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MEDICAL SURVEILLANCE PROCEDURES MANUAL AND MEDICAL MATRIX (EDITION 12)

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MEDICAL SURVEILLANCE PROCEDURES MANUAL AND MEDICAL MATRIX

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PREFACE

This 12th Edition of the Medical Surveillance Procedures Manual and OEM Medical Matrix is the result of collaborative efforts and work by a group of subject matter experts from across the Department of Defense. It is a dynamic document that has been built on the efforts of Occupational and Environmental Medicine professionals for almost 25 years.

NMCPHC OEM would like to thank everyone who contributed thoughts and recommendations to the update of the Matrix Program. The NMCPHC Staff responsible for this update of the Medical Matrix Manual and Medical Matrix Online (formerly PC Matrix) include:

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For changes from the 11th edition of the Matrix, see C8. Revisions and Improvement of the Matrix. This document will be regularly updated. The latest version may be found on the Navy and Marine Corps Public Health Center, Occupational and Environmental Medicine Department website at the following URL:

http://www.med.navy.mil/sites/nmcphc/occupational-and-environmental-medicine/oemd/Pages/medical-surveillance-certification.aspx

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By Direction

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Chapter 1:

C1. Matrix Development History

C1.1 Medical Matrix Committee

The Medical Matrix Validation Committee was formed in March 1988. Its tasking was to review existing OMS and design a program that would define hazard-based medical surveillance. The goal of the Committee was to develop standard examination protocols for medical surveillance programs that could be presented in a useable format. The original Matrix was published as a Navy and Marine Corps Public Health Center (NMCPHC, previously the Navy Environmental Health Center) Technical Manual in January 1989. The Medical Matrix Committee continues to review existing programs and to evaluate the need for and write new programs for those stressors that have adverse health effects.

C1.2 Further Development of the Matrix

Previous editions of the Matrix were in two parts: a document called the Medical Matrix and a software program called PC Matrix. PC Matrix was used to produce a single medical record entry (an SF-600 overprint) that included all the pertinent elements from one or many medical surveillance programs applicable to each patient. The Matrix Committee determined the contents of the Medical Matrix, and the PC Matrix was programmed to include the Medical Matrix information. Revisions were made to the Medical Matrix, then the PC Matrix, and an effort was made to publish or release both simultaneously. Matrix Online represents a major change: The information regarding OMS is stored in a database that can be updated at any time, by NMCPHC; from that database, SF-600 overprints may be produced or an up-to-the-moment version of the Medical Matrix may be printed. As Matrix Online is a web-based product, no longer will there be a need to install or re-install updated versions of PC Matrix.

C1.3 Explanation of Contents

The Matrix contains medical surveillance and certification programs in four sections. Within the sections, each program is organized according to the following format: medical history questions (including personal and work history), required laboratory or ancillary tests, if any (e.g., spirometry), areas which should be targeted on physical examination (e.g., central nervous system), special requirements (such as qualification and certification), and special notations such as warnings, assessment of knowledge, and the requirement for a physician's or provider's Written Opinion (if the program has such a requirement). Following each program is a Program Description section that includes general references (texts used in developing each program, which may serve as additional resources) and specific references (such as OSHA, DoD, OPM, or Navy regulations). Detailed guidance about the examination, such as how to interpret test results, and what to do with test results that are outside the range of normal, may also be included. However, except when there has been confusion or standards are unclear, descriptions of the adverse health effects of each stressor or of minimum standards (such as visual acuity) are not included, as they are beyond the scope of the Matrix. The four sections of the Matrix are Chemical Stressors, Physical Stressors, Mixed Exposures (which include biologicals and chemicals which are not regulated), and Specialty Examinations. The purpose of the medical surveillance exams in the first three sections is to identify unexpectedly high levels of exposure or the effects of exposures, so that timely steps can be taken to protect the worker or the worker population from exposure-related adverse health effects through improved engineering or administrative controls or PPE.

C1.4 Limitations of Matrix Online

Great effort has gone into making Matrix Online user friendly and useful. However, the complexity of OMS, especially the differences in periodicity among programs, precludes addressing completely every possible combination of programs and program elements. The two elements of concern here are the electrocardiogram and the chest X-ray. Some programs require annual or regular electrocardiograms; others require only a single electrocardiogram on or after a certain age. Matrix Online does not "make that decision” for the provider, as parameters must be considered that are beyond the information collected by Matrix Online. Similarly, chest X-rays may be required at different intervals by different programs, and some of the intervals are determined by a combination of parameters that Matrix Online does not have access to. Thus, when "electrocardiogram” or "chest X-ray” is included in the SF-600 overprint, providers are advised to determine whether or not such an exam is appropriate for the worker. (In other words, just because the printout says "electrocardiogram” or "chest X-ray,” it does not necessarily mean an electrocardiogram or chest X-ray is required at that medical surveillance visit.)

C1.5 Chemical Stressors List

The Chemical Stressors List with Medical Surveillance and BEI Information and Skin Notation spreadsheet, reference (D), was developed by the NMCPHC IH Department. It is a quick reference resource for determining the medical surveillance procedure requirements for a specific chemical stressor. It lists the chemicals that fall under a specific Matrix program (by Matrix program number), and provides a quick reference for BEIs and Skin Notations. This list comes from the latest Navy Occupational Exposure Database (NOED) and may not be inclusive of all chemicals one may encounter in the workplace. Reference (D) also lists which chemicals lack a medical surveillance program

Chapter 2:

C2. Occupational Medical Surveillance

Occupational Medical Surveillance (OMS) is the systematic assessment of employees exposed or potentially exposed to occupational hazards.(1) In practice, people that work around hazards (such as asbestos or noise) are periodically checked for evidence that an unexpected exposure or overexposure has occurred. That may range from completing a questionnaire to undergoing a complete medical exam and multiple tests. While some exposures can be disclosed by laboratory tests, such as a blood lead level, other exposures are only apparent by their effects, such as noise causing decreased hearing. Additionally, the effects of some exposures only become apparent after years or decades, such as asbestosis.

C2.1 General Duty Clause

OMS is performed because the Occupational Safety and Health Administration (OSHA) requires employers to provide a safe workplace. This includes medical surveillance for workers with hazardous occupational exposures. The overarching requirement is called "the general duty clause," which reads as follows. "Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."(2)

C2.2 OMS and Disease Surveillance

OMS differs from "disease surveillance." An example of disease surveillance would be the Centers for Disease Control and Prevention (CDC) investigating reports of food borne illness after a community picnic. OMS does not focus on patients; it focuses on workers. When a worker sees the Occupational Medical Physician (Occ Doc) as part of medical surveillance, the worker IS a patient and there IS a doctor-patient relationship, but the Occ Doc is uniquely focused on signs and symptoms of illnesses caused by harmful work exposures. The doctor is not trying to care for the patient. Medical surveillance is trying to answer two questions:

1. Has there been a harmful occupational exposure?
2. Can the worker safely return to his job?

If medical conditions are found that are unrelated to the worker's occupation, those are dealt with separately. Usually, the patient is advised to see his or her regular physician (Family Practice, Internal Medicine, or Obstetrician-Gynecologist). If a work-related illness is identified during OMS, the worker then becomes a patient, and is cared for separately from his or her participation in OMS. Civilians that suffer a job-related injury or illness are cared for under the Federal Employees' Compensation Act (i.e., Federal Worker's Compensation); contractors are cared for under the Worker's Compensation of their contracting agency (generally under the Worker's Compensation of the state they are located in); Navy military members are cared for by the Bureau of Medicine and Surgery (BUMED).

C2.3 Risk Based Surveillance

Workers participate in OMS based on actual or potential exposures. This is called "risk based," "hazard based," or "exposure based" medical surveillance. Participation in OMS is referred to as "enrollment" in a medical surveillance program. The enrollment into a medical surveillance program is determined by a documented survey of the worksite, by an Industrial Hygienist (IH), and collaborative consideration by Safety, IH, and Occupational Medicine (OM) representatives. An actual exposure occurs when a worker comes into direct contact with a

hazard, such as picking up a lead pipe with an ungloved hand. A potential exposure occurs when a worker is in proximity to a hazard, but engineering controls or personal protective equipment (PPE) prevents direct contact with the hazard (e.g., using a gloved hand). If a worksite might, in the future, begin using a hazardous product, or if the product is used in a nearby building, that does not constitute a potential hazard. Generally, incidental (one-time) exposures should not lead to enrollment in OMS; however, one time or "emergency" exposures may require ongoing enrollment in OMS (e.g., 1, 3-butadiene).

C2.4 Medical Certification Examinations

Medical certification examinations are performed on workers with safety-sensitive or restricted-access jobs. They are designed to establish that a worker is medically qualified to perform his or her job duties without increased risk of harm to the worker, to co-workers, or to others. Certification examinations consist of specific components chosen to identify the minimum medical qualifications a worker or job applicant (called a "candidate") must have to safely perform the duties of the job. Although certification exams are not considered OMS, they are often done at the same time as surveillance exams; for this reason, they are included in this document (Matrix).

C2.5 Components of OMS

OMS includes obtaining a worker history, a directed physical exam (if required, as some OMS consists only of a questionnaire), associated laboratory, X-ray, and other studies, making a determination of the worker's fitness to return to work around the specific hazard or hazards involved, and communicating those findings to the worker and to the employer. As part of some OMS programs, urine, blood, or body tissue is examined for the presence or effect of a hazardous substance. This is called biological monitoring.

C2.6 Reporting

Specific diagnoses or findings unrelated to occupation are communicated to the worker but not to the employer, as those are protected private health information. However, the purpose of OMS is not only to protect the health of individuals, but also of populations, specifically including other workers. An integral part of OMS is communicating work-related findings to the employer. Certain OSHA OMS programs require written notification in the form of a physician's or provider's written opinion. Examples that follow OSHA wording are included in the Written Opinion Samples section. An abnormality may indicate that worksite exposure controls of a known exposure are inadequate, or that an unrecognized exposure is occurring, or that a substance previously thought to be safe has an adverse health effect. For this reason, OMS must be consistent from worker to worker. Getting one test on one worker and another test on another worker hinders making meaningful observations on the worker population, the worksite, and on the medical surveillance program; it also tends to decrease worker confidence, increase suspicion of discrimination, and may prompt union complaints and involvement.

Chapter 3:

C3. Sources of Guidance in Determining Matrix Programs and Elements

C3.1 Hierarchy of Authoritative Guidance

The components of OMS examinations are determined based on the hazard to health of each exposure. The Matrix uses a hierarchy of guidance in selecting which exposures should have medical surveillance programs, what components each program should include, and the frequency of OMS. The highest Federal authority regarding OMS is the Code of Federal Regulations (CFR, including letters of clarification and standards interpretation), primarily OSHA (29 CFR), Office of Personnel Management (OPM, 5 CFR), and the Department of Transportation (DOT, 49 CFR). After that, Department of Defense (DoD) regulations, then Navy regulations, then BUMED requirements mandate the minimum OMS. Guidance from the CDC, the National Institute for Occupational Safety and Health (NIOSH), the Agency for Toxic Substances and Disease Registry (ATSDR), the American College of Occupational and Environmental Medicine (ACOEM), the National Fire Protection Association (NFPA), and other professional bodies is also considered; it is generally followed unless it contradicts or is excepted by regulatory guidance. Thus, the Matrix establishes the minimum requirements for OMS and certification exams.

C3.2 Safety Programs

Medical surveillance programs are generally only part of a larger worker safety program. For example, the Asbestos Medical Surveillance Program (AMSP), which includes medical exams, chest X-rays, and spirometry, is one element of the Navy Asbestos Program, which includes avoiding the use of asbestos, regulations preventing or minimizing worker exposures to asbestos, and AMSP participation for workers that do work with asbestos.

Chapter 4:

C4. Types of Occupational Medical Examinations

OMS programs may include baseline (pre-placement), periodic, and termination medical examinations. If there is evidence of overexposure or a single, unexpected exposure, a situational examination will be required. Except where OSHA requires medical surveillance for such exposures (e.g., 1,3-butadiene), guidelines for situational examinations are generally not included in the Medical Matrix.

C4.1 Baseline Examination (Pre-Placement or Pre-Assignment)

This examination is performed before the employee starts work in a position with a potential for hazardous exposure and provides information necessary to determine suitability of the employee for the job. It also provides a baseline against which changes can be compared.

C4.2 Periodic Examination

This examination is performed during the time that a worker is employed in a job with a potential for exposure to hazardous substances. The frequency and extent of periodic examinations vary, depending on the program; the most common frequency is annually. With certain stressors, the frequency of examinations will depend on variables such as the findings from previous examinations, the duration of exposure, or the age of the worker.

C4.3 Termination Examination

This examination may be required when the worker terminates employment or is permanently removed from a position with actual or potential exposure to a hazardous substance. 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. In some cases, this examination is not required if a periodic examination has been documented within the past twelve months.

C4.4 Situational Examination

This examination is conducted in response to a specific incident in which an overexposure to a hazardous substance may have occurred. Such an incident should prompt an examination of all individuals with suspected overexposure, not just those already in a surveillance program. These examinations may vary significantly from routine medical surveillance protocols.

C4.5 Standard Questions

In addition to questions related to the specific work hazard of concern, every Matrix program includes a standard set of medical, occupational, and social history questions designed to help assess public health and safety risk factors for the worker. These questions were written for inclusion in data collection protocols when developed. Because of the Genetic Information Non-discrimination Act of 2010 (GINA), questions about family history are no longer included in the worker’s medical history.

Chapter 5:

C5. Placement of Workers in Medical Surveillance Programs

Workers with potential exposure to hazards are placed in medical surveillance programs based on IH and/or safety surveys that quantify exposures in the workplace. This risk (or hazard or exposure) based medical surveillance takes into account exposure levels (frequency and duration), routes of exposure (inhalation, skin absorption, or ingestion), and similarly exposed groups (SEGs). The decision to include a worker in a program is based on the possibility of exposure at or above the Action Level (usually one half of the Permissible Exposure Limit, if OSHA has established one). The decision may also be driven by other exposure standards, policy and guidance from DoD or Navy, or by the professional judgment of the IH and Safety representatives. Criteria for making the recommendation to have workers included in medical surveillance can be found in reference (3).

C5.1 Special Circumstances

Situations may arise where IH data indicate potential overexposure to a stressor, but there is no corresponding Matrix program for that stressor. An Occupational Medicine specialist may substitute a closely related Matrix program after review of the toxicity (or other health risk) of the stressor. Any appropriate modifications can be hand written on the forms generated. Requests for a new Matrix program or recommendations to modify an existing program should be sent to the Matrix Committee.

C5.2 Exception to Risk Based Surveillance

There is one notable exception to using risk of exposure to direct medical surveillance. The Marine Corps places all Marines into the Hearing Conservation Program’s monitoring program for hearing acuity. Industrial hygienists remove members selectively.

C5.3 Using the SF-600 printout

The initial (history) questions of the SF-600 may be completed by the worker (or candidate), the physical findings documented by the examiner, and the laboratory and other studies by the designated MTF staff. Whether questions answered by the worker are reviewed by a nurse or physician is determined by the MTF and is based on the characteristics of each exposure. However, whether the PPE used by the worker is the correct PPE for the exposure(s) of the job should be answered by an adequately trained MTF staff member who has the IH survey results in hand while interviewing the examinee.

C5.4 Chemical Stressors List

The Chemical Stressors List with Medical Surveillance and BEI Information and Skin Notation spreadsheet, reference (4), was developed by the NMCPHC IH Department. It is a quick reference resource for determining the medical surveillance procedure requirements for a specific chemical stressor. It lists the chemicals that fall under a specific Matrix program (by Matrix program number), and provides a quick reference for BEIs and Skin Notations. This list comes from the latest Navy Occupational Exposure Database (NOED) and may not be inclusive of all chemicals one may encounter in the workplace. Reference (4) also lists which chemicals lack a medical surveillance program.

Chapter 6:

C6. Certification Exams of Special Interest

C6.1 Vehicle Operators

The medical certification of Vehicle Operators is challenging. Supervisors and workers are sometimes confused as to which documents provide authoritative guidance for the vehicle being operated. Medical providers are thus uncertain as to what certification exam to perform, what certification standards to use (and, consequently, what constitutes medical qualification), and what form to use to document medical certification. In addition, some of the vehicle reference documents contain standards that are contradictory, and current versions of some documents are difficult to obtain. Since May 2014, the DOT has required that certification exams of civilians driving commercial motor vehicles and vehicles carrying explosives be performed by licensed examiners listed with the National Registry of Certified Medical Examiners. In an effort to remedy some of the confusion, NMCPHC developed a revised form OPNAV 8020/6, which is to be used to document medical certification of all vehicle operators and of explosives handlers. On the form, vehicle operation is tiered: Vehicle operators who must meet the most stringent standards (those driving commercial motor vehicles and vehicles carrying explosives) are listed at the top, and those with the least stringent standards are listed last. Those qualified at any level are automatically qualified to operate vehicles in all lower levels. In addition, efforts are underway to coordinate updates of the various documents pertaining to vehicle operators.

C6.2 Police and Security Workers

Police and security workers (PSWs) have jobs that are especially safety sensitive and that require physical fitness. Part of the PSW job is participation in Physical Agility Testing (PAT), a rigorous physical fitness test. All workers or candidates examined as PSWs should be considered as someone who will perform all the job duties of a PSW, including participation in the PAT. If a worker presenting for a PSW medical certification exam claims to be exempt from that standard because he or she will be doing a desk job, etc., the worker's supervisor or Personnel should be contacted prior to performing the exam, as that worker is not to be considered a PSW. (Note that certain disabilities may be accommodated by participation in alternative PAT elements.) Participation in the PAT, as well as in job duties such as chasing suspects, may present a hazard to those with cardiovascular or musculoskeletal disease. The Personnel Department is ultimately responsible for the hiring and firing of PSWs, and some Activities have pressured medical examiners to provide additional statements, either by adding text to the medical certification form or on a separate form or letter, stating that the worker or candidate may safely participate in the PAT, physical fitness training, or hazardous job duties. Such additional documentation should not be provided. PAT participation, etc., is to be considered as among the duties of the PSW job as the provider grants or denies medical certification. To give additional documentation may be understood to imply that the examiner has somehow done additional investigation into the examinee's health (which the Navy medical examiner is not authorized to do), gives a false sense of security as to the examinee's fitness, and may expose the Navy to liability. Unfortunately, no medical examiner can guarantee that a worker will not experience a serious adverse health event while participating in the PAT. The medical examiner is restricted to identifying evidence of medical disqualification. Despite some guidance to the contrary, even risk factors are not to be considered; evidence (including presumptive evidence) of existing disease is to be used to disqualify.

C6.3 Firefighters

Like PSWs, firefighters (FFs) have a challenging and safety-sensitive job. A detailed description of the job duties and medical qualification standards for FFs (and slightly different medical qualification standards for candidates) are included in reference (5). In contrast to PSWs, all of whom must be considered as available to participate in the PAT and to perform strenuous job duties, individual FFs may be assigned jobs that are less demanding (e.g., dispatchers); the worker may be examined with the exact job duties he or she will be performing in mind. In addition to listing standards and tests for conditions that may identify disqualifying medical conditions, reference (5) includes screening exams (e.g., mammograms) that would be considered routine Preventive Medicine. As those tests are not related to firefighting work, they are not to be performed as part of FF medical certification. FFs are encouraged to obtain those exams from their personal medical provider; personal health insurance, not Navy OH, may cover some or all of the expense.

C6.4 Screening for Tuberculosis (TB) for Firefighters (707), Healthcare Workers (719) and Childcare Workers (703)

Certain programs require screening for TB. Unless specified otherwise in the Program Description or Provider Comments, TB screening is to follow CDC guidance. See references (6) through (10). This currently is as follows:

Initial (baseline) evaluation should be by TB skin test ("2-step" for those who have not been tested for more than 1 year) or a single blood test, reference (6). (2-step testing refers to administering TB skin testing twice, the second administered 7 to 21 days after the first; a questionnaire does not serve as one of the steps.)

Thereafter, annual screening is to be done by questionnaire, using reference (7).

Skin or blood testing is required only for those at increased risk (and who have not had a positive skin test previously), per reference (6) (military and civilian mariners) and references (2) and (4) (civilians). Additional references (10) through (13) pertain to firefighters, and reference (6) pertains to health care workers. Contract healthcare workers in several states must follow the requirements set forth in their OSHA approved state plans. Some states require healthcare workers to be screened or tested annually. Reference (6) presents a risk classification table that recommends LTBI screening frequency for healthcare workers. Based on numbers of beds and clinical TB cases, almost all Navy MTFs are considered low risk. Serial testing of healthcare workers and others in low risk settings is not recommended.

Individuals who test positive for TB must be medically evaluated (military by their primary care provider, civilians by their private physician, unless a civilian was exposed while working for the Navy and wishes to see a Navy provider) to rule out active TB. This will also ensure appropriate treatment or prophylaxis (if medically indicated), and to receive medical clearance to work.

Risk Assessment of the MTF and the surrounding civilian communities should be ongoing, according to reference (6). Reference (14) has details about the TB risk assessment of Navy MTFs.

Chapter 7:

C7. Disqualification of Workers and Candidates

C7.1 Description of Job Duties

The medical examiner of a worker or candidate for a job (usually a safety sensitive job) is being asked to determine medical qualification for performing the duties of the job as described to the examiner by the employer (generally the Personnel Department). A "job description" used to inform an employee or supervisor of the employee's responsibilities is often inadequate for the medical examiner's purposes. The medical examiner must know how much weight the employee will be carrying, not only that the employee will be taking reports to the boss. If the examiner is not provided with an accurate and sufficiently detailed description of the job duties, the examiner should not proceed with the exam, as the description constitutes the only valid basis for determining qualification or disqualification for the job.

C7.2 Medical and Physical Fitness

The medical examiner is determining medical fitness, not physical fitness. Medical fitness implies there is no existing medical condition that would impair or prevent safely performing the duties of a job. Physical fitness implies the worker has sufficient strength and endurance to actually perform certain tasks. For example, a person may be medical qualified to do five chin-ups, but may not be sufficiently physically conditioned to do so. Determining the physical fitness or conditioning of workers is generally the role of the supervisor or the training department, and may be done, for example, under the direction of the supervisor or an athletic trainer. If the employer wants the physical fitness of a candidate to be determined, the candidate can be sent for a Functional Capacity Exam (FCE). FCEs are usually done by the Occupational Therapy or Physical Therapy Department. OH providers and OH clinics are usually not staffed, equipped, or trained to perform FCEs.

