 1960, "Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters."
f. NPD 1210.2, NASA Surveys, Audits, and Reviews Policy.
g. NPD 1800.2, NASA Occupational Health Program.
h. NPD 8710.2, NASA Safety and Health Program Policy.
i. NPR 1441.1, NASA Records Retention Schedules.
j. NPR 3792.1, Plan For A Drug-Free Workplace.
k. NASA Occupational Health Program Standardized Statements of Work. NASA Office of the Chief Health and Medical Officer, January 3, 2005.
l. Chief Health and Medical Officer's memo, "NASA Occupational Health Program Guidelines for Implementing a Center Automatic External Defibrillator Program," July 20, 2000.
m. NASA Physical Examination Matrix G (2007) (http://www.ohp.nasa.gov).
n. NASA Occupational Health Web site (http://www.ohp.nasa.gov).
o. Health Insurance Portability and Accountability Act (HIPPA) Act of 1996.
p. American College of Occupational and Environmental Medicine (ACOEM): Occupational Medicine Practice Guidelines, Edited by Jeffrey S. Harris, MD, MPH, MBA.
q. Public Health Service, Healthy People 2010: The Federal Government's prevention agenda and the national health objectives, http://www.healthypeople.gov/data/midcourse/default.htm#pubs.
r. NOTE: All other references can be found on the NASA Occupational Health Program Web site at http://www.ohp.nasa.gov.