C7.3 Definitive and Presumptive Evidence of Qualification or Disqualification

If the medical examiner finds no evidence of a disqualifying medical condition, the worker or candidate may be certified as qualified to safely perform the job. If the routine medical examination (i.e., the exam specified for that job, without additional tests that are not specified as part of the exam) reveals the existence of a disqualifying condition or presumptive (not necessarily definitive) evidence of a disqualifying condition, the examiner should not certify the examinee as qualified. At that point, it is the responsibility of the worker or candidate to provide evidence (usually meaning documentation) that the presumptive diagnosis was incorrect (e.g., tachycardia was from just running up 10 stories or too much caffeine, and not due to thyrotoxicosis or cardiac disease) or that the disqualifying condition is controlled sufficiently so as not be disqualifying (e.g., severe hypertension has responded to medications). The examiner should inform the examinee of the disqualifying findings and the need for evidence that those findings are either due to conditions that are not disqualifying or have been controlled such that they are not disqualifying. Providing such evidence may be as simple as a myopic driver who forgot his glasses returning for a visual acuity recheck wearing corrective lenses. It may require a worker with glycosuria to be diagnosed and treated for diabetes (by his or her personal medical provider) until the worker's hemoglobin A1c is shown to be sufficiently low. In any case, the medical examiner must not take on the role of personal medical provider and must not order or request specific tests, consultations, or referrals.

C7.4 Medical Qualification Determinations: Guidance for Occupational Health Providers

Occupational Medicine providers are frequently asked to determine whether workers are medically qualified for their jobs. This can be challenging, especially when there is limited evidence to make such a determination, or when there are concerning findings but the worker or the supervisor insist that the worker is capable of safely performing all the duties of the job. This document gives guidance to providers who encounter such situations.

C7.4.1 Determining Medical Qualification

For each candidate or worker, determining medical qualification requires knowledge of the specific job requirements and the examinee's actual medical conditions (not risk factors), and being able to logically connect how those conditions prohibit or limit the examinee from safely performing the job. While the reference documents for an exam (e.g., for firefighters, DoD 6055.05-M, Occupational Medical Examinations and Surveillance Manual, and NMCPHC-TM OM 6260, Medical Surveillance Procedures Manual and Medical Matrix) may be used as general guidance, it is the occupational health provider's responsibility to look at the specific physical requirements of the job found in the Position Description (PD) and OF 178, Certificate of Medical Examination, to determine whether any medical condition limits or prevents the examinee from safely performing some or all of the essential job requirements.

The occupational health provider then communicates to management (generally Human Resources, HR) the recommendation as to medical qualification for duty, and any limitations or accommodations. It is agency management that makes the final determination as to whether the worker can start or remain on the job, with or without accommodation.

C7.4.2 Additional Tests and Consults

Occupational health providers should not order or make referrals for specific tests or studies beyond what is listed in the Medical Matrix when determining examinee medical qualification. Doing so may place the occupational health provider in the role of treating physician or imply that the Navy is assuming responsibility for the medical care of the examinee. If the provider does order specific tests, the employer (the Navy) is financially responsible for those tests and the provider may be making an unauthorized commitment. Unauthorized commitments can result in financial responsibility for the provider.

If the routine medical certification or surveillance exam and studies indicate the worker is not medically qualified for duty (i.e., there is evidence of a medical condition which prohibits the worker from safely performing the essential functions of the job), the examiner should recommend medical disqualification. Examinees wishing to dispute that finding may, at their own expense, provide medical documentation that must be considered by the occupational health provider.

C7.4.3 Requesting Additional Medical Information

The occupational health provider may provide a letter stating specifically why the examinee is medically disqualified and the information needed from the treating physician in order to establish that the worker can safely perform his or her essential job requirements. Specific tests should not be mentioned. A copy of the examinee's PD and OF 178 should be included for the treating physician to review. HR may wish to provide a letter to the worker identifying the time period the employee has in which to provide additional medical documentation.

C7.4.4 Reviewing Documentation

The occupational health provider must review the medical documentation provided from the examinee and decide if it is adequate to determine whether the examinee is medically qualified for duty. There may be some situations where no amount of additional medical information will convince the occupational health provider that the worker is qualified; however, the examiner is still required to review any medical information the worker may provide. Occasionally, the occupational health provider may need to contact the treating physician for additional information; in that case, a release should be signed by the examinee. If there is still insufficient information to determine that a worker is medically qualified for duty, either based on examinee past medical history or current documentation, then the occupational health provider cannot find the examinee qualified and should so inform the examinee and HR.

C7.4.5 Fitness for Duty Evaluations

If the examinee fails to provide adequate and convincing documentation regarding the treatment, resolution, or stability of a medical condition which may limit the safe performance of essential job functions, then the agency may elect to order the worker for a Fitness for Duty (FFD) evaluation. Specific agency-ordered medical evaluations are allowed per 5 CFR 339.301 and are paid for by the agency. HR should take the lead in ordering FFD evaluations, as there may be disciplinary and legal ramifications. The occupational health provider should assist HR in determining the appropriate specialist for referral; typically, this specialist will have experience in Functional Capacity Evaluations and FFD evaluations. HR will make the final decision on FFD and whether the examinee can start or remain on the job.

Chapter 8:

C8. Revisions and Improvement of the Matrix

C8.1 Revisions from Medical Matrix 11

As with previous editions of the Matrix, this document will be regularly updated. However, rather than occasionally publishing numbered version in print or electronic format, Matrix Online will be updated continuously to maintain currency with pertinent guidance. Thus, at any time, the most current version of a program or the entire Matrix can be displayed or printed, and the most current version of one or several programs can be used to produce an SF-600 overprint. A separate log will be maintained to track updates for reference purposes

The standard set of history questions has been updated. Family history and related questions are no longer part of any program.

Programs for Health Care Workers (719), Childcare Workers (703), Firefighters (707), Police/Security Workers (714), various Vehicle Operators (706, 710, 712, 720), and Explosives Handlers (721) have received particular attention and updates. Vehicle operators, in particular, have been reviewed because of recent changes in DOT regulation and the release of an updated Navy medical certification form 8020/6 to replace both the previous 8020/2 and 8020/6 forms. The National Fire Protection Association (NFPA) reference document has been updated to NFPA 1582 Standard on Comprehensive Occupational Medical Program for Fire Departments 2013.

Programs that have been updated since the 2011 Matrix are Beta-Propiolactone 185, Toluene 195, Styrene 189, Silica (Crystalline) 187, Tetryl 209, Isocyanates 196, Ethoxy And Methoxy Ethanol 143, 4,4’-Methylene Bis (2-Chloroaniline) (MOCA) (Also MBOCA) 167, Respirator User Certification Exam 716, Health Care Workers (HCWS) 719, Xylene 205, Barber And Beauty Shop Employees 723, Naval Criminal Investigative Service 713, Radiation - Laser (Class 3B & 4) 506, Ortho-Toluidine 194, Methyl Bromide 215, Cobalt 208, Organophosphate/Carbamate Compounds (Acetylcholinesterase Inhibitors) 179, N-Nitrosodimethylamine 177, Whole Body Vibration 511, Vibration, Hand-Arm 508, Manganese Oxide Fumes 210, Antimony 109, Carbon Black 125, Ethylene Oxide 148, Nitroglycerine 176, Carbon Disulfide 126, Organotin Compounds 180, Polychlorinated Biphenyls (PCB) 184, Latex 310, Tetrachloroethylene (Perchloroethylene) 192, Sulfur Dioxide 190, Otto Fuel II And Other Alkyl Nitrate Propellants And Explosives 186, Police/Guard Security 714, Aviation 701, and Firefighter (Comprehensive) 707.

C8.2 Improvement of the Matrix

The Medical Matrix Manual depends on the expertise and involvement of the DoD OH community, especially the Navy OH community. Typographical or formatting errors should be noted in an email to: usn.hampton-roads.navmcpubhlthcenpors.list.nmcphc-pcmatrixhelp@mail.mil

Requests for changes and additional programs can be sent to the same address, and should include the recommendations and links to supporting references, if available, or, if not available, adequate information to allow correct identification of the references.

Chapter 9:

C9. References

1. Department of Health and Human Services. Federal occupational health medical surveillance. <http://foh.hhs.gov/services/MedSurv/MedicalSurveillance.asp> (page last accessed 10-29-2014).
2. OSHA. Section 5(a)(1). General duty clause. <https://www.osha.gov/dte/library/tuberculosis/tbpresent/slide8.html> (page last accessed 10-29-2014).
3. Navy Environmental Health Center TM6290.91–2 Rev B, Industrial Hygiene Field Operations Manual, chapter 3. <http://www.med.navy.mil/sites/nmcphc/Documents/industrial-hygiene/ihfom.zip> (page last accessed 10-30-2014).
4. Chemical Stressors List with Medical Surveillance and BEI Information and Skin Notation. <http://www.med.navy.mil/sites/nmcphc/Documents/industrial-hygiene/Chemical-Stressors-List-for-BEI.xlsx> (page last accessed 10-30-2014).
5. NFPA Standard on Medical Requirements for Fire Fighters, (NFPA 1582), 2013 Edition. For purchase: NFPA 1582 2013, Comprehensive Occupational Medical Program for Fire Departments. <http://www.madcad.com/store/subscription/NFPA-1582-13/> (page last accessed 4-4-2016).
6. CDC Morbidity and Mortality Weekly Report. Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis in Healthcare Facilities, 30 Dec 2005, Volume 54, No. RR-17. <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5417a1.htm?s_cid=rr5417a1_e> (page last accessed 4-4-2016).
7. NAVMED 6224/8 (Rev. 3-2011), Tuberculosis Exposure Risk Assessment. <http://www.med.navy.mil/directives/ExForms/NAVMED%206224%208.pdf> (page last accessed 4-4-2016).
8. BUMEDINST 6224.8 Tuberculosis Control Program <http://www.med.navy.mil/directives/ExternalDirectives/6224.8B%20with%20CH-1.pdf> (page last accessed 4-4-2016).
9. CDC. Targeted Tuberculin Testing and Treatment of Latent Tuberculosis Infection. ATS/CDC Statement Committee on Latent Tuberculosis Infection Membership List, June 2000. MMWR June 09, 2000, 49(RR06); 1-54. <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4906a1.htm> (page last accessed 4-4-2016).
10. CDC. TB Elimination Targeted Tuberculosis Testing and Interpreting Tuberculin Skin Test Results. December 2011. <http://www.cdc.gov/tb/publications/factsheets/testing/skintestresults.pdf> (page last accessed 4-4-2016).
11. Firefighter Medical Surveillance Examinations, BUMED letter 6260, Ser M3/06UM3108, 3 March 2006.).
12. DODINST 6055.06, DoD Fire and Emergency Services (F&ES) Program. <http://www.dtic.mil/whs/directives/corres/pdf/605506p.pdf> (page last accessed 4-4-2016).

13. 5 CFR 339, Medical Qualification Determinations. <http://www.access.gpo.gov/nara/cfr/waisidx_10/5cfr339_10.html> (page last accessed 4-4-2016).
14. NMCPHC – TM - OEM 6260.96-2, Occupational Medicine Field Operations Manual <http://www.med.navy.mil/sites/nmcphc/Documents/oem/OccMedFieldOpsManual_Aug2006.pdf> (page last accessed 4-4-2016).

Chapter 10:

C10. Chemical Stressors

A Chemical Stressors List with Medical Surveillance and Biological Exposure Indices (BEI) Information and Skin Notation spreadsheet was developed by the Navy and Marine Corps Public Health Center, Industrial Hygiene Department to provide a quick reference resource for determining the medical surveillance procedure requirements for a specific chemical stressor and to provide a list of chemicals that fall under a specific medical surveillance program (Medical Matrix Number). This list of chemicals comes from the latest Navy Occupational Exposure Database (NOED) and is not all inclusive of chemicals one may encounter in the workplace. It provides examples of chemicals that would fall under a specific medical surveillance program. The spreadsheet is also useful in determining which chemicals lack a medical surveillance program. The spreadsheet also provides a quick reference for Biological Exposure Indices and Skin Notations. This quick reference was designed to be beneficial to both the Occupational Healthcare Providers (Occupational Health Physicians and Nurses) and the Industrial Hygienists. Click on the Chemical Stressors List with Medical Surveillance and BEI Information and Skin Notation hyperlink to access this spreadsheet.

Chemicals designated with a "Skin” notation are marked TRUE. The "Skin” notation refers to the potential significant contribution to the overall exposure by cutaneous route, including mucous membranes and the eyes, by contact with vapors, liquids, and solids. Where dermal application studies have shown absorption that could cause systemic effects following exposure, a "Skin” notation would be considered. A "Skin” notation should alert the industrial hygienist that overexposure may occur following dermal contact; even when airborne exposures are at or below the Occupational Exposure Limit (OEL). Biological monitoring should be considered to determine the relative contribution to the total dose from exposure via the dermal route. BEIs provide an additional tool when assessing the total worker exposure to selected materials. For additional information, refer to Dermal Absorption in the Introduction to the Biological Exposure Indices, ACGIH (2001).

C10.1 Introduction and Changes to Chemical Stressors Section

C10.1.1 Significant Revisions:

None. See Chapters 5, 6, and 7 for significant changes to the physical stressors, mixed, exposures, and specialty exams.

C10.2 Programs

2-ACETYLAMINOFLUORENE **102**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
2-acetylaminofluorene	AB9450000	53-96-3

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Physician’s or provider’s written opinion required	Yes	Yes	Yes

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PROGRAM DESCRIPTION:
This compound was being developed as a pesticide until carcinogenic activity was discovered. In recent years, it has been used only in laboratories as a model of tumorigenic activity in animals. The use of this substance would be rare and current exposure risk is low at present.

PROVIDER COMMENTS:
None provided.

REFERENCE:
1. NIOSH Occupational Health and Safety Guidelines for 2-Acetylaminofluorene
2. 29 CFR 1910.1003

REVIEWED: March 2011

ACRYLAMIDE **103**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
acrylamide	AS3325000	79-06-1

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Weight loss	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	Yes
Neurological disorder, gait change, paresthesia, loss of coordination	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:
1. NIOSH Occupational Health and Safety Guidelines for Acrylamide

REVIEWED: January 2011

ACRYLONITRILE (VINYL CYANIDE) **104**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
acrylonitrile	AT5250000	07-13-1

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	Yes
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	Yes
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Problems with balance or coordination	Yes	Yes	Yes
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes
Thyroid disease (including heat or cold intolerance)	Yes	Yes	Yes
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	Yes
Personality or behavior change	Yes	Yes	Yes
AST	Yes	Yes	Yes
ALT	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes
Stool hemoccult (over age 40)	Yes	Yes	Yes
Chest X-ray (PA)	Yes	Yes	Yes
Thyroid	Yes	Yes	Yes
Cardiovascular system	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Abdomen	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	Yes
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. OSHA Standard 29 CFR 1910.1045
2. 29 CFR 1926.1145 --Acrylonitrile
3. NIOSH Occupational Health and Safety Guidelines for Acrylonitrile
4. DODI 6055.05-M, Table C2.T1, Acrylonitrile

REVIEWED: May 2011

ALLYL CHLORIDE **105**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
allyl chloride	UC7350000	107-05-1

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Hepatitis or jaundice	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Liver disease	Yes	Yes	No
Kidney disease	Yes	Yes	No
BUN	Yes	Yes	No
Creatinine	Yes	Yes	No
AST	Yes	Yes	No
ALT	Yes	Yes	No
Bilirubin, Total	Yes	Yes	No
Alkaline phosphatase	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Urine nitrite	Yes	Yes	No
Urine RBCs	Yes	Yes	No
Urine WBCs	Yes	Yes	No
Chest X-ray (PA)	Yes	Yes	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	No
Eyes	Yes	Yes	No
Mucous membranes	Yes	Yes	No
Respiratory system	Yes	Yes	No
Liver	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:
1. NIOSH Recommended Standard for Allyl Chloride

REVIEWED: October 2009

ALPHA-NAPHTHYLAMINE **170**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
alpha-naphthylamine	QM1400000	134-32-7

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Decreased immunity	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Physician’s or provider’s written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Medical clearance for respirator use may be required.

According to Reference 1, certain accidental occupational exposures constitute an emergency and require that "Special medical surveillance by a physician shall be instituted within 24 hours for employees present in the potentially affected area at the time of the emergency. A report of the medical surveillance and any treatment shall be included in the incident report." While "special medical surveillance" may include all elements of this Program, the physician should tailor the care and follow-up of each case as appropriate.

REFERENCE:
1. OSHA STANDARD 29 CFR 1910.1003
2. 29 CFR 1926.1103 Carcinogens (4-Nitrobiphenyl, etc.).
3. 29 CFR 1910.1004 alpha-Naphthylamine
4. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Supplement 7, 1987. Former standard 29 CFR 1910.1004.

REVIEWED: April 2011

4-AMINODIPHENYL **106**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
4-aminodiphenyl	DU8925000	92-67-1

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Problems with urination or blood in urine	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
AST	Yes	Yes	Yes
ALT	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Physician’s or provider’s written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. 29 CFR 1910.1003
2. NIOSH Recommended Standard for 4-aminodiphenyl.

REVIEWED: May 2011

ANTIMONY **109**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
antimony	CC4025000	7440-36-0
antimony trioxide (handling & use)	CC5650000	1309-64-4

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Eye irritation or blurred vision	Yes	Yes	Yes
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Electrocardiogram	Yes	Yes	Yes
Chest X-ray (PA)	Yes	Yes	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes
Eyes	Yes	Yes	Yes
Mucous membranes	Yes	Yes	Yes
Cardiovascular system	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes

PROGRAM DESCRIPTION:

None provided.

PROVIDER COMMENTS:
Based on NIOSH criteria document (2006), baseline spirometry, annual CXR, EKG and spirometry have been added.

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards Antimony, September 2005
2. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Antimony, September 1978
3. HAZ MAP: Antimony

REVIEWED: December 2014

ARSENIC **112**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
arsenic (inorganic & soluble compounds)	CG0525000	7440-38-2
calcium arsenate	CG0830000	7778-44-1
arsenic acid, lead (2+) salt (2:3)	CG0990000	3687-31-8
arsenic pentoxide	CG2275000	1303-28-2
arsenic trioxide	CG3325000	1327-53-3
sodium arsenate		7784-46-5
arsenic trichloride		7778-34-1
lead arsenate		3687-31-8

See Chemical Stressors List for additional compounds

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Do you have breathlessness, sputum production, or wheezing (none, mild, moderate, severe)	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Coughing up blood (hemoptysis)	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	Yes
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes
10 or more years since first exposure to arsenic	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
RBC	No	Yes	Yes
WBC	Yes	Yes	Yes
HGB	Yes	Yes	Yes
MCV	Yes	Yes	Yes
MCH	Yes	Yes	Yes
MCHC	Yes	Yes	Yes
Chest X-ray (PA)	Yes	Yes	Yes
Nasal mucosa (septal perforation)	Yes	Yes	Yes
Cardiovascular system	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	Yes
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Reference (1) requires International Labor Office UICC/Cincinnati (ILO U/C) rating of chest x-ray. This can be arranged through the local Radiology Department.

Sputum Cytology is not required.

When a specified examination has not been provided within six months preceding termination of employment, an examination must be provided upon termination of employment.

A Physician's Letter is required (see Chapter 10 for a sample Physician's Letter).

REFERENCE:

1. 29 CFR 1910.1018
2. NIOSH Recommended Standard for Arsenic
3. 29 CFR 1910.134, Respiratory Protection) (Respirator program generally required)
4. Klaassen CD, Casarett & Doull's Toxicology: The Basic Science of Poisons 6th edition, McGraw-Hill 2001: 818-820;
5. Agency for Toxic Substances and Disease Registry (ATSDR) Toxicological Profile
6. DODI 6055.05-M, Table C2.T2, Arsenic-Inorganic

REVIEWED: April 2011

ASBESTOS CURRENT WORKER **113**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
asbestos	CI6475000	1332-21-4
amosite	CI6477000	12172-73-5
anthophyllite	CA8430000	17068-78-9
chrysotile	CI6478500	12001-29-5
crocidolite	CI6479000	12001-28-4

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
DoD 2493-1 Initial Asbestos Questionnaire	Yes	No	No
DoD 2493-2 Periodic Asbestos Questionnaire	No	Yes	Yes
Asbestos History & Physical NAVMED 6260/5 completed	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Any finding related to asbestos exposure	Yes	Yes	Yes
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Yes	Yes
Change in frequency or appearance of bowel movements	Yes	Yes	Yes
Chest X-ray (B-reader) - using NAVMED 6260/7 (only if required per Provider Comments)	Yes	*	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes
Counseling regarding combined effects of smoking and respirable crystalline silica (RCS) exposure	Yes	Yes	Yes
Physician’s or provider’s written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:

Examination is required within 30 calendar days before or after termination of employment, if not examined within the last year.

PROVIDER COMMENTS:
Examination results are recorded on NAVMED 6260/5, REV (5/90), Periodic Health Evaluation. Workers examined for current exposure must complete DD 2493-1, Initial Examination, or DD 2493-2, Periodic Examination questionnaires.

OSHA standard requires a Physician's/provider's written Opinion. A sample is included in Chapter 10.

Amendment to the Standard (55FR 3724) requires that the employee be counseled regarding the increased risk of lung cancer attributable to the combined effects of smoking and asbestos exposure and that this is part of the Physician's/provider's Written Opinion.

The National Institute for Occupational Safety and Health (NIOSH) worked with the Department of Health and Human Services in issuing a final ruling (References (7) and (8)) accepting digital radiographs for use in pneumoconioses medical surveillance. As Navy facilities have transitioned to digital radiography, all chest X-rays for B-reading are now to be digital.

Requirements for storage of asbestos medical surveillance records and X-rays are described in Reference (9)."

*Frequency for Chest X-ray

If 0 to 10 years since first exposure:

Every 5 years

If 10+ years since first exposure

Age Under 35: 5 years

Age 35-44: 2 years

Age 45+: Annually

REFERENCE:

1. 29 CFR 1910.1001.
2. 29 CFR 1926.1101
3. OPNAVINST 5100.23G, Chapter 17.
4. OPNAVINST 5100.19D, Chapter B1.
5. NIOSH B Reader Information for Medical Professionals.
6. DODI 6055.05-M, Table C2.T3, Asbestos
7. NIOSH. Chest Radiography.
8. Specifications for Medical Examinations of Underground Coal Miners, A Rule
9. NMCPHC - TM - OEM 6260.96-2 Occupational Medicine Field Operations Manual

REVIEWED: January 2016

ASBESTOS PAST WORKER - 0 TO 10 YEARS SINCE FIRST EXPOSURE 116

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
asbestos	CI6475000	1332-21-4
amosite	CI6477000	12172-73-5
anthophyllite	CA8430000	17068-78-9
chrysotile	CI6478500	12001-29-5
crocidolite	CI6479000	12001-28-4

Program Frequency: 5 years

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Chest X-ray (B-reader) - using NAVMED 6260/7 (only if required per Provider Comments)	Yes	Yes	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	No
Counseling regarding combined effects of smoking and respirable crystalline silica (RCS) exposure	Yes	Yes	No

PROGRAM DESCRIPTION:

Military and civilian personnel who have a history of asbestos exposure during past federal employment or military service may be included in the Asbestos Medical Surveillance Program (AMSP), upon request, if any of the following criteria are met.

History of enrollment in the Navy AMSP.

History of participation in any operation where visible airborne asbestos dust was present, including but not limited to rip-outs, for approximately 30 days or more in the past.

The occupational health provider, with occupational medicine physician consultation, concludes that the individual had exposure to asbestos that meets the current OSHA criteria for placement in the medical surveillance program, or its equivalent, for approximately 30 days or more in the past.

An employee who is in the AMSP based on a history of past exposure may be removed from the AMSP upon request. An entry in the medical record on the SF 600 should document the rationale for removing the individual from the AMSP. In Addition, notify NAVMCPUBHLTHCEN in writing the name and SSN of any individual incorrectly placed in the AMSP when that person is removed from the program.

While not required, a termination evaluation may be recommended in certain cases, such as those with a history of heavy exposure or when there has been a long interim since the last evaluation.

PROVIDER COMMENTS:

Amendment (55 FR 3724) to the OSHA Standard (29 CFR 1910.1001) requires that the employee be counseled regarding the increased risk of lung cancer attributable to the combined effects of smoking and asbestos exposure.

Spirometry (FEV1, FVC, FEV1/FVC %) and chest x-ray with B Reader interpretation are performed with each examination. The examination is documented on NAVMED 6260/5, Rev (5/90), Periodic Health Evaluation. A Physician's Written Opinion is not required to be given to workers for past exposure examination. The DD Form 2493-1 and DD Form 2493-2 are not required for past exposure examinations.

Although this program is used for formerly exposed workers (the OSHA standard applies to currently exposed workers), this risk communication on the multiplicative risk of continued smoking and former asbestos exposure should be discussed with the employee at each asbestos medical surveillance visit.

The National Institute for Occupational Safety and Health (NIOSH) worked with the Department of Health and Human Services in issuing a final ruling (References (4) and (5)) accepting digital radiographs for use in pneumoconioses medical surveillance. As Navy facilities have transitioned to digital radiography, all chest X-rays for B-reading are now to be digital.

Requirements for storage of asbestos medical surveillance records and X-rays are described in Reference (6)."

REFERENCE:

1. OPNAVINST 5100.23 (current series), Chapter 17;
2. OPNAVINST 5100.19 (current series), Chapter B1;
3. Occupational Medicine Field Operations Manual, current edition
4. NIOSH. Chest Radiography.
5. Specifications for Medical Examinations of Underground Coal Miners, A Rule by the Health and Human Services Department on 09/13/2012.
6. NMCPHC - TM - OEM 6260.96-2 Occupational Medicine Field Operations Manual

REVIEWED: January 2016

ASBESTOS PAST WORKER 10+ YEARS SINCE FIRST EXPOSURE **115**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
Asbestos	CI6475000	1332-21-4
Amosite	CI6477000	12172-73-5
Anthophyllite	CA8430000	17068-78-9
Chrysotile	CI6478500	12001-29-5
Crocidolite	CI6479000	12001-28-4

Program Frequency:	By Age
15 to 34	Every 5 years
35 to 44	Every 2 years
45+	Annually

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	By Age	No
Chest X-ray (B-reader) - using NAVMED 6260/7 (only if required per Provider Comments)	Yes	By Age	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	By Age	No
Counseling regarding combined effects of smoking and respirable crystalline silica (RCS) exposure	Yes	By Age	No

PROGRAM DESCRIPTION:

Military and civilian personnel who have a history of asbestos exposure during past

Federal employment or military service may be included in the Asbestos Medical Surveillance Program (AMSP), upon request, if any of the following criteria are met.

History of enrollment in the Navy AMSP.

A history of participation in any operation where visible airborne asbestos dust was present, including but not limited to rip-outs, for approximately 30 days or more in the past.

The occupational health provider, with occupational medicine physician consultation, concludes that the individual had exposure to asbestos that meets the current OSHA criteria for placement in the medical surveillance program, or its equivalent, for approximately 30 days or more in the past.

An employee who is in the AMSP based on a history of past exposure may be removed from the AMSP upon request. An entry in the medical record on the SF 600 should document the rationale for removing the individual from the AMSP. In addition, notify NAVMCPUBHLTHCEN in writing the name and SSN of any individual incorrectly placed in the AMSP when that person is removed from the program.

While not required, a termination evaluation may be recommended in certain cases, such as those with a history of heavy exposure or when there has been a long interim since the last evaluation.

PROVIDER COMMENTS:
Amendment (55 FR 3724) to the OSHA Standard (29 CFR 1910.1001) requires that the employee be counseled regarding the increased risk of lung cancer attributable to the combined effects of smoking and asbestos exposure.

Spirometry (FEV1, FVC, FEV1/FVC %) and chest x-ray with B Reader interpretation are performed with each examination. The examination is documented on NAVMED 6260/5, Rev (5/90), Periodic Health Evaluation. A Physician's Written Opinion is not required to be given to workers for past exposure examination. The DD Form 2493-1 and DD Form 2493-2 are not required for past exposure examinations.

Although this program is used for formerly exposed workers (the OSHA standard applies to currently exposed workers), this risk communication on the multiplicative risk of continued smoking and former asbestos exposure should be discussed with the employee at each asbestos medical surveillance visit.

The National Institute for Occupational Safety and Health (NIOSH) worked with the Department of Health and Human Services in issuing a final ruling (References (4) and (5)) accepting digital radiographs for use in pneumoconioses medical surveillance. As Navy facilities have transitioned to digital radiography, all chest X-rays for B-reading are now to be digital.

Requirements for storage of asbestos medical surveillance records and X-rays are described in Reference (6)."

REFERENCE:
1. OPNAVINST 5100.23 (current series), Chapter 17;
2. OPNAVINST 5100.19 (current series), Chapter B1;
3. Occupational Medicine Field Operations Manual, current edition
4. NIOSH. Chest Radiography.
5. Specifications for Medical Examinations of Underground Coal Miners, A Rule by the Health and Human Services Department on 09/13/2012.
6. NMCPHC - TM - OEM 6260.96-2 Occupational Medicine Field Operations Manual

REVIEWED: January 2016

BENZENE **117**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
benzene	CY1400000	71-43-2

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Bleeding abnormalities	Yes	Yes	Yes
Exposure to benzene	Yes	Yes	Yes
Exposure to chemotherapeutic or antineoplastic agents	Yes	Yes	Yes
Exposure to ionizing radiation	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	Yes
RBC	Yes	Yes	Yes
WBC	Yes	Yes	Yes
HGB	Yes	Yes	Yes
MCV	Yes	Yes	Yes
MCH	Yes	Yes	Yes
MCHC	Yes	Yes	Yes
Neutrophils	Yes	Yes	Yes
Lymphocytes	Yes	Yes	Yes
Monocytes	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Eosinophils	Yes	Yes	Yes
Basophils	Yes	Yes	Yes
Platelets	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Abdomen	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	Yes
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
For employees who are or may be exposed to benzene at or above the action level [0.5ppm] ≥ 30 days/ year; for employees who are or may be exposed to benzene at or above the PELs [1ppm] ≥ 10 days/year; or for employees who have been exposed to more than 10 ppm of benzene for ≥ 30 days

PROVIDER COMMENTS:
Guidance on emergency examinations, mandatory referrals to a hematologist or internist by the examining physician, and mandatory removal are contained in 29 CFR 1910.1028. For all workers wearing respirators for at least 30 days a year, cardiopulmonary examination and spirometry are required on initial examination and every three years.

DODI 6055.05-M requires PFTs every 3 years if worker is required to use a respirator ≥ 30 days/ yr

REFERENCE:

1. 29 CFR 1910.1028 and 1926.1128;
2. Goesline, BD, Biological and ambient monitoring of benzene in the workplace, Journal of Medicine, 1986, 28 (10):1051.
3. DODI 6055.05-M, Table C2.T4, Benzene
4. NIOSH Occupational Safety and Health Guideline for Benzene

REVIEWED: October 2009

BENZIDINE **118**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
benzidine	DC9625000	92-87-5

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Decreased immunity	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Problems with urination or blood in urine	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Exposure to chemotherapeutic or antineoplastic agents	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Urine cytology	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:
1. OSHA STANDARD 29 CFR 1910.1003
2. OSHA STANDARD 29 CFR 1926.1103

REVIEWED: September 2009

BERYLLIUM **121**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
beryllium	DS1750000	7440-41-7
beryllium aluminum alloy	DS2200000	12770-50-2
beryllium chloride	DS2625000	7787-47-5
beryllium fluoride	DS2800000	7787-49-7
beryllium hydroxide	DS3150000	13321-32-7
beryllium oxide	DS4025000	1304-56-9

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Coughing up blood (hemoptysis)	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Chest X-ray (PA)	Yes	Yes	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Use of the blood Beryllium Lymphocyte Proliferation Test (BeLPT) for medical screening is not recommended. The BeLPT should be used only for diagnostic purposes in persons with clinical history and symptoms which may be consistent with Chronic Beryllium Disease (CBD) or as part of a well defined research project. Anyone performing a beryllium-specific test should notify the Navy and Marine Corps Public Health Center, Occupational and Environmental Medicine Department.

On December 2004, OSHA filed a request for information to solicit input from concerned parties in an effort to create a new beryllium standard. As of April 2009, this process is ongoing; the ACGIH has been reduced the TLV = 0.05 µg/m3, the DOE (Rule 10 CFR 850) set an action level = 0.2 µg/m3, the NIOSH 8-hr REL = 0.5 µg/m3, and the OSHA PEL 8-hr TWA = 2.0 µg/m3.

REFERENCE:

1. United States Army. Beryllium Surveillance and Medical Monitoring Policy (2002).
2. United States Navy. Response to OSHA's Occupational Exposure to Beryllium; Request for Information (2003).
3. American Conference of Governmental Industrial Hygienists. Biological Exposure Index Feasibility Assessment for Beryllium and Inorganic Compounds (2002).
4. Fed Register -: 67:70707-70712, November 26, 2002
5. OSHA Safety and Health Topics: Beryllium
6. ATSDR: Beryllium
7. NIOSH: Beryllium

REVIEWED: May 2011

BETA CHLOROPRENE **132**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
beta-chloroprene	EI9625000	126-99-8

Program Frequency: 3 years

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Eye irritation or blurred vision	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes
Migraine headache	Yes	Yes	Yes
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
Cardiovascular system	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes

PROGRAM DESCRIPTION:
Program recommendations from NIOSH have changed significantly from the original 1978 version. Previous version had recommendation for CXR, CBC, urinalysis, liver enzymes, and the program periodic exams were annual.

PROVIDER COMMENTS:
None provided.

REFERENCE:
1. NIOSH Pocket Guide to Chemical Hazards beta-Chloroprene
2. OSHA Safety and Health Guideline for beta-Chloroprene, 2007

REVIEWED: November 2009

BETA-NAPHTHYLAMINE **171**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
beta-naphthylamine	QM2100000	91-59-8

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Decreased immunity	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Physician’s or provider’s written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:

None provided.

PROVIDER COMMENTS:
According to Reference 1, certain accidental occupational exposures constitute an emergency and require that "Special medical surveillance by a physician shall be instituted within 24 hours for employees present in the potentially affected area at the time of the emergency. A report of the medical surveillance and any treatment shall be included in the incident report." While "special medical surveillance" may include all elements of this Program, the physician should tailor the care and follow-up of each case as appropriate.

REFERENCE:
1. OSHA STANDARD 29 CFR 1910.1003
2. 29 CFR 1910.1009 beta-Naphthylamine.
3. 29 CFR 1926.1109 beta-Naphthylamine.

REVIEWED: April 2011

BETA-PROPIOLACTONE **185**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
beta-propiolactone	RQ7350000	57-57-8

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Decreased immunity	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Severe irritation to eyes	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
AST	Yes	Yes	Yes
ALT	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Urine nitrite	Yes	Yes	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes
Eyes	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Kidneys	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
1. BETA-PROPIOLACTONE is one of the OSHA thirteen "Suspect Human Carcinogens."

2. Recommend commenting on any past or chronic liver disease, immuno-compromised state, treatment with steroids or cytotoxic agents and pregnancy status to medical history à counseling.

REFERENCE:

1. 29 CFR 1910.1003
2. 29 CFR 1926.1103.
3. EPA
4. NIOSH Pocket Guide to Chemical Hazards

REVIEWED: January 2014

BIS-CHLOROMETHYL ETHER **131**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
bis chloromethyl ether	KN1575000	542-88-1

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Coughing up blood (hemoptysis)	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Physician’s or provider’s written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. OSHA Standard 29 CFR 1910.1003
2. 29 CFR 1926.1103
3. NIOSH Pocket Guidance for bis-Chloromethyl ether

REVIEWED: April 2011

BLOOD AND/OR BODY FLUIDS **178**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**
blood and/or body fluids

Program Frequency: Baseline Only

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	No	No
Has anything about your health status changed since your last examination	Yes	No	No
Have any medications changed since your last exam	Yes	No	No
Major illness or injury	Yes	No	No
Hospitalization or surgery	Yes	No	No
Cancer	Yes	No	No
Back injury	Yes	No	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	No	No
Have you ever smoked	Yes	No	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	No	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	No	No
Current medication use (prescription or over the counter)	Yes	No	No
Medication allergies	Yes	No	No
Any reproductive health concerns	Yes	No	No
Have you ever been evaluated for latex allergy	Yes	No	No
Recent tattoos	Yes	No	No
Exposure to potentially infectious body fluids	Yes	No	No
Hepatitis B vaccine #1	Yes	No	No
Hepatitis B vaccine #2	Yes	No	No
Hepatitis B vaccine #3	Yes	No	No
Hepatitis B titer	Yes	No	No
Assess the examinee's knowledge of universal blood and body fluid precautions	Yes	No	No
Physician’s or provider’s written opinion required	Yes	No	No

PROGRAM DESCRIPTION:
This program does not have a periodic frequency. All tests are given at baseline physical exams and for any incident of exposure to potentially infectious materials. Exposure incident means a specific eye, mouth, other mucous membrane, non-intact skin or parenteral contact.

PROVIDER COMMENTS:
Individuals entered in this program are those who have the potential for exposure to blood and/or body fluids.

Current national guidelines regarding the post-exposure management and reporting requirements for exposure incidents involving Hepatitis B or HIV are detailed in References 2 and 3.

Guidelines regarding the use of zidovudine post HIV exposure are in Reference 5. Occupational Health staff managing exposure incidents involving HIV should have references on hand as well as current recommendations issued by NMCPHC, the nearest NEPMU or the Infectious Disease Department at Navy MTFs.

Reference 3 details the chemoprophylaxis recommended to workers after occupational exposures associated with the highest risk for HIV transmission. PEP Line is available at: National HIV/ AIDS Clinicians' Consultation Center (http://www.nccc.ucsf.edu), telephone 888-448-4911.

Current CDC guidance regarding hepatitis B immunization and immune status verification is consistent with the following, which should minimize confusion and inconsistency about post-vaccination testing.

For individuals who think they have been immunized (or are from a demographic thought to be immunized) but cannot document immunity, an initial hepatitis B antibody titer should be done. Those who have had no, or a partial set (i.e., only 1 or 2 doses,) of vaccinations should receive additional vaccinations until they have received a total of 3 doses. Dose 2 should be given no sooner than one month after dose 1; dose 3 should be given no sooner than two months after dose 2 and at least 4 months after dose 1. The second and third doses may be given any time (even years) after they were supposed to have been given; there is no need to start over. Dose 3 should be followed at least 1 month later by a hepatitis B antibody titer. If that does not show an adequate response to immunizations, another set of 3 doses should be administered, followed by a final hepatitis B antibody titer at least 1 month later. (In other words, rather than checking a titer after dose 4 and after dose 5, simply get a single hepatitis B antibody titer after dose 6.) If there is inadequate response after 6 vaccinations, the person should be listed as a non-responder susceptible to hepatitis B, should receive no further hepatitis B vaccinations, and should be considered as a candidate for post-exposure Hepatitis B Immune Globulin (HBIG) in the future.

REFERENCE:

1. 29 CFR 1910.1030, Occupational Exposure to Bloodborne Pathogens
2. Centers for Disease Control and Prevention, National Center for Infectious Diseases, Division of Healthcare Quality Promotion and Division of Viral Hepatitis. Exposure to Blood What Health-Care Personnel Need to Know.
3. CDC Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis
4. OPNAV 5100.23, CHAPTER 28. BLOODBORNE PATHOGENS
5. DODI 6055.05-M, Table C2.T14, Bloodborne Pathogens
6. Needle-stick Guideline: eMedicine Emergency Medicine
7. NIOSH HomeWorkplace Safety & Health Topics Bloodborne Infectious Diseases HIV/AIDS, Hepatitis B Virus, and Hepatitis C Needle-stick Guideline: eMedicine Emergency Medicine
8. Bloodborne Pathogen Exposure Control NMCPHC-TM-OEM 6260.7

REVIEWED: April 2011

BORON TRIFLUORIDE **122**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
boron trifluoride	ED2275000	7637-07-2

Program Frequency: 3 years

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Chest X-ray (PA)	Yes	No	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	Yes
Eyes	Yes	Yes	Yes
Mucous membranes	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Acute pneumonitis has been associated with exposure to boron. Depending on exposure level, it can be immediately hazardous to life or health

REFERENCE:

1. CDC, NIOSH, IDHL 7637072 Aug 1, 1986
2. NIOSH Pocket Guide to Chemical Hazards Boron Trifluoride, September 2005

3. OSHA Safety and Health Topics: Boron Trifluoride 11/12/2004
4. International Chemical Safety Cards BORON TRIFLUORIDE, 1994
5. ATSDR Toxicological Profile for Boron, Draft for Public Comment September 2007
6. NIOSH Occupational Safety and Health Guideline for Boron Trifluoride

REVIEWED: December 2010

1,3-BUTADIENE **217**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
1,3 butadiene	EI9150000	106-99-0

Program Frequency: 3 years

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Decreased immunity	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Exposure to benzene	Yes	Yes	Yes
Exposure to chemotherapeutic or antineoplastic agents	Yes	Yes	Yes
Exposure to ionizing radiation	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	Yes
RBC	Yes	Yes	Yes
WBC	Yes	Yes	Yes
HGB	Yes	Yes	Yes
MCV	Yes	Yes	Yes
MCH	Yes	Yes	Yes
MCHC	Yes	Yes	Yes
Neutrophils	Yes	Yes	Yes
Lymphocytes	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Monocytes	Yes	Yes	Yes
Eosinophils	Yes	Yes	Yes
Basophils	Yes	Yes	Yes
Platelets	Yes	Yes	Yes
Eyes	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Abdomen	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Spleen	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
The following are the criteria for placement in this program:

Employees who are or maybe exposed to butadiene at concentrations at or above the action level (AL) on ≥30 days/yr, at or above the PEL [2ppm] ≥10 days/yr, or exposed to butadiene following an emergency situation (defined as any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of butadiene). Guidance on emergency examinations and referrals is contained in 29 CFR 1910.1051

Medical surveillance shall be continued for employees even after transfer to a job without butadiene exposure, whose work histories suggest exposure to butadiene: ≥ PEL for ≥30 days/ yr for ≥ 10 years, at or above the AL on ≥ 60 days/yr for ≥ 10 years, or > 10 ppm on 30 or more days in any past year.

Medical clearance for respirator may be required.

See Chapter 10 for a sample Physician's/provider's Written Opinion.

REFERENCE:
1. 29 CFR 1910.1051
2. NIOSH Occupational Safety and Health Guideline for Butadiene (1,3-butadiene)
3. DODI 6055.05-M, T2.T5, 1,3-Butadiene

REVIEWED: April 2011

CADMIUM (CURRENT EXPOSURE) **124**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
cadmium (dust and salts)	EU9800000	7440-43-9
cadmium oxide	EV1925000	1306-19-0
cadmium sulfide	EV3150000	1306-23-6
cadmium sulfate	EV2700000	10124-36-4
cadmium nitrate	EV1750000	10325-94-7
cadmium fluoborate	EV0525000	14486-19-2
cadmium chloride	EV0175000	10108-64-2
carbonic acid, cadmium salt	FF9320000	513-78-0

Program Frequency: Variable

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Abnormal pregnancy outcome during present employment	Yes	Yes	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	Yes
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	Yes
Coughing up blood (hemoptysis)	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Injury with heavy bleeding in last year	Yes	Yes	Yes
Blood in stool	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Seizures or fits	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Kidney stones	Yes	Yes	Yes
Problems with urination or blood in urine	Yes	Yes	Yes
Prostate gland problems	Yes	Yes	Yes
Protein in urine	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Thyroid disease (including heat or cold intolerance)	Yes	Yes	Yes
Diabetes (sugar disease) or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	Yes	Yes
Bone problems (including broken bones)	Yes	Yes	Yes
Musculoskeletal problems	Yes	Yes	Yes
Exposure to cadmium	Yes	Yes	Yes
Cadmium (CdB)	*	**	Yes
BUN	*	**	Yes
Creatinine	*	**	Yes
AST	*	**	Yes
ALT	*	**	Yes
Bilirubin, Total	*	**	Yes
Alkaline phosphatase	*	**	Yes
Urine Ph	*	**	Yes
Urine specific gravity	*	**	Yes
Urine urobilinogen	*	**	Yes
Urine protein	*	**	Yes
Urine glucose	*	**	Yes
Urine ketones	*	**	Yes
Urine blood	*	**	Yes
Urine nitrite	*	**	Yes
Urine Cadmium (CdU)	*	**	Yes
Urine Beta 2 microglobulin	*	**	Yes
Chest X-ray (PA)	*	**	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	*	**	Yes
Respiratory system	*	**	Yes
Kidneys	*	**	Yes
Prostate palpation or other at-least-as-effective diagnostic test(s) for males over 40 years old	*	**	Yes
Physician’s or provider’s written opinion required	*	**	Yes

PROGRAM DESCRIPTION:

Biological Marker	Monitoring Result Category						
	A	B	C	D			
Cd_{urine}	≤ 3	> 3 and < 7	> 7	> 7	>3		>3
	AND	AND/OR	OR	AND	AND		
$\beta 2_{urine}$	≤ 300	> 300 and ≤750	> 750		>750	>750	
	AND	AND/OR	OR			AND	AND
Cd_{blood}	≤ 5	> 5 and ≤ 10	> 10	>5		>5	>10

Cd = cadmium
Cd_{urine} = urine Cd, units in micrograms per gram (µg/g) of creatinine.
$\beta 2_{urine}$ = urine beta-2 microglobulin, units in µg/g of creatinine
Cd_{blood} = blood Cd, units in µg/liter of whole blood.

	Monitoring Result Category			
Required Actions	**A**	**B**	**C**	**D**
(1) Biological Monitoring				
a. Annual	X			
b. Semiannual		X		
c. Quarterly			X	X
(2) Medical Exam				
a. Biennial	X			
b Annual		X		
c. Semiannual			X	X
d. Within 90 days		X	X	
(3) Assess within 2 Weeks				
a. Excess Cd exposure		X	X	
b. Work practices		X	X	
c. Personal hygiene		X	X	
d. Respirator use		X	X	
e. Smoking history & current status		X	X	
f. Hygiene facilities		X	X	
g. Engineering controls		X	X	
(4) Correct deficiencies within 30 days		X	X	
(5) Discretionary medical removal		X	X	
(6) Written medical opinion		X	X	X*
(7) Mandatory medical removal				X

* Required for return to work or permanent removal from occupational Cd exposure.

Currently exposed: all personnel who are or may be exposed to cadmium at or above the action level for 30 or more days per year.

Prior to assignment to a job requiring respirator use, a medical examination to determine fitness for respirator use shall be provided to any employee who does not have a medical examination within the preceding 12 months that satisfies the requirements outlined in 29 CFR 1910.1027. Place individuals on Program #716, Respirator User Certification Exam.

PROVIDER COMMENTS:
In accordance with 29 CFR 1910.1027(l)(1)(iii), the employer shall assure that all medical examinations and procedures required by this standard are performed **by or under the supervision of a licensed physician, who has read and is familiar with the health effects**

section of Appendix A, the regulatory text of this section, the protocol for sample handling and laboratory selection in Appendix F, and the questionnaire of Appendix D.

The Physician's/provider's Written Opinion is required by the OSHA Standard. A sample is included in Chapter 10.

Cadmium surveillance periodicity is variable, and depends on biological monitoring findings and duration of cadmium work (per reference (1)). At a minimum, there is to be a baseline exam followed by annual exam and lab work (per references (1) and (2)).

*Initial (preplacement) examinations shall be provided for all personnel who meet the criteria for inclusion in the cadmium medical surveillance program. An initial examination is NOT required if records show that the employee has been examined in accordance with the standard within the past 12 months. In that case, the records shall be maintained as part of the employee's medical record, and the prior examination treated as if it were the initial examination. At termination of employment, a medical examination shall be provided that includes the elements of the medical examination listed, including a chest x-ray. However, if the last examination was less than six months prior to the termination date and satisfied these requirements, further examination is not needed unless the results of biological monitoring require further testing.

**See table to determine frequency of examinations for current workers. OSHA regulations differ from NIOSH recommendations. More frequent exams may be triggered by the results of biological monitoring. Guidance on actions triggered by biological monitoring is detailed in 29 CFR 1910.1027. After the initial chest X-ray, the frequency of chest x-rays is determined by the examining physician, using the periodic spirometry results as a guide.

REFERENCE:

1. 29 CFR 1910.1027
2. NIOSH Occupational Health Guideline for Cadmium Fume
3. National Library of Medicine Haz-Map Occupational Exposures to Hazardous Agents Cadmium and compounds
4. DODI 6055.05-M, Table C2.T6, Cadmium

REVIEWED: January 2010

CADMIUM (PAST EXPOSURE) **206**

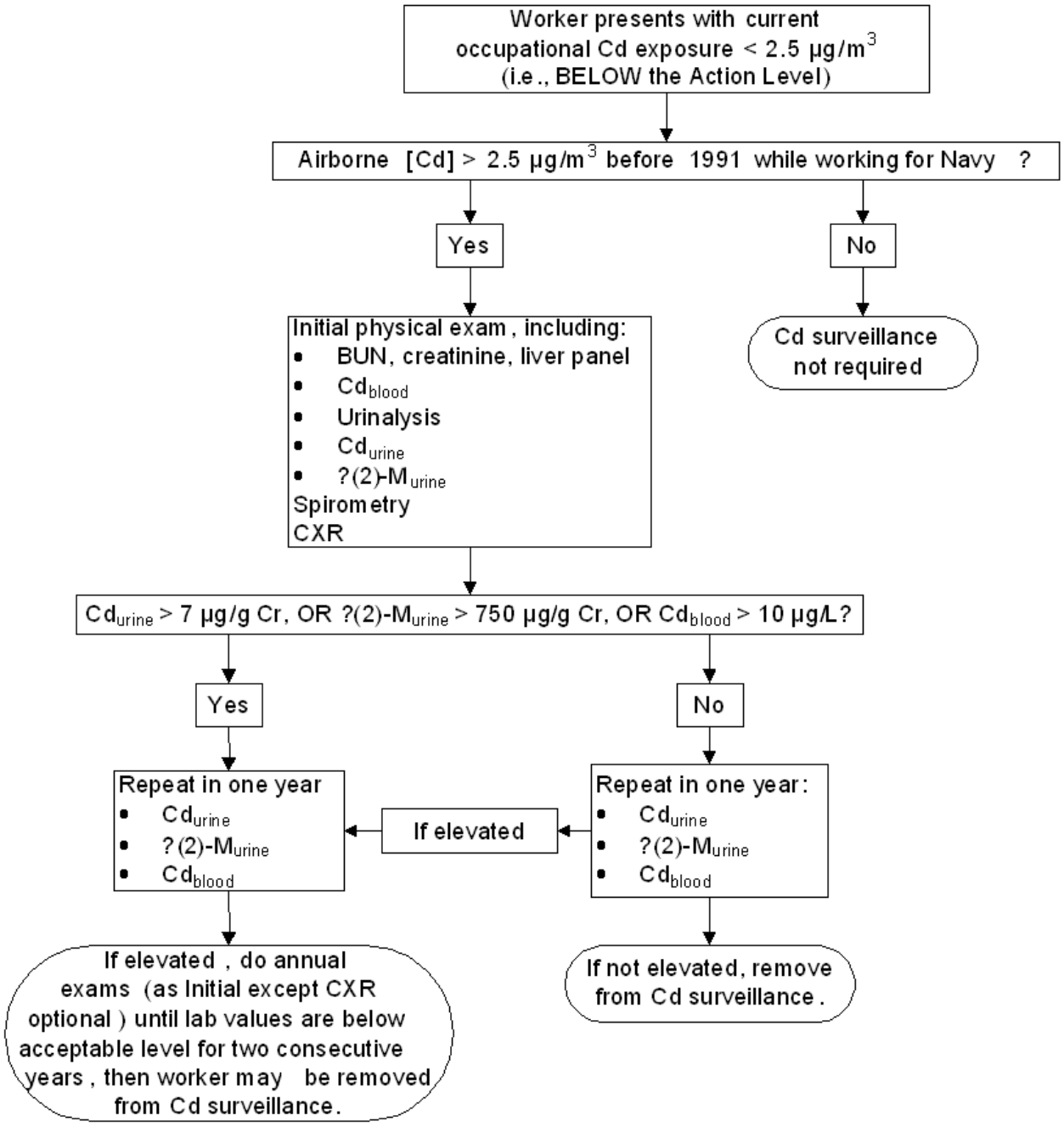
STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
cadmium (dust and salts)	EU9800000	7440-43-9
cadmium oxide (fume)	EV1930000	1306-19-0
cadmium oxide (production)	EV1925000	1306-19-0
cadmium sulfide	EV3150000	1306-23-6
cadmium sulfate	EV2700000	10124-36-4
cadmium nitrate	EV1750000	10325-94-7
cadmium fluoborate	EV0525000	14486-19-2
cadmium chloride	EV0175000	10108-64-2
cadmium carbonate	FF9320000	513-78-0

Program Frequency: Variable

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Abnormal pregnancy outcome during present employment	Yes	Yes	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	Yes
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	Yes
Coughing up blood (hemoptysis)	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Injury with heavy bleeding in last year	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Blood in stool	Yes	Yes	Yes
Seizures or fits	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Kidney stones	Yes	Yes	Yes
Problems with urination or blood in urine	Yes	Yes	Yes
Prostate gland problems	Yes	Yes	Yes
Protein in urine	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Thyroid disease (including heat or cold intolerance)	Yes	Yes	Yes
Diabetes (sugar disease) or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	Yes	Yes
Bone problems (including broken bones)	Yes	Yes	Yes
Musculoskeletal problems	Yes	Yes	Yes
Exposure to cadmium	Yes	Yes	Yes
Cadmium (CdB)	Yes	*	Yes
BUN	Yes	*	Yes
Creatinine	Yes	*	Yes
AST	Yes	*	Yes
ALT	Yes	*	Yes
Bilirubin, Total	Yes	*	Yes
Alkaline phosphatase	Yes	*	Yes
Urine Ph	Yes	*	Yes
Urine specific gravity	Yes	*	Yes
Urine urobilinogen	Yes	*	Yes
Urine protein	Yes	*	Yes
Urine glucose	Yes	*	Yes
Urine ketones	Yes	*	Yes
Urine blood	Yes	*	Yes
Urine nitrite	Yes	*	Yes
Urine Cadmium (CdU)	Yes	*	Yes
Urine Beta 2 microglobulin	Yes	*	Yes
Chest X-ray (PA)	Yes	*	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	*	Yes
Respiratory system	Yes	*	Yes
Prostate palpation or other at-least-as-effective diagnostic test(s) for males over 40 years old	Yes	*	Yes
Physician’s or provider’s written opinion required	Yes	*	Yes

PROGRAM DESCRIPTION:



See diagram of algorithm to determine frequency of examinations for current workers. Guidance on actions triggered by biological monitoring is detailed in 29 CFR 1910.1027. After the initial chest X-ray, the frequency of chest x-rays is determined by the examining physician, using the periodic spirometry results as a guide.

PROVIDER COMMENTS:

1. In accordance with 29 CFR **1910.1027(l)(1)(iii),** the employer shall assure that all medical examinations and procedures required by this standard are performed by or under the supervision of a licensed physician, who has read and is familiar with the health effects section of Appendix

A, the regulatory text of this section, the protocol for sample handling and laboratory selection in Appendix F, and the questionnaire of Appendix D. These examinations and procedures shall be provided without cost to the employee and at a time and place that is reasonable and convenient to employees.

2. OSHA requires a Physician's/provider's Written Opinion. A sample is included in Chapter 10..

3. Previously exposed - The employer shall institute a medical surveillance program for all employees who prior to the effective date of section **1910.1027(l)(1)(i)(B)** might previously have been exposed to cadmium at or above the action level by the employer, unless the employer demonstrates that the employee did not prior to the effective date of this section work for the employer in jobs with exposure to cadmium for an aggregated total of more than 60 months.

*See the diagram to determine frequency of examinations for current workers. Guidance on actions triggered by biological monitoring is detailed in 29 CFR 1910.1027. After the initial chest X-ray, the frequency of chest x-rays is determined by the examining physician, using the periodic spirometry results as a guide.

REFERENCE:

1. 29 CFR 1910.1027
2. OSHA Standards Enforcement Letter, dated 10/19/1994 - Medical surveillance provision of the Cadmium standard for previously exposed employees.
3. NAVENVIRHLTHCEN letter 6260 Ser 3213/6538 of 4 Jan 1993.
4. NIOSH Occupational Health Guideline for Cadmium Fume

REVIEWED: January 2010

CARBON BLACK **125**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
carbon black	FF5800000	1333-86-4

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	Yes
Exposure to dusts (coal, blast grit, sand, nuisance)	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
Sputum cytology	Yes	Yes	Yes
Electrocardiogram	Yes	No	Yes
Chest X-ray (PA)	Yes	No	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	Yes
Eyes	Yes	Yes	Yes
Mucous membranes	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes

PROGRAM DESCRIPTION:

None provided.

PROVIDER COMMENTS:
Carbon black itself is not considered carcinogenic. However, solvent extracts of carbon black may contain carcinogens.

Eye examination is conducted for evidence of irritation.

REFERENCE:
1. NIOSH Occupational Safety and Health Guideline for Carbon Black
2. NIOSH Pocket Guide to Chemical Hazards: Carbon Black
3. Haz-Map: Carbon Black

REVIEWED: December 2014

CARBON DISULFIDE **126**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
carbon disulfide	FF6650000	75-15-0

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Use of nitrate medication (nitroglycerine)	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Nausea or vomiting	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Glaucoma	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Infertility or miscarriage (self or spouse)	Yes	Yes	No
Epilepsy or seizures	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Tremor (shakiness) or loss of sensation/feeling	Yes	Yes	No
Mental or emotional illness	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Personality or behavior change	Yes	Yes	No
AST	Yes	Yes	No
ALT	Yes	Yes	No
Bilirubin, Total	Yes	Yes	No
Alkaline phosphatase	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No
Urine nitrite	Yes	Yes	No
Urine RBCs	Yes	Yes	No
Urine WBCs	Yes	Yes	No
Electrocardiogram	Yes	Yes	No
Vision screen (visual acuity)	Yes	Yes	No
Peripheral vision	Yes	Yes	No
Eyes	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Liver	Yes	Yes	No
Kidneys	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:
1. NIOSH Pocket Guide to Chemical Hazards, current edition; Agency for Toxic Substances and Disease Registry (ATSDR) Carbon Disulfide
2. NIOSH Occupational Health Guideline for Carbon Disulfide
3. NIOSH Workplace Hazard and Health Topics

REVIEWED: December 2014

CARBON MONOXIDE **127**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
carbon monoxide	FG3500000	630-08-0

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Use of nitrate medication (nitroglycerine)	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Change or loss in hearing	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Epilepsy or seizures	Yes	Yes	No
Problems with balance or coordination	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Muscle cramping	Yes	Yes	No
RBC	Yes	Yes	No
WBC	Yes	Yes	No
HGB	Yes	Yes	No
MCV	Yes	Yes	No
MCH	Yes	Yes	No
MCHC	Yes	Yes	No
Electrocardiogram	Yes	No	No
Eyes	Yes	Yes	No
Cardiovascular system	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Respiratory system	Yes	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
Workers are typically included in the surveillance program when they are expected to be exposed to carbon monoxide levels beyond published exposure limits. Exposure limits for employees are as follows:

NIOSH REL: TWA 35 ppm (40 mg/m3) Ceiling 200 ppm (229 mg/m3)

OSHA PEL: TWA 50 ppm (55 mg/m3) IDLH1200 ppm

PROVIDER COMMENTS:
Baseline EKG is performed for later comparison when cardiac ischemia, secondary to carbon monoxide exposure, is suspected. Baseline CBC is performed to identify those workers with an underlying anemia or hemoglobinopathy. People with decreased hemoglobin oxygen carrying capacity will exhibit earlier and greater effects from carbon monoxide exposure that results in carboxyhemoglobinemia.

REFERENCE:
1. NIOSH Occupational Health Guideline for Carbon Monoxide
2. Roy A.M. Myers, Antoinette DeFazio, and Mark P. Kelly. Chronic Carbon Monoxide Exposure: A Clinical Syndrome Detected by Neuropsychological Tests. Journal Of Clinical Psychology, Vol. 54(5), 555–567 (1998)
3. Chapman, JT. Carbon Monoxide Poisoning. American College of Physicians, Physician Information and Education Resource 2008.
4. Van Meter, KW. Carbon monoxide poisoning. Emergency Medicine: A Comprehensive Study Guide 6th edition. Chapter 203

REVIEWED: February 2010

CARBON TETRACHLORIDE **128**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
carbon tetrachloride	FG4900000	56-23-5

Program Frequency: 3 years

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Use of barbiturates	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Nausea or vomiting	Yes	Yes	Yes
Eye irritation or blurred vision	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	Yes
AST	Yes	Yes	Yes
ALT	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Eyes	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:
1. NIOSH Occupational Safety and Health Guideline for Carbon Tetrachloride

REVIEWED: January 2010

CHLOROFORM **130**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
chloroform	FS9100000	67-66-3

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Use of barbiturates	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Nausea or vomiting	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes
Migraine headache	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	Yes
AST	Yes	Yes	Yes
ALT	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Electrocardiogram	Yes	No	Yes
Cardiovascular system	Yes	Yes	Yes
Abdomen	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH Safety and Health Topic: Chloroform
2. OSHA Safety and Health Guideline for Chloroform, 1992Gmail
3. National Institute of Environmental Health (NIEH), Chloroform
4. ATSDR ToxFAQs—Chloroform, September 1997
5. EPA Air Toxics Hazard Summary: Chloroform, January 2000

REVIEWED: November 2009

CHROMIC ACID/CHROMIUM (VI) **133**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
chromic acid	GB2450000	
chromic acid, zinc salt	GB3290000	
dichromic acid, disodium salt	HX7700000	
chromium (vi) water soluble	GB4200000	
chromium (vi) water insoluble	GB4200000	
chromic acid, lead (+2) salt (1:1)	GB2975000	
chromic acid, di-t-butylester	GB2900000	
chromic acid, disodium salt	GB2955000	
chromic acid, dipotassium salt	GB2940000	
chromium phosphate	GB6840000	
chromium carbonyl	GB5075000	
chromic acid, zinc hydroxide hydrate (1:2, 2:1)	GB3260000	
chromium (vi) oxide (1:3)	GB6650000	
chromic acid, strontium salt (1:1)	GB3240000	
chromic acid, calcium salt (1:1)	GB2750000	
barium chromate (vi)	CQ8760000	
c.i. pigment yellow	GB3300000	
chromium chromate	GB2850000	
See Chemical Stressors List for additional compounds		

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Perforation of nasal septum	Yes	Yes	Yes
Coughing up blood (hemoptysis)	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Exposure to dusts (coal, blast grit, sand, nuisance)	Yes	Yes	Yes
Exposure to chromium or chromic acid	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
RBC	Yes	Yes	Yes
WBC	Yes	Yes	Yes
HGB	Yes	Yes	Yes
MCV	Yes	Yes	Yes
MCH	Yes	Yes	Yes
MCHC	Yes	Yes	Yes
Neutrophils	Yes	Yes	Yes
Lymphocytes	Yes	Yes	Yes
Monocytes	Yes	Yes	Yes
Eosinophils	Yes	Yes	Yes
Basophils	Yes	Yes	Yes
BUN	Yes	Yes	Yes
Creatinine	Yes	Yes	Yes
AST	Yes	Yes	Yes
ALT	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Chest X-ray (PA)	Yes	Yes	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes
Nasal mucosa (septal perforation)	Yes	Yes	Yes
Mucous membranes	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. OSHA STANDARD 29 CFR 1910, 1915, 1917, 1918, 1926 (Occupational exposure to hexavalent chromium), final rule effective 30 May 2006
2. NIOSH Occupational Health Guideline for Chromic Acid and Chromates
3. DoDI 6055.05-M, Table C2.T7, Chromium

REVIEWED: December 2010

COAL TAR PITCH VOLATILES/POLYCYCLIC AROMATIC HYDROCARBONS 134

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
coal tars (coal tar)	GF8600000	8007-45-2
coal tar extracts and high temperature tars	GF8600100	65996-89-6
coal tar pitch volatiles	GF8655000	65996-93-2

See Chemical Stressors List for additional compounds

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Coughing up blood (hemoptysis)	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	Yes
Problems with urination or blood in urine	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
RBC	Yes	Yes	Yes
WBC	Yes	Yes	Yes
HGB	Yes	Yes	Yes
MCV	Yes	Yes	Yes
MCH	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
MCHC	Yes	Yes	Yes
Neutrophils	Yes	Yes	Yes
Lymphocytes	Yes	Yes	Yes
Monocytes	Yes	Yes	Yes
Eosinophils	Yes	Yes	Yes
Basophils	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Chest X-ray (PA)	Yes	Yes	Yes
Mucous membranes	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
NOTE: 29 CFR 1910.1029 applies to workers exposed to coke oven emissions and has specific requirements which must be followed in addition to those listed above. These include sputum and urine cytology and spirometry. To the extent that a worker's exposure to PAH resembles that of coke oven emissions, these additional elements must be considered. While sputum cytology is not of proven benefit, urine cytology has been shown in certain high risk groups to identify asymptomatic cancers. Reference (4) provides more elaborate discussion of the issues.

REFERENCE:

1. 29 CFR 1910.1002—Coal tar pitch volatiles; interpretation of term.
2. 29 CFR 1910.1029
3. NIOSH Occupational Health Guideline for Coal Tar Pitch Volatiles
4. Polycyclic Aromatic Hydrocarbons, Fifth Annual Report on Carcinogens, Summary 1989, U.S. Department of Health and Human Services Public Health Service, Rockville, MD, Technical Resources, Inc. 1989:242-246.
5. Journal of Occupational Medicine 1990 (32): Entire Issue.

REVIEWED: December 2009

COBALT **208**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
cobalt (metal fume and dust)	GF8750000	7440-48-4
cobalt (II) oxide	GG2800000	1307-96-6
cobalt (II) sulfide	GG3325000	1317-42-6
cobalt (II) chloride	GG9800000	7646-39-9
cemented tungsten carbide (see #200 for stressors)		

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Weight loss	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Cough, other than with colds, flu or allergies	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Chest X-ray (PA)	Yes	Yes	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Decreased pulmonary function test	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards Cobalt, September 2005
2. OSHA Chemical Sampling Information for Cobalt, March 2007
3. OSHA Occupational Safety and Health Guideline for Cobalt Metal, Dust, and Fume (as Co)
4. ATSDR ToxFAQs—Cobalt, April 2004
5. NIOSH Workplace Hazard and Health Topics: Cobalt

REVIEWED: October 2014

CRESOL **135**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
cresol (o, m, p-mixture)	GO5950000	1319-77-3
m-cresol	GO6125000	108-39-4
o-cresol	GO6300000	95-48-7
p-cresol	GO6475000	106-44-5
2,6-ditert-butyl-p-cresol	GO7875000	128-37-0
4,4'-thiobis(6-tert-butyl-m-cresol)	GP3150000	96-69-5

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Hepatitis or jaundice	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Nausea or vomiting	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Coughing up blood (hemoptysis)	Yes	Yes	No
Cough, other than with colds, flu or allergies	Yes	Yes	No
Liver disease	Yes	Yes	No
Kidney disease	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Exposure to respiratory irritants	Yes	Yes	No
BUN	Yes	Yes	No
Creatinine	Yes	Yes	No
AST	Yes	Yes	No
Bilirubin, Total	Yes	No	No
Alkaline phosphatase	Yes	No	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No
Urine nitrite	Yes	Yes	No
Urine RBCs	Yes	Yes	No
Urine WBCs	Yes	Yes	No
Chest X-ray (PA)	Yes	No	No
Respiratory system	Yes	Yes	No
Liver	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Medical clearance for respiratory use may be required.

*AST for baseline is included in baseline liver profile. Only AST is required on annual basis.

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards Cresols, September 2005
2. OSHA Safety and Health Guideline for Phenol and Cresol, 2008
3. ATSDR ToxFAQs—Cresol, November 2008
4. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Cresol, 1978
5. EPA Air Toxics Hazard Summary: Cresol, January 2000

REVIEWED: April 2011

1,2 DIBROMO-3-CHLOROPROPANE (DBCP) 137

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
1,2-dibromo-3-chloropropane	TX8750000	96-12-8

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Mucosal irritation	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Problems with balance or coordination	Yes	Yes	Yes
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	Yes
Estrogen, serum total	Yes	Yes	Yes
FSH, serum	Yes	Yes	Yes
LH, serum	Yes	Yes	Yes
Sperm count	Yes	Yes	Yes
Body habitus	Yes	Yes	Yes
HEENT	Yes	Yes	Yes
Mucous membranes	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Check for testicle size or atrophy	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Use of 1,2-dibromo-3-chloropropane (DBCP) as a fumigant in the U.S. has been banned by the EPA. Limited manufacturing may still be occurring.

Medical surveillance is to be made available in regulated areas and to workers exposed to DBCP in emergency situations. The OSHA standard on DBCP does not apply to: 1) exposure to DBCP which results solely from the application and use of DBCP as a pesticide; or 2) the storage, transportation, distribution, or sale of DBCP in intact containers sealed in such a manner as to prevent exposure to DBCP vapors or liquids.

All medical examinations and procedures shall be performed by or under the supervision of a licensed physician.

Per 29 CFR 1910.1044, following exposure in an emergency situation the employer shall provide the employee with a sperm count test as soon as practicable, or, if the employee has a history of vasectomy or is unable to produce a semen specimen, the hormone tests contained in paragraph (m)(2)(iii) of this section. The employer shall provide these same tests at a **three** month follow-up.

In addition, if the employee for any reason develops signs or symptoms commonly associated with exposure to DBCP, the employer shall provide the employee with a medical examination which shall include those elements considered appropriate by the examining physician, in accordance with paragraph 1910.1044(m)(3).

REFERENCE:
1. OSHA STANDARD 29 CFR 1910.1044
2. 29 CFR 1926.1144 1,2-dibromo-3-chloropropane.
3. HAZ-MAP at National Library of Medicine
4. ATSDR ToxFAQs 1,2-Dibromo-3-Chloropropane, 1995

REVIEWED: April 2011

3,3'-DICHLOROBENZIDINE **138**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
3,3' dichlorobenzidine	DD0525000	91-94-1

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Problems with urination or blood in urine	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. OSHA STANDARD 29 CFR 1910.1003
2. 29 CFR 1926.1103
3. Former standard 29 CFR 1910.1007. HAZ-MAP at National Library of Medicine
4. ATDSR ToxFAQs -3,3'-Dichlorobenzidine, June 1999

REVIEWED: February 2009

4-DIMETHYLAMINOAZOBENZENE **139**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
4-dimethylaminoazobenzene	BX7350000	60-11-7

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Problems with urination or blood in urine	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Physician’s or provider’s written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. OSHA STANDARD 29 CFR 1910.1003
2. 29 CFR 1926.1103
3. Former standard 29 CFR 1910.1015.
4. HAZ-MAP at National Library of Medicine

REVIEWED: April 2011

DINITRO-ORTHO-CRESOL **140**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
dinitro-o-cresol	GO9625000	534-52-1

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Use of nitrate medication (nitroglycerine)	Yes	Yes	No
Weight loss	Yes	Yes	No
Glaucoma	Yes	Yes	No
Liver disease	Yes	Yes	No
Kidney disease	Yes	Yes	No
Thyroid disease (including heat or cold intolerance)	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Exposure to dusts (coal, blast grit, sand, nuisance)	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No
Urine nitrite	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Urine RBCs	Yes	Yes	No
Urine WBCs	Yes	Yes	No
Metabolic disturbance (fever, tachycardia)	Yes	Yes	No
Eyes	Yes	Yes	No
Mucous membranes	Yes	Yes	No
Thyroid	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Respiratory system	Yes	Yes	No
Abdomen	Yes	Yes	No
Liver	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
72 hour observation by medical attendants required in all cases of splashes, spills or leaks where significant skin or eye contact with or inhalation of materials occurs. Weekly sampling and analysis of workers blood for DNOC content required during period of expected exposure in the following agriculturally related occupations: mixers, loaders, ground and aerial applicators, and flaggers.

REFERENCE:

1. NIOSH Criteria for a Recommended Standard. Occupational Safety and Health Guideline for Dinitro-ortho-cresol
2. NIOSH Pocket Guide, Dinitro-ortho-cresol September 2005
3. Hayes WJ, Pesticides Studied in Man, Baltimore: Williams and Wilkins; 1982:466-470.
4. HAZ-MAP at National Library of Medicine

REVIEWED: September 2009

DIOXANE **141**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
dioxane	JG8225000	123-91-1

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Hepatitis or jaundice	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Coughing up blood (hemoptysis)	Yes	Yes	No
Liver disease	Yes	Yes	No
Kidney disease	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
BUN	Yes	Yes	No
Creatinine	Yes	Yes	No
AST	Yes	Yes	No
Bilirubin, Total	Yes	Yes	No
Alkaline phosphatase	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No
Urine nitrite	Yes	Yes	No
Urine RBCs	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Urine WBCs	Yes	Yes	No
Nasal mucosa (septal perforation)	Yes	Yes	No
Mucous membranes	Yes	Yes	No
Respiratory system	Yes	Yes	No
Liver	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Nares exam is recommended in NIOSH std.

REFERENCE:
1. NIOSH Criteria for a Recommended Standard. Occupational Exposure to Dioxane,
2. HAZ-MAP at National Library of Medicine

REVIEWED: June 2008

EPICHLOROHYDRIN **142**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
epichlorohydrin	TX4900000	106-89-8

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
BUN	Yes	Yes	Yes
Creatinine	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	No	Yes
Alkaline phosphatase	Yes	No	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Chest X-ray (PA)	Yes	No	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	Yes
Eyes	Yes	Yes	Yes
Mucous membranes	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Kidneys	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. Occupational exposure to Epichlorohydrin, DHHS Pub. No. 76-206
2. NIOSH Current Intelligence Bulletin -30: Epichlorohydrin
3. HAZ-MAP at National Library of Medicine

REVIEWED: April 2011

ETHOXY AND METHOXY ETHANOL **143**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
2-ethoxyethanol	K8050000	110-80-5
2-methoxyethanol	KL5775000	109-86-4

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Kidney disease	Yes	Yes	No
Current pregnancy (females only)	Yes	Yes	No
Infertility or miscarriage (self or spouse)	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	No
RBC	Yes	Yes	No
WBC	Yes	Yes	No
HGB	Yes	Yes	No
MCV	Yes	Yes	No
MCH	Yes	Yes	No
MCHC	Yes	Yes	No
BUN	Yes	Yes	Yes
Creatinine	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine - 24-hour urine calcium	Yes	Yes	Yes
Urine - End-of-shift, end of work week urine samples for 2-ethoxyacetic acid in mg/g creatinine	Yes	Yes	Yes
Check for testicle size or atrophy	Yes	Yes	No
Testes	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. Occupational Safety and Health Guideline for 2-Ethoxyethanol
2. The Glycol Ethers, with Particular Reference to 2-Methoxyethanol and 2-Ethoxyethanol: Evidence of Adverse Reproductive Effects, NIOSH Current Intelligence Bulletin 39
3. HAZ-MAP 2-Ethoxyethanol
4. HAZ-MAP 2-Methoxyethanol
5. HAZ-MAP Glycol Ethers

REVIEWED: May 2014

ETHYLENE DIBROMIDE **145**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
ethylene dibromide	KH9275000	106-93-4

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Eye irritation or blurred vision	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
BUN	Yes	Yes	Yes
Creatinine	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes
Eyes	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Cardiovascular system	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Kidneys	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH Criteria for a Recommended Standard Occupational exposure to Ethylene Dibromide, NIOSH Pub. No. 77-221
2. HAZMAP Ethylene Dibromide
3. EXTOXNET Ethylene Dibromide
4. Medical Management Guidelines (ATSDR) Ethylene Dibromide

REVIEWED: February 2011

ETHYLENE DICHLORIDE **146**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
ethylene dichloride	KI0525000	107-06-2

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Weight loss	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
RBC	Yes	Yes	Yes
WBC	Yes	Yes	Yes
HGB	Yes	Yes	Yes
MCV	Yes	Yes	Yes
MCH	Yes	Yes	Yes
MCHC	Yes	Yes	Yes
Neutrophils	Yes	Yes	Yes
Lymphocytes	Yes	Yes	Yes
Monocytes	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Eosinophils	Yes	Yes	Yes
Basophils	Yes	Yes	Yes
BUN	Yes	Yes	Yes
Creatinine	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	No	Yes
Alkaline phosphatase	Yes	No	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Chest X-ray (PA)	Yes	No	Yes
Eyes	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided

PROVIDER COMMENTS:
Ethylene dichloride is a central nervous system depressant and causes injury to the liver and kidneys. Animal studies indicate that it has little ability to adversely affect the reproductive or developmental processes except at maternally toxic levels.

Medical Clearance for respirator use may be required

Sentinel Health Events (SHE) include:

1. Contact and/or allergic dermatitis

2. Toxic hepatitis is recognized as delayed onset of SHE's and is associated with occupational exposure

REFERENCE:

1. NIOSH Criteria for a Recommended Standard Occupational exposure to Ethylene Dichloride, NIOSH Pub. No. 78-211, September 1978
2. OSA Guideline for Ethylene Dichloride 1988
3. HAZMAP – Ethylene Dichloride

REVIEWED: February 2011

ETHYLENEIMINE **149**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
ethyleneimine	KX5075000	151-56-4

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Eye irritation or blurred vision	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	No	Yes
Alkaline phosphatase	Yes	No	Yes
Chest X-ray (PA)	Yes	No	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	Yes
Eyes	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Kidneys	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Physician’s or provider’s written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
*AST for baseline is included in baseline liver profile. Only AST is required on annual basis.

REFERENCE:
1. NIOSH OSH Pocket Guide to Ethylenimine, September 2005
2. OSHA STANDARD 29 CFR 1910.1003. Former standard 29 CFR 1910.1012.
3. 29 CFR 1926.1103
4. HAZ-MAP - Ethylenimine

REVIEWED: February 2011

ETHYLENE OXIDE **148**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
ethylene oxide (EtO)	KX2450000	75-21-8

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Difficulty breathing	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Nausea or vomiting	Yes	Yes	Yes
Eye irritation or blurred vision	Yes	Yes	Yes
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Problems with balance or coordination	Yes	Yes	Yes
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes
Unexplained fatigue	Yes	Yes	Yes
Exposure to chemotherapeutic or antineoplastic agents	Yes	Yes	Yes
Exposure to anesthetic gases	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
RBC	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
WBC	Yes	Yes	Yes
HGB	Yes	Yes	Yes
MCV	Yes	Yes	Yes
MCH	Yes	Yes	Yes
MCHC	Yes	Yes	Yes
HCT	Yes	Yes	Yes
Lymphocytes	Yes	Yes	Yes
Monocytes	Yes	Yes	Yes
Eosinophils	Yes	Yes	Yes
Basophils	Yes	Yes	Yes
Retic count	Yes	Yes	Yes
Platelets	Yes	Yes	Yes
Eyes	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	Yes
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided

PROVIDER COMMENTS:
Per reference (1), the content of the medical examination shall be determined by the examining physician, and shall include pregnancy testing or laboratory evaluation of fertility, if requested by the employee and deemed appropriate by the physician.

Periodicity may be more frequently than annual if deemed appropriate by the physician.

OSHA Standard requires a provider's Written Opinion (PWO). A sample PWO can be found in Physician's/Provider's Written Opinion Samples of the Medical Matrix and reference (1) Appendix C.

Workers in EtO surveillance generally also will be enrolled in the respiratory protection program.

Refer to reference (1) for exams required following acute exposure or for exams with positive findings.

REFERENCE:

1. 29 CFR 1910.1047.
2. 29 CFR 1926.1147 (applies to construction, and only refers back to 29 CFR 1910.1047)
3. NIOSH Current Intelligence Bulletin -35, Ethylene Oxide, 1981
4. HAZ-MAP – Ethylene Oxide
5. OSHA Safety and Health Topics Ethylene Oxide

REVIEWED: December 2014

FLUORIDES (INORGANIC) **150**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
fluorides	LM6290000	16984-48-8
calcium fluoride	EW1760000	7789-75-5
carbonyl fluoride	FG6125000	353-50-4
perchloryl fluoride	SD1925000	7616-94-6
sulfuryl fluoride	WT5075000	2699-79-8
fluorine	LM6475000	7782-41-4
hydrofluoric acid	MW7875000	7664-39-3
See Chemical Stressors List in references for additional compounds		

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Hepatitis or jaundice	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Yes	No
Kidney disease	Yes	Yes	No
Muscle or joint problems, rheumatism, or arthritis	Yes	Yes	No
Exposure to hydrogen fluoride or inorganic fluorides	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Urine Fluoride - post shift	Yes	*	No

EXAM ELEMENT	BASE	PERI	TERM
Chest X-ray (PA)	Yes	No	No
Eyes	Yes	Yes	No
Mucous membranes	Yes	Yes	No
Teeth (acid erosion)	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
A preplacement spot urine fluoride is obtained for a baseline as an indicator of body burden.

Medical Clearance for respirator use may be required.

*At the time of the periodic examination, evaluate the need to perform a urine fluoride test. Post shift examination of the urine fluoride reflects recent exposure (in the preceding hours) and is not useful for biological monitoring if the employee has not been exposed to fluoride. The best time to obtain the urine specimen is at the end of a work week after the employee has been involved in tasks with fluoride exposure during that week. Because of the episodic exposure of most employees, the laboratory work obtained for the annual medical surveillance may not coincide with an exposure period. Ideally, the biological monitoring should be collected at the same time the Industrial Hygienist collects environmental samples.

REFERENCE:
1. Federal Register volume 66, Number 172, September 5, 2001
2. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Inorganic Fluorides, 1975
3. Advanced Inorganic Fluorides: Synthesis, Characterization and Applications, (Nakajima et al, 2000)
4. American Journal of Pathology: Inorganic fluoride. Divergent effects on human proximal tubular cell viability (Zager and Iwata, 1997)
5. HAZ-MAP FLUORIDES
6. Chemical Stressors List

REVIEWED: February 2011

FORMALDEHYDE **151**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
formaldehyde	LP8925000	50-00-0

Program Frequency: Annual*

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Contact lens use	Yes	Yes	Yes
Eye irritation or blurred vision	Yes	Yes	Yes
Swelling in legs or feet (not caused by walking)	Yes	Yes	Yes
Coughing up blood (hemoptysis)	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	Yes
Prior respirator use	Yes	Yes	Yes
Any problems with prior respirator use	Yes	Yes	Yes
Exposure to formaldehyde	Yes	Yes	Yes
Chest X-ray (PA)	Yes	**	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes
Eyes	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Nasal mucosa (septal perforation)	Yes	Yes	Yes
Mucous membranes	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
The employer shall institute medical surveillance programs for all employees exposed to formaldehyde at concentrations at or exceeding the action level (0.5 ppm calculated as an 8-hour TWA) or exceeding the STEL (2 ppm as a 15-minute STEL). The employer shall make medical surveillance available for employees who develop signs and symptoms of overexposure to formaldehyde and for all employees exposed to formaldehyde in emergencies.

Respirators must be used during work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce employee exposure to or below the PEL (0.75 ppm as an 8-hour TWA). The OSHA standard requires an annual medical examination, including spirometry, for all workers whose exposure requires use of respirators for protection. For those workers whose exposure does not require a respirator, the examiner shall review the medical and work history and determine whether an examination is required.

Examinations are required for employees exposed to formaldehyde in an emergency. The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation for the purpose of medical removal or restriction. Refer to 29 CFR 1910.1048, Appendix C.

For those employees getting spirometry as part of their medical surveillance examination, the OSHA standard states that the spirometry should include, at a minimum, FVC, FEV1, and FEF (Forced Expiratory Flow).

The OSHA standard does not REQUIRE a Chest X-Ray as part of Formaldehyde medical surveillance. Examining physicians should use clinical judgment to decide whether to order/ perform chest x-ray (see Appendix C of the OSHA standard).

Diseases associated with exposure to this agent include: Occupational Asthma, Allergic Contact Dermatitis and Acute Pneumonitis

Formaldehyde is sold commercially as formalin, a colorless liquid with a pungent odor, in aqueous solutions of 37%, 44%, or 50%.

A Physician's/provider's Written Opinion is required by OSHA Standard. A sample Physician's/ provider's Written Opinion can be found at the end of this manual.

*Frequency determined by examining physician

**See provider comments

REFERENCE:

1. 29 CFR 1910.1048, Appendix C
2. 29 CFR 1910.1048 Safety and Health Topics Formaldehyde
3. 29 CFR 1226.1148
4. Haz Map
5. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
6. ATSDRToxicological Profile for Formaldehyde

REVIEWED: February 2011

FREON (HALOALKANE) WORKERS **718**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
1,1,2-trichloro-1,2,2,-trifluoroethane (Freon - 113)	KJ4000000	76-13-1
Trichlorofluoromethane		75-69-4
1,2-dichloro-1,1,2,2-tetrafluoroethane		76-14-2
1-chloro-1,1-difluroethane		75-68-3
1,2-dibromotetrafluoroethane		124-73-2
Dichlorodifluoromethane		75-71-8

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No

PROGRAM DESCRIPTION:

Workers exposed to FC-113 at or above the action level, i.e., one half or more of the permissible exposure limits (8-hour TWA) for more than 30 days a year or 10 days a quarter, should be placed in a medical surveillance program and scheduled for annual examinations. Workers should have a preplacement examination if they do not fit the criteria for placement in the medical surveillance program but have potential exposure to FC-113 above the Short Term Exposure Limit (STEL).

PROVIDER COMMENTS:
A limited number of haloalkane compounds have cardiac sensitizing effects. Interval history should stress intake of oral medications with cardiac sensitizing effects (epinephrine, norepinephrine, dopamine, isoproterenol and other sympathomimetic drugs used by asthmatics).

REFERENCE:
1. Commander, Naval Sea Systems Command letter, 4734/9210 Ser 06C13C/1117 of 29 Oct 85
2. Federal Register 54 FR 2539-2541 Jan 19, 1989
3. TOXNET listing of Freon chemical names
4. EPA: Chemicals in the Environment: Freon-113

REVIEWED: January 2011

GLYCIDYL ETHERS **152**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
resorcinol diglycidyl ether	VH1050000	101-90-6
oxirane, (2-propenyloxy)methyl (allyl glycidyl ether)	RR0875000	106-92-3
propane, 1,2-epoxy-3-isopropyl	TZ3500000	4016-14-2
ether, bis (2,3-epoxy propyl)	KN2350000	2238-07-5
propane, 1,2-epoxy-3-phenoxy	TZ3675000	122-60-1
propane, 1-butoxy-2,3-epoxy	TX4200000	2426-08-6
1-propanol,2,3-epoxy (glycidol)	UB4375000	556-52-5

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Infertility or miscarriage (self or spouse)	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Eyes	Yes	Yes	No
Nose	Yes	Yes	No
Mucous membranes	Yes	Yes	No
Throat	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards Glycidol, September 2005
2. OSHA Chemical Sampling Information Allyl glycidyl ether
3. Current Intelligence Bulletin-Glycidyl Ethers October 1978
4. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational
5. American Thoracic Society

REVIEWED: February 2011

HYDRAZINES **155**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
1,1-dimethylhydrazine	MV2450000	57-14-7
hydrazine	MV7175000	302-01-2
phenylhydrazine	MV8925000	100-63-0
methyl hydrazine	MV5600000	60-34-4

See Chemical Stressors List for additional compounds

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Eye irritation or blurred vision	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes
Thyroid disease (including heat or cold intolerance)	Yes	Yes	Yes
Exposure to chemotherapeutic or antineoplastic agents	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
RBC	Yes	Yes	Yes
WBC	Yes	Yes	Yes
HGB	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
MCV	Yes	Yes	Yes
MCH	Yes	Yes	Yes
MCHC	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	No	Yes
Alkaline phosphatase	Yes	No	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Chest X-ray (PA)	Yes	No	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	Yes
Eyes	Yes	Yes	Yes
Thyroid	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
The potential for worker exposure is primarily through inhalation and skin absorption. Liquid in the eyes or on the skin causes severe burns. Hydrazine as the vapor or liquid is a severe skin and mucous membrane irritant, a convulsant, a hepatotoxin, and a carcinogen in animals (1).

Diseases associated with exposure to this agent include: Allergic Contact Dermatitis and Acute Pneumonitis.

EMERGENCY NOTE:

(1) Exposure to high quantities of this agent can result in severe illness or death with some effects taking hours or days to materialize. In acute over-exposure situations, evaluation should take place in a setting where staff is able to assess and respond rapidly to life-threatening organ failure.

(2) Specific antidote to CNS effects, e.g. seizures, is pyridoxine (vitamin B6)

REFERENCE:
1. NIOSH Pocket Guide to Chemical Hazards Hydrazines, September 2005

2. OSHA Chemical Sampling Information Methyl Hydrazine
3. ATSDR ToxFAQs—Hydrazines, September 1997
4. Public Health Statement ATSDR—Hydrazines, 1997
5. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Hydrazines, 1978
6. Haz Map
7. Chemical Stressors List

REVIEWED: February 2011

HYDROGEN CYANIDE/CYANIDE SALTS **156**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
hydrogen cyanide and cyanide salts	MW6825000	74-90-8
cyanides	GS7175000	57-12-5
cyanamide	GS5950000	420-04-2
cyanogen	GT1925000	460-19-5
cyanogen chloride	GT2275000	506-77-4
calcium cyanamide	GS6000000	156-62-7
methacrylonitrile	UD1400000	126-98-7
methyl 2-cyanoacrylate	AS7000000	137-05-3
silver cyanide	VW3850000	506-64-9
calcium cyanide	EW0700000	592-01-8
potassium cyanide	TS8750000	151-50-8
sodium cyanide	VZ7525000	143-33-9

See Chemical Stressors List for additional compounds

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Nausea or vomiting	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Tremor (shakiness) or loss of sensation/feeling	Yes	Yes	No
Thyroid disease (including heat or cold intolerance)	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Chest X-ray (PA)	Yes	No	No
Mucous membranes	Yes	Yes	No
Thyroid	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards Hydrogen Cyanide, September 2005
2. OSHA Safety and Health Guideline for Hydrogen cyanide--1995
3. CDC Emergency Response Safety and Health Database—Hydrogen cyanide, August 2008
4. ATSDR Medical Management Guidelines for Hydrogen Cyanide, 2007
5. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Hydrogen Cyanide and Cyanide Salts, 1976
6. Chemical Stressors List

REVIEWED: February 2011

HYDROGEN SULFIDE **158**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
hydrogen sulfide	MX1225000	7783-06-4

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Weight loss	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Epilepsy or seizures	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Tremor (shakiness) or loss of sensation/feeling	Yes	Yes	No
Mental or emotional illness	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Personality or behavior change	Yes	Yes	No
Chest X-ray (PA)	Yes	No	No
Eyes	Yes	Yes	No
Respiratory system	Yes	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Medical clearance for respirator may be required

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards Hydrogen Sulfide, September 2005
2. OSHA Safety and Health e-Tool Oil and Gas Drilling and Servicing Physical Properties and Physiological Effects of Hydrogen Sulfide, January 2009
3. ATSDR Medical Management Guidelines for Hydrogen Sulfide, February 2009
4. NIOSH Criteria Documents Comprehensive Safety Recommendations for Land-Based Oil and Gas Well Drilling, 1983

REVIEWED: February 2011

HYDROQUINONE (DIHYDROXY BENZENE) **159**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
hydroquinone	MX3500000	123-31-9

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Vision screen (visual acuity)	Yes	Yes	No
Slit lamp exam	Yes	Yes	No
Eyes	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Hydroquinone primarily affects the eyes. Chronic exposure produces changes characterized as: brownish discoloration of the conjunctiva and cornea confined to the interpalpebral tissue; small opacities of the cornea; and structural changes in the cornea that result in loss of visual acuity. Annual slit lamp exam is recommended to evaluate corneal and conjunctival changes and opacities (3).

Allergic Contact Dermatitis has been associated with exposure to Hydroquinone.

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards Hydroquinone, September 2005
2. OSHA Exposure limits and symptoms of Hydroquinone, acetic acid, and glutaraldehyde exposure. 1998
3. NIOSH Criteria Documents Comprehensive Safety Recommendations for Occupational Exposure to Hydroquinone, 1978
4. Haz-Map: Hydroquinone

REVIEWED: November 2010

ISOCYANATES **196**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
benzene,2,4-diisocyanato-1-methyl	CZ6300000	584-84-9
hexamethylene, 1,6-diisocyanate	MO1740000	822-06-0
isocyanic acid, methylene-diphenelene ester	NQ9350000	101-68-8
isocyanic acid, 1,5-napthylene ester	NQ9600000	3173-72-6
s-triazine-2,4,6-triol	XZ1800000	108-80-5
isocyanic acid, methylene(3,5,5-trimethyl 3 cyclohexylene) ester	NQ9370000	4098-71-9
isocyanic acid, methylenedi-4,1-cyclohexylene-ester	NQ9250000	5124-30-1

See Chemical Stressors List for additional compounds

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Wheezing	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Cough, other than with colds, flu or allergies	Yes	Yes	No
Problems with balance or coordination	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Exposure to isocyanate foam or paint	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Sensitization to isocyanates (TDI, MDI)	Yes	Yes	No
Chest X-ray (PA)	Yes	No	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Pulmonary function changes secondary to isocyanate exposure tend to occur at the end of the work-shift of work-week of exposure. The PFT, therefore, is of most use when performed at such end of work-shift times.

REFERENCE:

1. NIOSH SAFETY AND HEALTH TOPIC: ISOCYANATES. Multiple informational sites listed under this main web site;
2. NIOSH Pocket Guide to Chemical Hazards, current edition.
3. ATSDR - ToxFAQs™: Methyl Isocyanate
4. HAZMAP
5. Chemical Stressors List

REVIEWED: May 2014

LATEX **310**

Program Frequency: Baseline Only

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	No	No
Has anything about your health status changed since your last examination	Yes	No	No
Have any medications changed since your last exam	Yes	No	No
Major illness or injury	Yes	No	No
Hospitalization or surgery	Yes	No	No
Cancer	Yes	No	No
Back injury	Yes	No	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	No	No
Have you ever smoked	Yes	No	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	No	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	No	No
Current medication use (prescription or over the counter)	Yes	No	No
Medication allergies	Yes	No	No
Any reproductive health concerns	Yes	No	No
Allergies (asthma, hay fever, eczema)	Yes	No	No
Have you ever been evaluated for latex allergy	Yes	No	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	No	No
Recurrent skin rash	Yes	No	No
Adverse reaction to eating any vegetable or fruit	Yes	No	No
Frequent dental or medical procedures or any condition that resulted in multiple procedures, operations, or chronic medical instrumentation (for example, urinary catherization)	Yes	No	No
Anaphylaxis (anaphylatctic shock) or hives	Yes	No	No
Itchy eyes, runny nose, respiratory symptoms when using latex gloves	Yes	No	No
Regular contact with latex gloves or other rubber products	Yes	No	No
Are any abnormalities related to exposures/occupations	Yes	No	No

PROGRAM DESCRIPTION:
Elements of this program are already included in the Health Care Worker Program (719)

PROVIDER COMMENTS:
None provided.

REFERENCE:
1. BUMEDINST 6200.16(series), Prevention of Latex Sensitization Among Health Care Workers and Patients

REVIEWED: January 2015

LEAD (INORGANIC) **161**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
lead (inorganic)	OF7525000	7439-92-1
chromic acid, lead (2+) salt	GB2975000	7758-97-6
lead phosphate (3:2)	OG3675000	7446-27-7

Program Frequency: Every 6 months*

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	No	Yes
Has anything about your health status changed since your last examination	Yes	No	Yes
Have any medications changed since your last exam	Yes	No	Yes
Major illness or injury	Yes	No	Yes
Hospitalization or surgery	Yes	No	Yes
Cancer	Yes	No	Yes
Back injury	Yes	No	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	No	Yes
Have you ever smoked	Yes	No	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	No	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	No	Yes
Current medication use (prescription or over the counter)	Yes	No	Yes
Medication allergies	Yes	No	Yes
Any reproductive health concerns	Yes	No	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	No	Yes
Headache, dizziness, light headedness, weakness	Yes	No	Yes
Weight loss	Yes	No	Yes
Change or loss of vision in either eye	Yes	No	Yes
Change or loss in hearing	Yes	No	Yes
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	No	Yes
Frequent pain or tightness in your chest	Yes	No	Yes
Chronic abdominal pain, vomiting, other GI symptoms	Yes	No	Yes
Kidney disease	Yes	No	Yes
Current pregnancy (females only)	Yes	No	Yes
Impotence or sexual dysfunction	Yes	No	Yes
Infertility or miscarriage (self or spouse)	Yes	No	Yes
Numbness, tingling, or weakness in hands or feet	Yes	No	Yes
Unexplained fatigue	Yes	No	Yes
Sleep disorder, breathing pauses while sleeping, sleep apnea, loud snoring, insomnia, daytime sleepiness	Yes	No	Yes
Depression, difficulty concentrating, excessive anxiety	Yes	No	Yes
Personality or behavior change	Yes	No	Yes
Muscle or joint problems, rheumatism, or arthritis	Yes	No	Yes

EXAM ELEMENT	BASE	PERI	TERM
Difficulty breathing while fitting or using a respirator	Yes	No	Yes
RBC	Yes	No	Yes
WBC	Yes	No	Yes
HGB	Yes	No	Yes
MCV	Yes	No	Yes
MCH	Yes	No	Yes
MCHC	Yes	No	Yes
BUN	Yes	No	Yes
Creatinine	Yes	No	Yes
Lead, whole blood	Yes	Yes	Yes
ZPP	Yes	Yes	Yes
Urine Ph	Yes	No	Yes
Urine specific gravity	Yes	No	Yes
Urine urobilinogen	Yes	No	Yes
Urine protein	Yes	No	Yes
Urine glucose	Yes	No	Yes
Urine ketones	Yes	No	Yes
Urine blood	Yes	No	Yes
Urine nitrite	Yes	No	Yes
Urine RBCs	Yes	No	Yes
Urine WBCs	Yes	No	Yes
Head	Yes	No	Yes
Eyes	Yes	No	Yes
Ears (tympanic membranes)	Yes	No	Yes
Nose	Yes	No	Yes
Gums (e.g., lead lines)	Yes	No	Yes
Throat	Yes	No	Yes
Cardiovascular system	Yes	No	Yes
Abdomen	Yes	No	Yes
Central nervous system	Yes	No	Yes
Peripheral nervous system (strength, sensation, DTRs)	Yes	No	Yes
Physician’s or provider’s written opinion required	Yes	No	Yes

PROGRAM DESCRIPTION:

A baseline examination is required prior to assignment to a position involving potential exposures to lead that equal or exceed the action level.

A termination examination identical in scope to the baseline will be conducted just prior to the reassignment or termination of a person from a job requiring medical surveillance, unless a medical evaluation was done within the past twelve (12) months.

Guidelines for medical removal and follow-up, including written notification, are very specific. See 29 CFR 1910.1025, Appendix C

PROVIDER COMMENTS:
A Physician's/provider's Written Opinion is required by the OSHA Standard. A sample Physician's/provider's Written Opinion can be found in Chapter 10 of the Medical Matrix.

This program consists of; preplacement medical examination, semiannual blood lead monitoring, and follow-up medical evaluations and blood lead analysis based on the results of blood lead analysis and physician opinion. Personnel are included in this program when industrial hygiene surveillance indicates that they perform work or are likely to be in the vicinity of an operation which generates airborne lead concentrations at or above the Action Level 30 days per year. Inclusion in this program is based on measured airborne concentrations without regard to respirator use, and therefore does not indicate that an individual is overexposed to lead.

Diseases associated with exposure to this agent include: acute hemolytic anemia, subacute hemolytic anemia, occupational asthma, infertility (male), lead (subacute toxic effect) and toxic neuropathy.

*A medical examination identical in scope to the baseline will be conducted annually for each person found to have a blood lead concentration at or above 30 ug/100gm at any time during the prior year.

REFERENCE:

1. 29 CFR 1910.1025—Lead
2. OSHA 1910.1025A-- Substance data sheet for occupational exposure to lead
3. OPNAVINST 5100.23 (current series), Chapter 21
4. OPNAVINST 5100.19 (current series), Chapter B10.x
5. Industrial Hygiene Sampling Guide Consolidated Industrial Hygiene Laboratories, Current Edition.
6. Federal Registers Notice of Availability of the Regulatory Flexibility Act Review of the Occupational Safety Standard for Lead in Construction - 72:54826-54830 September 2007
7. NIOSH Pocket Guide to Chemical Hazards Lead, September 2005
8. ATSDR ToxFAQs—Lead, January 2006
9. ATSDR Case Studies in Environmental Medicine—Lead Toxicity, 2005
10. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Inorganic Lead 1978
11. 29 CFR 1910.1025, Appendix C

REVIEWED: November 2010

MANGANESE OXIDE FUMES **210**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
manganese (and compounds)	OO9275000	7439-96-5

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Cough, other than with colds, flu or allergies	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Tremor (shakiness) or loss of sensation/feeling	Yes	Yes	No
Mental or emotional illness	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Personality or behavior change	Yes	Yes	No
Exposure to dusts (coal, blast grit, sand, nuisance)	Yes	Yes	No
Chest X-ray (PA)	Yes	No	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Respiratory system	Yes	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards Manganese compounds and fume, September 2005
2. OSHA 29 CFR 1926.55 App A Gases, vapors, fumes, dusts, and mists.
3. American Society of Safety Engineers

REVIEWED: December 2014

MERCURY **163**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
mercury (aryl and inorganic compounds)	OV4550000	7439-97-6
mercury (alkyl compounds)	OV4550000	7439-97-6
chloroethyl mercury	OV9800000	107-27-7
mercury (vapor)	OV4550000	7439-97-6

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Weight loss	Yes	Yes	Yes
Tooth or gum disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Problems with balance or coordination	Yes	Yes	Yes
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes
Tremor (shakiness) or loss of sensation/feeling	Yes	Yes	Yes
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	Yes
Personality or behavior change	Yes	Yes	Yes
RBC	Yes	Yes	Yes
WBC	Yes	Yes	Yes
HGB	Yes	Yes	Yes
MCV	Yes	Yes	Yes
MCH	Yes	Yes	Yes
MCHC	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Neutrophils	Yes	Yes	Yes
Lymphocytes	Yes	Yes	Yes
Monocytes	Yes	Yes	Yes
Eosinophils	Yes	Yes	Yes
Basophils	Yes	Yes	Yes
BUN	Yes	Yes	Yes
Creatinine	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Urine Mercury (Hg)	Yes	Yes	Yes
Eyes	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Kidneys	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
The primary basis for this program is the OSHA General Duty Clause (reference (4)) and NIOSH recommendations (reference (1)). Although OSHA does not have a separate Mercury Program (for example, as with asbestos), it does have a Permissible Exposure Limit (PEL), set at 0.1 mg/m^3, and has issued an Instruction regarding mercury (reference (5)).

PROVIDER COMMENTS:
Urine mercury levels can be performed on spot urine collections, but should be corrected to creatinine level.

Per reference (6), “medical surveillance and biological monitoring is not required for personnel working in dental spaces, but may be prescribed by an occupational health professional as circumstances warrant.”

Acute exposure to high concentrations of mercury vapor causes severe respiratory damage, whereas chronic exposure to lower levels is primarily associated with central nervous system damage. Acute mercury poisoning can occur from inhalation of high concentrations of mercury vapor or dust. If the concentration of mercury vapor is high enough, the exposure will result in tightness and pain in the chest, difficulty in breathing, coughing, and shortly thereafter, a metallic taste, nausea, abdominal pain, vomiting diarrhea, headache, and occasionally albuminuria.

With chronic exposure to mercury vapor, early signs are nonspecific and include weakness, fatigue, anorexia, loss of weight, and disturbances of gastrointestinal function. At higher exposure levels, a characteristic mercurial tremor appears. Personality changes are the most common findings in chronic mercurial poisoning. Symptoms may first occur after a very few weeks of exposure, or they may not become apparent for several years. It has been estimated that the probability of manifesting typical mercurialism with tremor and behavioral changes will increase with exposures to concentrations of 0.1mg/m^3 or higher. There is no evidence of effects at concentrations below 0.01 mg/m^3.

REFERENCE:

1. NIOSH Occupational Health Guideline for Inorganic Mercury, DHHS Pub. No. 73-11024
2. OSHA
3. Haz-Map: Mercury
4. OSH Act of 1970 - Table of Contents Sec. 5. Duties (a). (page last accessed 10-21-2015)
5. CPL 2-2.6 OSHA Instruction October 30, 1978, OSHA Program Directive -300-2 (page last accessed 10-21-2015)
6. BUMEDINST 6260.30B Mercury Control Program for Dental Treatment Spaces, 15 Oct 2015

REVIEWED: February 2011

METHYL BROMIDE **215**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
methyl bromide	PA4900000	74-83-9

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Difficulty breathing	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Nausea or vomiting	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Epilepsy or seizures	Yes	Yes	No
Problems with balance or coordination	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Tremor (shakiness) or loss of sensation/feeling	Yes	Yes	No
Mental or emotional illness	Yes	Yes	No
Personality or behavior change	Yes	Yes	No
Neurological disorder, gait change, paresthesia, loss of coordination	Yes	Yes	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Vision screen (visual acuity)	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
Methyl bromide is a potential occupational carcinogen (Reference 1).

PROVIDER COMMENTS:
Although only baseline spirometry is required, methyl bromide can be a

respiratory irritant, and spirometry should be considered for workers with a

history of over-exposure with respiratory symptoms in the past year or if

indicated by physical findings.

The onset of respiratory distress may be delayed 4-12 hours after exposure. It is a central nervous system depressant, but may also cause convulsions.

REFERENCE:
1. NIOSH Current Intelligence Bulletin 43 Monohalomethanes, U.S. Department Of Health And Human Services, Sept.1978.

REVIEWED: October 2014

METHYL CHLOROMETHYL ETHER **166**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
chloromethyl methyl ether	KN6650000	107-30-2

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Decreased immunity	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Physician’s or provider’s written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
The examining physician shall consider whether there exists a condition of increased risk, including reduced immunological competence, treatment with steroids or cytotoxic agents, pregnancy and cigarette smoking.

Commercial grade CMME is contaminated with bis-Chloromethyl ether. Commercial grade CMME is a known human carcinogen.

REFERENCE:

1. 29 CFR 1910.1006
2. 29 CFR 1926.1103
3. Chemical Sampling Information Chloromethyl Methyl Ether, April 1993
4. IARC Monograph on the Evaluation of Carcinogenic Risks to Humans: Overall Evaluation of Carcinogenicity: An updating of IARC Monographs, Vol 1-42, Supp 7, pp 131-132. Lyon International Agency for Research on Cancer, 1987.
5. NIOSH Pocket Guide for Chemical Hazards Chloromethyl methyl ether

REVIEWED: April 2011

4,4'-METHYLENE BIS (2-CHLOROANILINE) (MOCA) (ALSO MBOCA) 167

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
4,4'-methylene bis(2-chloroaniline)	CY1050000	101-14-4

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Difficulty breathing	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Nausea or vomiting	Yes	Yes	Yes
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Unexplained fatigue	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
RBC	Yes	Yes	Yes
WBC	Yes	Yes	Yes
HGB	Yes	Yes	Yes
MCV	Yes	Yes	Yes
MCH	Yes	Yes	Yes
MCHC	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	No	Yes
Alkaline phosphatase	Yes	No	Yes
Urine Ph	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Kidneys	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Hematopoietic system (bruising, petechiae, pallor)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. OSHA Health Guideline revised 26 April 1999.
2. NIOSH: International Safety Chemical Card
3. HAZMAP

REVIEWED: May 2014

METHYLENE CHLORIDE (DICHLOROMETHANE) **168**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
methylene chloride	methylene chloride	75-09-2

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Use of nitrate medication (nitroglycerine)	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Eye irritation or blurred vision	Yes	Yes	Yes
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	Yes
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
Exposure to methylene chloride, dichloromethane, methylene dichloride	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
RBC	Yes	*	Yes
WBC	Yes	*	Yes
HGB	Yes	*	Yes
MCV	Yes	*	Yes
MCH	Yes	*	Yes
MCHC	Yes	*	Yes
AST	Yes	*	Yes
ALT	Yes	*	Yes
Bilirubin, Total	Yes	*	Yes
Alkaline phosphatase	Yes	*	Yes
Electrocardiogram	Yes	No	No
Eyes	Yes	*	Yes
Cardiovascular system	Yes	*	Yes
Respiratory system	Yes	*	Yes
Liver	Yes	*	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	*	Yes
Central nervous system	Yes	*	Yes
Physician’s or provider’s written opinion required	Yes	*	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Affected employees: Employees who are, or may be exposed to methylene chloride as follows:

1. At or above the AL on 30 or more days a year, or above the 8-hour PEL or STEL on 10 or more days per year:

2. Above the 8hr-TWA, PEL or STEL for any time period where an employee has been identified by a physician or other licensed health care professional as being at risk from cardiac disease or from some other serious methylene chloride-related health condition, and such employee requests inclusion in the medical surveillance program;

3. During an emergency. (NOTE: When the employee has been exposed to methylene chloride in emergency situations, the content of emergency medical surveillance is discussed in 29 CFR 1910.)

Consider adding baseline PFTs and end-shift carboxyhemoglobin (recommended by OSHA in Appendix B, but not required by the standard).

End of shift carboxyhemoglobin may be determined periodically, and any level above 3% for non-smokers and above 10% for smokers should prompt an investigation of the worker and his/her workplace.

*The employer shall update the medical and work history for each affected employee annually. The employer shall provide periodic physical examinations, including appropriate laboratory surveillance, as follows:

Frequency of Examination

Age < 45 years : 3 years

Age >= 45 years : Annual

REFERENCE:

1. 29 CFR 1910.1052
2. 29 CFR 1926.1152
3. DODI 6055.05M, Table C2.T12, Methylene chloride
4. NIOSH Occupational Health Guideline for Methylene Chloride

REVIEWED: April 2011

4,4'-METHYLENEDIANILINE (MDA) **213**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
4,4'-diaminodiphenylmethane	BY5425000	101-77-9

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Use of barbiturates	Yes	Yes	Yes
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Problems with urination or blood in urine	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Exposure to chemotherapeutic or antineoplastic agents	Yes	Yes	Yes
Past work exposure to MDA or other toxic substances	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
BUN	Yes	Yes	Yes
Creatinine	Yes	Yes	Yes
AST	Yes	Yes	Yes
ALT	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
HEENT	Yes	Yes	Yes
Eyes	Yes	Yes	Yes
Cardiovascular system	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Abdomen	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Examinations are required for employees exposed to methylenedianiline in an emergency. Refer to 29 CFR 1910.1050, Appendix C.

The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation for the purpose of medical removal or restriction.

A physician's opinion letter is required (see Chapter 10 of this manual for a sample letter).

REFERENCE:

1. OSHA STANDARD 29 CFR 1910.1050
2. Aitio, Antero, M.D., Ph.D., Biologic Monitoring, p 178-179;
3. Cocker, J., Assessment of occupational exposure to 4,4'-diaminodiphenylmethane (methylenedianiline) by gas chromatography-mass spectrometry analysis of urine, British Journal of Industrial Medicine, 1986;43:620-625;
4. Hathaway, Gloria J. Ph.D., and J.P. Hughes, M.D., Supplements to Chemical Hazards of the Workplace, 2nd ed., Volume 1, Number 5.

REVIEWED: August 2010

NICKEL CARBONYL **173**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
nickel carbonyl	QR6300000	13463-39-3

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
Chest X-ray (PA)	Yes	No	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes
Nasal mucosa (septal perforation)	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Periodic urine nickel measurement has not been correlated with chronic health outcomes; however, urine nickel evaluation may assist the provider in determining if a worker with mild symptoms of nickel carbonyl toxicity would benefit from chelation therapy. Chelation therapy for workers with moderate or severe symptoms of nickel carbonyl toxicity is based on history and should not be delayed awaiting laboratory determination of urine nickel levels.

REFERENCE:

1. NIOSH-OSHA, Occupational Guideline for Nickel Carbonyl, Washington, DC: DHHS/ DOL; 1978: 1-5;
2. NIOSH pocket guide to Chemical Hazards Nickel Carbonyl
3. OSHA Chemical Sampling Information Nickel Carbonyl
4. Specific Medical Tests or Examinations Published in the Literature for OSHA-Regulated Substances
5. National Research Council, Nickel: Medical and Biologic Effects of Environmental Pollutants, Washington, DC: National Academy of Sciences: 1975; 97-128.

REVIEWED: April 2011

NICKEL (INORGANIC) **172**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
nickel (metal)	QR5950000	7440-02-0
nickel (soluble compounds)	QR5950000	7440-02-0
nickel carbonate	QR6240000	65485-96-1
nickel II hydroxide	QR7040000	12054-48-7
nickel II oxide	QR8400000	1913-99-1
nickel subsulfide	OR9800000	12035-72-2

See Chemical Stressors List for additional compounds

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
Chest X-ray (PA)	Yes	No	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	Yes
Nasal mucosa (septal perforation)	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH-OSHA, Occupational Guidelines for Nickel Metal and Soluble Nickel Compounds, Washington, DC. DHHS/DOL: 1978: 1-7.
2. National Research Council, Nickel: Medical and Biologic Effects of Environmental Pollutants, Washington, DC: National Academy of Sciences: 1975; 97-128.
3. NIOSH: Specific Medical Specific Medical Tests or Examinations Published in the Literature for OSHA-Regulated Substances

REVIEWED: April 2011

4-NITROBIPHENYL **175**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
4-nitrobiphenyl	DV5600000	92-93-3

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Difficulty breathing	Yes	Yes	Yes
Frequent, unusual or severe headaches	Yes	Yes	Yes
Problems with urination or blood in urine	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
AST	Yes	Yes	Yes
ALT	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
1. 4-nitrobiphenyl is no longer manufactured or used in the United States. However, it is one of the original OSHA 13 carcinogens.

2. NIOSH (1988) recommended medical surveillance includes evaluation of liver function and integrity. The basis of the NIOSH recommendation is not given. It is recommended that review and assessment of hepatic function be included.

3. As one of the OSHA 13 carcinogens, 29 CFR 1910.1003 applies. In accordance with 1910.1003(d)(2)(iii), any worker involved in exposure incidents for all OSHA-regulated carcinogens must have a special medical surveillance annotation noted by a physician within 24 hours of exposure. A report of the medical surveillance and any treatment shall be included in the incident report, in accordance with paragraph (f)(2) of this section of 29 CFR.

4. Medical clearance for respirator may be required.

REFERENCE:
1. 29 CFR 1910.1003
2. 29 CFR 1926.1103
3. NIOSH Pocket Guide to Chemical Hazards
4. Occupational Safety and Health Guidelines

REVIEWED: April 2011

NITROGEN OXIDES **174**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
nitrogen dioxide	QW9800000	10102-44-0
nitric oxide	QX0525000	10102-43-9

also see nitrous oxide program #108

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Chest X-ray (PA)	Yes	No	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Eyes	Yes	Yes	No
Teeth (acid erosion)	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
1. Community studies have demonstrated that exposure to oxides of nitrogen may aggravate existing pulmonary conditions or increase the number of acute respiratory diseases. The level of physical activity during exposure increases the total uptake and alters the distribution of inhaled NO2. Additional questioning of frequency of respiratory infections and effects of level of activity during work exposure may be commented on in the patient note.

2. Tooth erosion would likely occur at levels far above the OEL and would not be a sensitive indicator of exposure. Effects on the mucosa (irritation) at levels near the current OSHA PEL are documented and should be considered as an alternative focus for the examination.

3. This Program requires a pre-placement and annual (or periodic) examination, but do not specially require a termination examination.

REFERENCE:
1. Occupational Health Guideline for Nitric Oxide
2. Specific Medical Tests or Examinations Published in the Literature for OSHA-Regulated Substances
3. Haz-Map: Occupational Exposure to Hazardous Agents

REVIEWED: April 2011

NITROGLYCERINE **176**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
nitroglycerin	QX2100000	55-63-0

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Use of nitrate medication (nitroglycerine)	Yes	Yes	No
Use of medication to treat erectile dysfunction	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Cardiovascular or circulatory condition or disease	Yes	Yes	No
Migraine headache	Yes	Yes	No
Vibration white finger	Yes	Yes	No
Exposure to other explosives or propellants	Yes	Yes	No
Electrocardiogram	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Peripheral vascular system, including acral (distal) micro-circulation and evidence of Reynaud's	Yes	Yes	No
Central nervous system	Yes	Yes	No

PROGRAM DESCRIPTION:

None provided.

PROVIDER COMMENTS:

1. Recommend asking about "sildenafil (Viagra) and other agents used to treat erectile dysfunction" on medication list. Phosphodiesterase inhibitors are contraindicated with use of medicinal NTG due to the increased hypotensive effect.

2. Headaches associated with organic nitrates classically begin as mild frontal headaches and become progressively worse and throbbing in nature. These H/As frequently disappear with further exposure as tolerance develops and recur following a period where there is no exposure (Monday morning).

3. Palpitations, nausea, and feeling of heat in face/upper extremities are frequently reported worker complaints associated with excessive exposure to NTG.

4. The formation of methemoglobinemia has been reported in association with high doses of NTG therapy or high dose occupational exposure; it is rare at conventional doses of NTG. But, this may be clinically significant following large exposures or in individuals with a MetHb reductase deficiency or a congenital MetHb variant. In case of exposure to high dose NTG, arterial blood gases would be drawn to determine MetHb levels.

REFERENCE:

1. HAZMAP: Nitroglycerine
2. NIOSH Occupational Safety and Health Guideline for Nitroglycerine and Ethylene Glycol Dinitrate

REVIEWED: December 2014

2-NITROPROPANE **211**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
2-nitropropane	T25250000	79-46-9

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Chest X-ray (PA)	Yes	Yes	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Vision screen (visual acuity)	Yes	Yes	Yes
Eyes	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Kidneys	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
1. For the OSHA 13 named suspect carcinogens regulated under 29 CFR 1910.1003, a physical examination must be performed on exposed individuals at least annually. Although 2-NP is NOT included in the OSHA 13, aspects of that exam will be incorporated into this exam as 2-NP is considered a “Possible Human Carcinogen”.

2. NIOSH recommends that the medical evaluation “concentrate on the eyes, skin, liver, kidneys, and nervous and respiratory systems”. It is recommended that PFT be done as an annual study for this stressor. NIOSH 1988 also adds a periodic CXR to the assessment. A CXR should be done periodically.

3. It is recommended that the addition of specific review of, and assessing function of the eyes (external examination and visual acuity), skin (condition and lesions), and kidneys (routine urinalysis), as well as respiratory tract (PFT) and liver (complete LFTs), be considered for inclusion in the baseline, monitoring, and termination examinations.

REFERENCE:
1. NIOSH Occupational Safety and Health Guideline for 2-Nitropropane Potential Human Carcinogen

REVIEWED: August 2010

N-NITROSODIMETHYLAMINE **177**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
n-nitrosodimethylamine	IQ0525000	62-75-9

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Difficulty breathing	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Nausea or vomiting	Yes	Yes	Yes
Fever	Yes	Yes	Yes
Diarrhea	Yes	Yes	Yes
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Problems with urination or blood in urine	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes
Eyes	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Kidneys	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
1. N-nitrosodimethylamine is one of the OSHA thirteen "Suspect Human Carcinogens".

2. NIOSH recommends the medical evaluation "concentrate on the liver, kidneys, and respiratory system including standardized questionnaires and tests of lung function". The literature is variable on pulmonary effects, but it is suggested that PFT be done.

3. Eye exam is for evidence of irritation or corneal damage.

REFERENCE:

1. 29 CFR 1910.1003
2. 29 CFR 1926.1103
3. HAZMAP
4. NIOSH Pocket Guide to Chemicals
5. Agency for Toxic Substances and Disease Registry

REVIEWED: October 2014

ORGANOTIN COMPOUNDS **180**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
tin (organic compounds)		
tributyltin oxide	JN8750000	56-35-9
methyl tin mercaptide		57583-35-4
tributyltin benzoate	WH6710000	4342-36-3
dibutyltin dilaurate	WH7000000	77-58-7
tributyltin fluoride	WH8275000	1983-10-4

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Nausea or vomiting	Yes	Yes	No
Diarrhea	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Inability or reduced ability to smell	Yes	Yes	No
Liver disease	Yes	Yes	No
Incontinence	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Personality or behavior change	Yes	Yes	No
Psychological disorders, Depression	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
RBC	Yes	Yes	No
WBC	Yes	Yes	No
HGB	Yes	Yes	No
MCV	Yes	Yes	No
MCH	Yes	Yes	No
MCHC	Yes	Yes	No
Neutrophils	Yes	Yes	No
Lymphocytes	Yes	Yes	No
Monocytes	Yes	Yes	No
Eosinophils	Yes	Yes	No
Basophils	Yes	Yes	No
AST	Yes	Yes	No
Bilirubin, Total	Yes	Yes	No
Alkaline phosphatase	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No
Urine nitrite	Yes	Yes	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Vision screen (visual acuity)	Yes	Yes	No
Eyes	Yes	Yes	No
Respiratory system	Yes	Yes	No
Liver	Yes	Yes	No
Kidneys	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
1. Visual changes and disturbances associated with exposure to airborne organotin compounds are manifested as irritation and/or blurring of vision.

2. NIOSH and the EPA consider the kidney (urinary tract) and blood, in addition to the CNS, liver, skin/eyes as target organs. Recommend urinalysis and CBC on all exams as both tests reveal hemolysis.

3. It is recommended that the CNS-directed examination should include assessment of psychological (behavioral) aspects during the examination.

4. One clinical case report revealed hepatomegaly and tenderness without elevation in liver enzymes following exposure to an organotin compound. It is recommended that a complete laboratory assessment of liver function be made using a liver panel.

5. The EPA has based their exposure standards and minimal risk levels (MRLs) on immunological criteria from animal studies. The inclusion of a CBC with differential can screen and assess this aspect.

6. Chronic inhalation of inorganic tin dusts or fumes during molten metal refining can lead to chest X-ray findings of pneumoconiosis (thought to be benign). As Navy occupational exposures are not expected to be of that nature, chest radiographs are not included in routine surveillance. However, if a worker presents with such an exposure history, a chest X-ray may be considered.

REFERENCE:

1. NIOSH Criteria Documents: Criteria for a Recommended Standard: Occupational Exposure to Organotin Compounds, DHHS Pub. No. 77-115.
2. Agency for Toxic Substances and Disease Registry
3. HAZ-MAP

REVIEWED: January 2015

ORTHO-TOLIDINE **214**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
o-tolidine	DD1225000	119-93-7

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Problems with urination or blood in urine	Yes	Yes	Yes
Exposure to chemotherapeutic or antineoplastic agents	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REVIEWED: April 2011

ORTHO-TOLUIDINE **194**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
o-toluidine	XU2975000	95-53-4

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Problems with urination or blood in urine	Yes	Yes	Yes
Confusion	Yes	Yes	Yes
Do you currently have 2 pairs of glasses and/or contacts	Yes	Yes	Yes
Prior respirator use	Yes	Yes	Yes
Exposure to chemotherapeutic or antineoplastic agents	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
BUN	Yes	Yes	Yes
Creatinine	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Mentation, alertness, balance and orientation	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
If a Respirator is worn by the employee, then a Respirator User Certification Exam (Program 716) must be completed.

REFERENCE:

1. FEDERAL REGISTER FR54:12 29 CFR PART 1910 Air Contaminates, Final Rule 2689-90, 19 Jan 89;
2. NIOSH Pocket Guide to Chemical Hazards Toluidine, September 2005
3. OSHA Safety and Health Guideline for Toluidine
4. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to o-Toluidine
5. EPA Air Toxics Hazard Summary: o-Toluidine, January 2000

REVIEWED: October 2014

OTTO FUEL II AND OTHER ALKYL NITRATE PROPELLANTS AND EXPLOSIVES **186**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
propylene glycol dinitrate	TY6300000	6423-43-4
ethylene glycol dinitrate	KW5600000	628-96-6
ethylhexyl nitrate		27247-96-7
See Chemical Stressors List for additional compounds		

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Use of nitrate medication (nitroglycerine)	Yes	Yes	No
Use of medication to treat erectile dysfunction	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Nausea or vomiting	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Nasal congestion	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Migraine headache	Yes	Yes	No
Do you currently have 2 pairs of glasses and/or contacts	Yes	Yes	No
RBC	Yes	Yes	No
WBC	Yes	Yes	No
HGB	Yes	Yes	No
MCV	Yes	Yes	No
MCH	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
MCHC	Yes	Yes	No
BUN	Yes	Yes	No
Creatinine	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No
Urine nitrite	Yes	Yes	No
Electrocardiogram	Yes	Yes	No
Vision screen (visual acuity)	Yes	Yes	No
Eyes	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Respiratory system	Yes	Yes	No
Liver	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
1. The NIOSH criteria document of 1978 combines nitroglycerine (NG) and ethylene glycol dinitrate (EGDN) and uses the same criteria for exposure to either or both. The medical surveillance criteria are generally the same.

2. This program category includes OFII (a mixture containing PGDN), as well as other organic nitrate propellants. The medical surveillance is therefore based upon the “pooled toxic effects” of the general class of these chemicals. The current assessment guidance may not be totally applicable to all chemicals in the class, but this is still a good approach and the best available with current data.

3. Headaches typically associated with organic nitrates classically begin as mild frontal headaches and become progressively worse and throbbing in nature, and frequently disappear with further exposure as tolerance develops.

4. Emphasis of eye/vision to include sclera/mucosa and evaluation of extraocular eye movements. Although not adopted, the OSHA revised 1988 rulemaking for the adoption of “new PELs” specifically lists PGDN as a neurotoxicant. Include evaluation of extraocular eye movements in assessment of eye and vision testing, or visual evoked response (VER) as screening tests. In addition to seeing/detecting conjunctival irritation, these tests may detect CNS effects noted in the literature.

5. Animal data indicate that renal pathology can also occur from exposure to various organic nitrates. In light of the combined group approach for this program stressor, urinalysis and renal testing can address this aspect.

REFERENCE:

1. NAVMEDCOMINST 6270.1, 19 MAR 85, HEALTH HAZARDS OF OTTO FUEL II;
2. CHIEF BUMED ltr 5100, Ser 242/4U763715 of 2 Feb 94;
3. Jones RA., Strickland, JA., Siegel J. Toxicity of propylene 1,2-dinitrate in experimental animals, Toxicology and Applied Pharmacology, 1972;22:128-137;
4. NAVENVIRHLTHCEN ltr 6260 Ser 3213mt/04449 of 27 Apr 90.
5. Agency for Toxic Substances and Disease Registry: Otto Fuel
6. Naval Surface Warfare Center: Otto Fuel
7. HAZMAP: Otto Fuel

REVIEWED: January 2015

POLYCHLORINATED BIPHENYLS (PCB) **184**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
chlorodiphenyl (42% chlorine)	TQ1356000	53469-21-9
chlorodiphenyl (54% chlorine)	DV2063000	27323-8-8
aroclor 1260	TQ1362000	11096-82-5
aroclor 1254	TQ1360000	11097-69-1
kanechlor 500	DY8100000	25429-29-2

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Hepatitis or jaundice	Yes	Yes	No
Liver disease	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
AST	Yes	Yes	No
Bilirubin, Total	Yes	Yes	No
Alkaline phosphatase	Yes	Yes	No
GGT	Yes	Yes	No
Liver	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No

PROGRAM DESCRIPTION:

Placement on medical surveillance program is for personnel exposed to PCB's above the medical surveillance action level. These levels are based on airborne concentrations of PCB's. There is no current required medical surveillance based on skin contact alone but those workers with reasonable possibility of regular skin contact should also be considered for medical surveillance.

PROVIDER COMMENTS:

1. Recommend directing examination more specifically to visible manifestations of the relatively rare chloracne: comedones and straw-colored cysts around the eyes, behind the ears, and on the genitalia, back, and shoulders; as well as, hypertrichosis; hyperpigmentation; brown discoloration of the nails; and conjunctivitis and eye discharge.

2. IAW with early NIOSH recommendations, in conjunction with the reproductive health concerns question in the exam, discuss child-bearing and nursing for the purpose of counseling.

3. Although correlations between serum triglycerides or cholesterol levels and serum PCBs in PCB-exposed workers have been reported, these appear to be a high dose phenomenon.

4. Do a complete liver function panel (AST, ALT, GGT, DB, TB, and PT) for baseline and annual assessments. A comparison of the AST level and the ALT level is often made in the assessment of etiology. PCBs are known inducers of microsomal enzymes; the GGT is a sensitive, non-specific indicator of this effect. Studies suggest a threshold of 100 ppb in serum for a phenobarbital-type induction in humans (Brown JF, 1994).

5. Post-exposure blood PCB level should be considered. A baseline may not be necessary for all personnel as it is anticipated that there are relatively few current workers (HAZMAT personnel; mishap exposure) who remain occupationally exposed to PCBs above the action level. The majority of medical assessment and surveillance requests will be post-exposure following an incident. Acute and follow-up blood PCB levels can be used to evaluate the exposure in retrospect as the exact congener would not necessarily be known for pre-exposure (baseline) screening.

REFERENCE:

1. NIOSH criteria for a recommended standard...Occupational Exposure to Polychlorinated Biphenyls, DHHS Pub. No. 77-225.
2. NIOSH Current Intelligence Bulletin 45, Feb 24, 1986
3. HAZ-MAP
4. TOXNET
5. NAVENVIRHLTHCEN letter 6263.1 Ser 09nd/11643m 30 Nov 89, Advisory on Polychlorinated Biphenyls (PCBs).
6. ATSDR: Polychlorinated Biphenyls

REVIEWED: January 2015

SILICA (CRYSTALLINE) **187**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
silica crystalline cristobalite	VV7325000	14464-46-1
silica crystalline quartz	VV7330000	14808-60-7
silica crystalline tridymite	VV7335000	15468-32-3
silica crystalline tripoli	VV7336000	1317-95-9

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Tuberculosis or PPD Converter	Yes	Yes	No
Positive TB test	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Autoimmune disease or condition	Yes	Yes	No
Cough, other than with colds, flu or allergies	Yes	Yes	No
Kidney disease	Yes	Yes	No
Exposure to dusts (coal, blast grit, sand, nuisance)	Yes	Yes	No
Exposure to asbestos	Yes	Yes	No
Exposure to silica or sand	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Urine nitrite	Yes	Yes	No
Urine RBCs	Yes	Yes	No
Urine WBCs	Yes	Yes	No
Chest X-ray (B-reader) - using NAVMED 6260/7 (only if required per Provider Comments)	Yes	Every 3 years	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Every 3 years	No
Eyes	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Respiratory system	Yes	Yes	No
Extremity examination for clubbing, cyanosis, or edema	Yes	Yes	No
Tuberculosis screening questionnaire	Yes	Yes	No
Counseling regarding combined effects of smoking and respirable crystalline silica (RCS) exposure	Yes	Yes	No
Physician's or provider's written opinion required	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
1. Respirable crystalline silica is designated a carcinogen. In view of current concern for carcinogenicity, patients should be counseled regarding this carcinogenic effect.

2. Although it is assumed that currently exposed individuals will be in the Respiratory Protection Program, a question determining if the individual has completed an updated OSHA Respirator Medical Evaluation Questionnaire (Mandatory) as required under Appendix C to Sec. 1910.134 is recommended. The screening questions are much more extensive than contained in the entry for silica.

3. Recommend questions for screening for autoimmune conditions (rheumatoid arthritis, scleroderma, Sjogren's syndrome, and lupus), as well as kidney diseases (nephritis and end-stage renal disease). A urinalysis can provide important renal function information. Evidence supporting these conditions with silica exposure (and with and without the presence of silicosis) is found in the recent literature.

4. The NIOSH ALERT of August 1992 recommends a chest X-ray EVERY THREE (3) YEARS classified according to the 1980 International Labour Office (ILO) Classification of Radiographs of the Pneumoconioses. Some sources have recommended that the frequency be based upon years and intensity of exposure.

5. NIOSH lists the eye and respiratory system as target organs. Recommend including specific evaluation of the cornea for physical damage.

Tuberculosis (TB) screen, consistent with current CDC guidelines, means identifying risk factors (generally by questionnaire) for TB exposure or for latent TB to develop into disease and performing skin or blood testing on only those workers at increased risk.

REFERENCE:

1. NIOSH Criteria for a Recommended Standard. Occupational Exposure to Crystalline Silica, DHHS Pub. No. 75-120, 1974
2. NIOSH HAZARD REVIEW Health Effects of Occupational

REVIEWED: May 2014

STYRENE **189**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
styrene	WL3675000	100-42-5

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Change or loss in hearing	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Personality or behavior change	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Eyes	Yes	Yes	No
Mucous membranes	Yes	Yes	No
Respiratory system	Yes	Yes	No
Liver	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. EPA Air Toxics Hazard Summary: Styrene, January 2000
2. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Styrene 1983
3. The Styrene Information and Research Center (SIRC), 1987
4. ATSDR ToxFAQs—Styrene, September 2007
5. OSHA Sampling and Analytical Methods, Styrene
6. NIOSH Pocket Guide to Chemical Hazards Styrene, September 2005

REVIEWED: May 2014

SULFUR DIOXIDE **190**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
sulfur dioxide	WS4550000	7446-09-5

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Tooth or gum disease	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Chest X-ray (PA)	Yes	No	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Eyes	Yes	Yes	No
Mucous membranes	Yes	Yes	No
Teeth (acid erosion)	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH Criteria for a Recommended Standard. Occupational Exposure to Sulfur Dioxide, 1974
2. NIOSH Publication No. 2005-151, NIOSH Pocket Guide to Chemical Hazards, updated Sept 2005
3. NIOSH Safety and Health Topic Sulfur Dioxide
4. ATSDR ToxFAQs—Sulfur Dioxide, 1999

REVIEWED: January 2015

1,1,2,2 TETRACHLOROETHANE **191**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
1,1,2,2 tetrachloroethane	KI8575000	79-34-5

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Nausea or vomiting	Yes	Yes	No
Weight loss	Yes	Yes	No
Liver disease	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Tremor (shakiness) or loss of sensation/feeling	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	No
AST	Yes	Yes	No
Bilirubin, Total	Yes	No	No
Alkaline phosphatase	Yes	No	No
Liver	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards 1,1,2,2-Tetrachloroethane, September 2005
2. ATSDR ToxFAQs—1,1,2,2-Tetrachloroethane, September 2008
3. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to 1,1,2,2-Tetrachloroethane, 1976
4. EPA Air Toxics Hazard Summary: 1,1,2,2-Tetrachloroethane January 2000
5. Haz-Map: Occupational Exposure to Hazardous Agents

REVIEWED: February 2011

TETRACHLOROETHYLENE (PERCHLOROETHYLENE) **192**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
perchloroethylene	KX3850000	127-18-4

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Hepatitis or jaundice	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Nausea or vomiting	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Liver disease	Yes	Yes	No
Infertility or miscarriage (self or spouse)	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Tremor (shakiness) or loss of sensation/feeling	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	No
BUN	Yes	Yes	No
Creatinine	Yes	Yes	No
AST	Yes	Yes	No
Bilirubin, Total	Yes	No	No
Alkaline phosphatase	Yes	No	No
Eyes	Yes	Yes	No
Mucous membranes	Yes	Yes	No
Lungs	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Liver	Yes	Yes	No
Kidneys	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. ATSDR Medical Management Guidelines Tetrachloroethylene
2. OSHA Safety and Health Guideline for Chloroform, 1992
3. National Institute of Environmental Health (NIEH), Chloroform
4. ATSDR ToxFAQs— Tetrachloroethylene, September 1997
5. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Tetrachloroethylene 1976
6. EPA Air Toxics Hazard Summary: Tetrachloroethylene, January 2000
7. Brown DP, Kaplan SD, Retrospective Cohort Mortality Study of Dry Cleaner Workers Using Perchloroethylene, Journal of Occupational Medicine 29:53551, 1987;
8. Federal Register FR54:2686-91 29 CFR Part 1910 Air Contaminants, Final rule 19 JAN 89.
9. Key MM et al. (ed.) Occupational Diseases, A Guide to their Recognition, NIOSH 1977, 213-4,448.

REVIEWED: January 2015

TETRYL **209**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
tetryl	BY6300000	479-45-8

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Eye irritation or blurred vision	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
RBC	Yes	Yes	Yes
WBC	Yes	Yes	Yes
HGB	Yes	Yes	Yes
MCV	Yes	Yes	Yes
MCH	Yes	Yes	Yes
MCHC	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	No	Yes
Alkaline phosphatase	Yes	No	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	Yes
Eyes	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Mucous membranes	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:
1. NIOSH Pocket Guide to Chemical Hazards Tetryl, September 2005
2. OSHA Safety and Health Guideline for Tetryl
3. ATSDR ToxFAQs—Tetryl, September 1996

REVIEWED: May 2014

TOLUENE **195**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
toluene	XS5250000	108-88-3

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Nausea or vomiting	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Change or loss in hearing	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Tremor (shakiness) or loss of sensation/feeling	Yes	Yes	No
Migraine headache	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Personality or behavior change	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	No
Eyes	Yes	Yes	No
Mucous membranes	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards Toluene September 2005
2. OSHA Safety and Health Guideline for Toluene
3. ATSDR ToxFAQs-Toluene, September 2015
4. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Toluene, 1973
5. EPA Air Toxics Hazard Summary: Toluene, January 2000

REVIEWED: September 2015

1,1,1 TRICHLOROETHANE (METHYL CHLOROFORM) 197

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
methylchloroform	KJ2975000	71-55-6

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Hepatitis or jaundice	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Liver disease	Yes	Yes	No
Problems with balance or coordination	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	No
AST	Yes	Yes	No
Bilirubin, Total	Yes	No	No
Alkaline phosphatase	Yes	No	No
Urine Ph	Yes	No	No
Urine specific gravity	Yes	No	No
Urine urobilinogen	Yes	No	No
Urine protein	Yes	No	No

EXAM ELEMENT	BASE	PERI	TERM
Urine glucose	Yes	No	No
Urine ketones	Yes	No	No
Urine blood	Yes	No	No
Urine nitrite	Yes	No	No
Urine RBCs	Yes	No	No
Urine WBCs	Yes	No	No
Electrocardiogram	Yes	No	No
Eyes	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Respiratory system	Yes	Yes	No
Liver	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards 1,1,1-Trichloroethane, Methyl chloroform, September 2005
2. 1910.1000 TABLE Z-1 Limits for Air Contaminants.
3. ATSDR ToxFAQs—1,1,1-Trichloroethane, Methyl chloroform, July 2006
4. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to 1,1,1-Trichloroethane, Methyl chloroform,
5. EPA Air Toxics Hazard Summary: 1,1,1-Trichloroethane, Methyl chloroform,, January 2000
6. Haz-Map: Occupational Exposure to Hazardous Agents

REVIEWED: February 2011

TRICHLOROETHYLENE **198**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
trichloroethylene	KX4550000	79-01-6

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Nausea or vomiting	Yes	Yes	Yes
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	Yes
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	No	Yes
Alkaline phosphatase	Yes	No	Yes
Urine Ph	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Electrocardiogram	Yes	No	Yes
Cardiovascular system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards, Trichloroethylene, September 2005
2. OSHA Safety and Health Guideline for Trichloroethylene
3. ATSDR ToxFAQs— Trichloroethylene, July 2003
4. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Trichloroethylene 1973
5. EPA Air Toxics Hazard Summary: Trichloroethylene January 2000

REVIEWED: August 2010

VINYL CHLORIDE ANY EXPOSURE (CHLOROETHENE) 204

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
vinyl chloride	KU9625000	75-01-4

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Transfusions (blood or blood products)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Peripheral vascular disease, or do your fingers or toes turn color or become painful in cold weather	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Weight loss	Yes	Yes	Yes
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
10 or more years since first exposure to vinyl chloride	Yes	Yes	Yes
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	Yes
BUN	Yes	Yes	Yes
Creatinine	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
GGT	Yes	Yes	Yes
Chest X-ray (PA)	Yes	No	Yes
Respiratory system	Yes	Yes	Yes
Abdomen	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Spleen	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Peripheral vascular system, including acral (distal) micro-circulation and evidence of Reynaud's	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
This program is for anyone employed in vinyl chloride or polyvinyl chloride manufacturing. Abnormal laboratory test results should be repeated as soon as practicable, preferably within 3-4 weeks. If tests remain abnormal, consideration should be given to removal of the employee from contact with vinyl chloride, while a more comprehensive examination is made.

Review of the medical literature since date of last revision, March 2000, does not reveal any new information with respect to recommendations and procedures for medical surveillance in those exposed to vinyl chloride as part of their occupational duties. There has been some work looking at acute exposure monitoring using urinary thiodiglycolic acid levels but this has not been incorporated into routine monitoring protocols.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. 29 CFR 1910.1017.
2. 29 CFR 1926.1117 (OSHA construction standard for vinyl chloride exposure).
3. 29 CFR 1915.1017 (OSHA shipyard standard for vinyl chloride exposure).
4. NIOSH pocket guide to Chemical Hazards.
5. Vinyl Chloride Toxicity, in: Case Studies in Environmental Medicine, Agency for Toxic Substances and Disease Registry, Scandinavian Journal Work Environmental Health 1988;14:61-78. 13.
6. Cheng, TJ, Huang, YF, Ma, YC, Urinary thiodiglycolic acid levels for vinyl chloride workers, J. Occup Environ Med, 2001 Nov; 43 (11): 934-8.

REVIEWED: November 2007

VINYL CHLORIDE 10+ YEARS EXPOSURE (CHLOROETHENE) 203

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
vinyl chloride	KU9625000	75-01-4

Program Frequency: Every 6 months

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Transfusions (blood or blood products)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Peripheral vascular disease, or do your fingers or toes turn color or become painful in cold weather	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Weight loss	Yes	Yes	Yes
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
10 or more years since first exposure to vinyl chloride	Yes	Yes	Yes
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	Yes
BUN	Yes	Yes	Yes
Creatinine	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
GGT	Yes	Yes	Yes
Chest X-ray (PA)	Yes	No	Yes
Respiratory system	Yes	Yes	Yes
Abdomen	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Spleen	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Peripheral vascular system, including acral (distal) micro-circulation and evidence of Reynaud's	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
This program is for anyone employed in vinyl chloride or polyvinyl chloride manufacturing.

Abnormal laboratory test results should be repeated as soon as practicable, preferably within 3-4 weeks. If tests remain abnormal, consideration should be given to removal of the employee from contact with vinyl chloride, while a more comprehensive examination is made.

Review of the medical literature since date of last revision, March 2000, does not reveal any new information with respect to recommendations and procedures for medical surveillance in those exposed to vinyl chloride as part of their occupational duties. There has been some work looking at acute exposure monitoring using urinary thiodiglycolic acid levels but this has not been incorporated into routine monitoring protocols.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. 29 CFR 1910.1017.
2. 29 CFR 1926.1117 (OSHA construction standard for vinyl chloride exposure).
3. 29 CFR 1915.1017 (OSHA shipyard standard for vinyl chloride exposure).
4. NIOSH pocket guide to Chemical Hazards.
5. Cheng, TJ, Huang, YF, Ma, YC, Urinary thiodiglycolic acid levels for monomer-exposed polyvinyl chloride workers, J. Occup Environ Med, 2001 Nov; 43 (11): 934-8.

REVIEWED: August 2010

XYLENE **205**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
xylene (o-,m- and p- isomers)	ZE2100000	1330-20-7

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Nausea or vomiting	Yes	Yes	Yes
Change or loss of vision in either eye	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes
Migraine headache	Yes	Yes	Yes
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	Yes
AST	Yes	Yes	Yes
Bilirubin, Total	Yes	No	Yes
Alkaline phosphatase	Yes	No	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Eyes	Yes	Yes	Yes
Mucous membranes	Yes	Yes	Yes
Respiratory system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Eye exam is conducted for signs of irritation or corneal opacity or edema.

Spirometry may be required if respirator used for PPE.

REFERENCE:

1. Criteria for a Recommended Standard: Occupational Exposure to Xylene 1973 DHHS (NIOSH) Publication No. 75-168.
2. Key MM et al., (ed.) Occupational Diseases, A guide to Their Recognition, NIOSH, 1977, 243
3. Federal Register FR 54:2477 29CFR 1910 Air Contaminants, Final Rule 19 JAN 89.
4. Occupational Safety and Health Guideline for Xylene
5. NIOSH: Xylene

REVIEWED: October 2014

Chapter 11:

C11. Physical Stressors

C11.1. Introduction and Changes

Programs in this section which are based on Navy instructions have those references listed in the program description section. Instructions were current at the time this manual was prepared. However, it is incumbent on the individual user to ensure that current instructions are verified and used. Individuals are placed on these programs based on recommendations from Industrial Hygiene and Safety or requirements by management. Where there are stringent requirements for documentation using standard forms, those exams are not duplicated in this document. The requirement for routine, periodic examinations for the sight conservation was removed from OPNAVINST 5100.23E and the program is removed from the Medical Matrix.

C11.2. Physical Stressors

Cold Radiation - Ionizing Heat Radiation - Laser (Class III and IV) Noise Hand Arm Vibration Noise Follow-up Whole Body Vibration

C11.3. Significant Changes

None

C11.4. Programs

COLD **501**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**
cold

Program Frequency: Biennial

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Peripheral vascular disease, or do your fingers or toes turn color or become painful in cold weather	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Cold injury (frostbite, chill, trench foot, hypothermia)	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Thyroid disease (including heat or cold intolerance)	Yes	Yes	No
Diabetes (sugar disease) or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	Yes	No
Mental or emotional illness	Yes	Yes	No
Electrocardiogram	*	*	No
Thyroid	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Peripheral vascular system, including acral (distal) micro-circulation and evidence of Reynaud's	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
A worker should be entered on this program if exposed to temperatures below minus one (-1) degree Centigrade for ten or more days in a quarter or for more than 30 days a year.

The general nutrition status of the individual should be evaluated.

Use of the following medications should be included in the screening; nitrate medications, barbiturates, tranquilizers, vasoactive drugs, and diuretics.

The ACGIH handbook of Threshold Limit Values states: Employees should be excluded from work in cold at (-)1°C (30.2°F) or below if they are suffering from diseases or taking medication which interferes with normal body temperature regulation or reduces tolerance to work in cold environments. Workers who are routinely exposed to temperatures below (-)24°C (-11.2°F) with wind speeds less than five miles per hour, or air temperatures below (-)18°C (0°F) with wind speeds above five miles per hour, should be medically certified as suitable for such exposures.

Trauma sustained in freezing or subzero conditions requires special attention because an injured worker is predisposed to secondary cold injury. Special provision must be made to prevent hypothermia and secondary freezing of damaged tissues in addition to providing for first aid treatment.

*An EKG may be indicated in workers when there are cardiovascular risk factors or other indications present.

REFERENCE:

1. OSHA Fact Sheet No. 98-55 Protecting Workers in Cold Environments, December 1998
2. OSHA Emergency Preparedness and Response Guide—Cold Stress, February 2008
3. OSHA Cold Stress Equation, 1998
4. NIOSH Safety and Health Topic: Cold Stress, October 2008
5. NEHC-TM-OEM 6260.6A Prevention & Treatment of Heat & Cold Stress Injuries, June 2007
6. Threshold Limit Values and Biological Exposure Limits, Cincinnati, OH: ACIGH; 2003.
7. Cold Induced Injuries, Walter Reed Army Medical Center

REVIEWED: December 2010

HEAT **502**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**
heat

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Heat injury (heat cramps, exhaustion, stroke)	Yes	Yes	No
Exposure (acclimatization) to heat	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Kidney disease	Yes	Yes	No
Current pregnancy (females only)	Yes	Yes	No
Infertility or miscarriage (self or spouse)	Yes	Yes	No
Thyroid disease (including heat or cold intolerance)	Yes	Yes	No
Diabetes (sugar disease) or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	Yes	No
Mental or emotional illness	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Urine nitrite	Yes	Yes	No
Electrocardiogram	*	*	No
Obesity	Yes	Yes	No
Overall physical fitness	Yes	Yes	No
Thyroid	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Skin (malignant & pre malignant conditions)	Yes	Yes	No

PROGRAM DESCRIPTION:
OSHA's Standards Advisory Committee on Heat Stress recommended that a series of work practices, including medical surveillance, be initiated whenever a worker was exposed to WBGT temperatures in the workplace (120 minute TWA) that exceeded:

Light work (<200 kcal/h) 30oC (86oF)

Moderate work (200-300 kcal/h) 27.8oC (82oF)

Heavy work (>300 kcal/h) 26.1oC (79oF)

PROVIDER COMMENTS:
In addition to use of anticholinergic drugs, individuals should be screened for use of other medications including; nitrate medications, tricyclic antidepressants, MAO inhibitors, amphetamines, diuretics and antihistamines.

*EKG may be indicated in workers when there are cardiovascular risk factors

REFERENCE:

1. NIOSH Criteria for a Recommended Standard: Occupational Exposure to Hot Environments, Revised Criteria, 1986
2. OSHA Technical Manual 1-0.15A, Chapter 4, Heat Stress January 1999.
3. OPNAV 5100.23,CHAPTER 26.04. Heat Stress
4. NIOSH: Working in Hot Environments
5. OSHA Protecting Workers in Hot Environments 1995
6. OSHA Heat Stress Card, 2002
7. NEHC-TM-OEM 6260.6A Prevention & Treatment of Heat & Cold Stress Injuries, June 2007
8. Army Heat Injury Prevention Policy, 2007-2009

REVIEWED: October 2009

NOISE **503**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**
noise

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Ringing in the ear (tinnitus)	Yes	Yes	Yes
Any injury to your ears (including ruptured ear drum)	Yes	Yes	Yes
Change or loss in hearing	Yes	Yes	Yes
Difficulty hearing conversations, people	Yes	Yes	Yes
Recreational or non-occupational exposure to loud noise	Yes	Yes	Yes
Exposure to excessive noise	Yes	Yes	Yes
Audiogram (DD 2215/2216)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Conductive hearing loss must be ruled out if a significant threshold shift (STS) has been noted. A tympanogram may be useful in identifying individuals with conductive rather than sensorineural hearing loss. It is strongly recommended that tympanometry be utilized in ruling out conductive hearing loss.

Individuals with a high-frequency average loss greater than 45 dB bilaterally may have problems with speech discrimination.

Individuals are entered on this program based on the results of industrial hygiene surveys. In the absence of IH data, individuals routinely exposed to sound levels greater than 84 dB(A) or 140 dB peak sound pressure level for impact or impulse noise shall be considered at risk and included in the hearing conservation program. Hearing tests are recorded on DD Form 2215 and DD Form 2216.

REFERENCE:

1. 29 CFR 1910.95, Occupational noise exposure
2. OPNAV 5100.23, CHAPTER 18. HEARING CONSERVATION AND NOISE ABATEMENT
3. OPNAV 5100.19 (series), Chapter B4
4. DOD INST 6055.12, DoD Hearing Conservation Program, March 5, 2004.
5. DODI 6055.12, DoD Hearing Conservation Program
6. DODI 6055.05, Table C2.T15, Noise

REVIEWED: August 2010

NOISE - FOLLOW UP OF STS (#1 AND/OR #2) **512**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
noise		

Program Frequency: *

EXAM ELEMENT	BASE	PERI	TERM
Has anything about your health status changed since your last examination	No	*	No
Have any medications changed since your last exam	No	*	No
Ringing in the ear (tinnitus)	No	*	No
Any injury to your ears (including ruptured ear drum)	No	*	No
Change or loss in hearing	No	*	No
Difficulty hearing conversations, people	No	*	No
Audiogram (DD 2215/2216)	No	*	No
Ears (tympanic membranes)	No	*	No
Written notification of permanent threshold shift required	No	*	No

PROGRAM DESCRIPTION:
This program is designed for follow up when a significant threshold shift (STS), occurs at the monitoring audiogram.

PROVIDER COMMENTS:
Hearing test results are documented on DD Form 2215 and DD Form 2216.

Screening tympanometry can be used to determine if the STS has resulted from middle ear pathology.

Individuals with a high-frequency average loss greater than 45 dB bilaterally may have problems with speech discrimination.

Guidelines for follow-up and referral are contained in the NAVOSH Program Manuals listed in the program description.

A sample format for written notification of permanent threshold shift is in Chapter 10.

*Based on results of annual monitoring

REFERENCE:

1. OPNAV 5100.23 (series), Chapter 18
2. OPNAV 5100.19 (series), Chapter B4
3. 29 CFR 1910.95;
4. DOD INST 6055.12, DoD Hearing Conservation Program, March 5, 2004;
5. NEHC Tech Manual 6260.51.99-2 (Sep 04)
6. DODI 6055.05, Table C2.T15, Noise

REVIEWED: March 2006

RADIATION - IONIZING **505**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
Ionizing radiation		

Program Frequency:	By Age
Under 50	Every 5 years
50 - 59	Every 2 years
60 and over	Annually

PROGRAM DESCRIPTION:
This program is included in the Matrix solely to provide guidance on scheduling frequency and references. The program is described in NAVMED P-5055 Radiation Health Protection Manual.

Medical examinations for this program are to be completed using NAVMED form 6470/13, Medical Record - Ionizing Radiation Medical. When performing multi-purpose examinations (i.e., Submarine, nuclear field, and ionizing radiation work) the NAVMED 6470/13 is used only for Radiation Medical Examinations (RMEs) and is independent of other examination forms (i.e., DD Form 2807-1, Report of Medical History and DD form 2080, Report of Medical Exam).

The medical examination primarily is to identify the existence of cancer. An RME is performed or (if performed by physician assistant, nurse practitioner, or a physician not specially trained) counter-signed by a physician who has received BUMED-approved radiation health training.

PROVIDER COMMENTS:

REFERENCE:
1. NAVMED P-5055
2. NAVMED P-117, Chapter 15-104.
3. NAVMED form 6470/13

REVIEWED: February 2011

RADIATION - LASER (CLASS 3B & 4) **506**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**
laser

Program Frequency: Baseline and termination only

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	No	Yes
Has anything about your health status changed since your last examination	Yes	No	Yes
Have any medications changed since your last exam	Yes	No	Yes
Major illness or injury	Yes	No	Yes
Hospitalization or surgery	Yes	No	Yes
Cancer	Yes	No	Yes
Back injury	Yes	No	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	No	Yes
Have you ever smoked	Yes	No	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	No	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	No	Yes
Current medication use (prescription or over the counter)	Yes	No	Yes
Medication allergies	Yes	No	Yes
Any reproductive health concerns	Yes	No	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	No	Yes
Change or loss of vision in either eye	Yes	No	Yes
Contact lens use	Yes	No	Yes
Lens surgery	Yes	No	Yes
Photosensitizing medications	Yes	No	Yes
Unusual sensitivity to sunlight	Yes	No	Yes
Cataracts	Yes	No	Yes
Eye irritation or blurred vision	Yes	No	Yes
Eye injury	Yes	No	Yes
Glaucoma	Yes	No	Yes
Exposure to non-ionizing radiation (laser, infra-red, microwave (except ovens), ultraviolet)	Yes	No	Yes
Eye injury (occupational)	Yes	No	Yes
Vision screen (visual acuity)	Yes	No	Yes
Color vision	Yes	No	Yes
Amsler grid	Yes	No	Yes
Eyes	Yes	No	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	No	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Enrollment in this program is limited to those personnel who are clearly at risk from exposure to laser radiations.

The preplacement examination must be performed before assignment involving risk of exposure to class 3b or 4 lasers and establishes a baseline for comparison and measurement following an accidental exposure or ocular damage. Examinations for other purposes that include the required information satisfy the requirements of reference 1. When constrained by ship operations or deployment, perform the examination at the earliest opportunity. Complete the termination examination as soon as practical subsequent to termination of duties involving lasers.

Medications of interest include photosensitizers, such as phenothiazines and psoralens.

The purpose of the eye exam is to identify scarring that may have occurred from a past laser injury. Examination of the eyes for laser medical surveillance must include bilateral near and far visual acuity, exam of the external eyes, Amsler Grid, and funduscopic exam. Direct ophthalmoscopy without dilation is adequate for this purpose. Reference (6) links to a sample Amsler Grid that should be printed on letter size (8.5 x 11 inch) paper for use. If a worker reports any abnormality while viewing the Amsler Grid, it is strongly recommended that he or she be examined by an ophthalmologist.

Asymptomatic scarring without the worker's knowledge of an acute injury would be very rare and such a retinal scar would likely not be detected using direct undilated ophthalmoscopy.

Referral for other macular test, dilated direct ophthalmoscopy of the retina, and slit lamp exam of the cornea and anterior chamber may be part of the laser medical surveillance if deemed necessary by the medical examiner.

Examination of exposed skin may be included in laser medical surveillance if the worker has a history of photosensitivity or works with UV lasers.

Reference (2) requires funduscopic exam, but does not require pupil dilation.

Reference (3) only requires a funduscopic exam if ocular history, visual acuity, color vision, or Amsler grid are abnormal. However, it requires that the funduscopic exam, if performed, be done with pupil dilation.

To avoid undue referrals for dilated exams of workers whose visual acuity is not 20/20 or better simply because their refraction is out of date, visual acuity with a pinhole vision tester may be performed. (If visual acuity does not improve to 20/20 with a pinhole tester, incorrect refraction may not be the issue and the worker should be referred.)

REFERENCE:
1. BUMEDINST 6470.23 Medical Management of Non-ionizing Radiation Casualties.
2. ANSI Z136.1 of 2007, Appendix E;

3. OPNAVINST 5100.23 (current series).
4. DoDI 6055.15 (current series) DoD Laser Protection Program
5. DoDI 6055.05-M Occupational Medical Examinations and Surveillance Manual
6. Amsler Grid PDF, which should be printed on letter size (8.5 x 11 inch)

REVIEWED: October 2014

VIBRATION, HAND-ARM **508**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**
hand arm (segmental) vibration

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Peripheral vascular disease, or do your fingers or toes turn color or become painful in cold weather	Yes	Yes	No
Cold injury (frostbite, chill, trench foot, hypothermia)	Yes	Yes	No
Diabetes (sugar disease) or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	Yes	No
Vibration white finger	Yes	Yes	No
Neurological disorder, gait change, paresthesia, loss of coordination	Yes	Yes	No
Exposure to vibration (segmental or whole body)	Yes	Yes	No
Eyes	Yes	Yes	No
Back & musculoskeletal system	Yes	Yes	No
Peripheral vascular system, including acral (distal) micro-circulation and evidence of Reynaud's	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Smoking plays a significant role in the development of hand-arm vibration syndrome (HAVS). Individuals who smoke should be counseled in smoking cessation.

Symptoms of peripheral vascular and neurological disease can be documented using a standard staging system so as to provide a quantitative description of the involvement of the vascular/ neurological system. Workers in stage 2 HAVS or above on the Stockholm Workshop classification scale should be considered for removal from exposure until signs and symptoms no longer meet the criteria for stage 1. If HAVS is permitted to progress beyond Stage 2 by the continued use of vibrating tools, the effects can become irreversible (NIOSH p. 85).

The Stockholm Workshop classification scale for cold-induced peripheral vascular symptoms in the hand-arm vibration syndrome.*,+

Stage Description

0 No attacks

1 - Mild Occasional attacks that affect only the tips of one or more fingers

2 - Moderate Occasional attacks that affect the distal and middle (rarely also proximal) phalanges of one or more fingers

3 - Severe Frequent attacks affecting all phalanges of most fingers

4 - V. Severe As in stage 3, with trophic skin changes in the finger tips

The Stockholm Workshop classification scale for sensorineural stages of the hand-arm vibration syndrome.*,+

Stage Description

OSN - Exposed to vibration but no symptoms

1SN -Intermittent numbness with or without tingling

2SN - Intermittent or persistent numbness, reduced sensory perception

3SN - Intermittent or persistent numbness, reduced tactile discrimination and/or manipulative dexterity

*Adapted from Brammer et al. (1987)

+The stage is determined separately for each hand.

Source: Reference(1)

REFERENCE:

1. Criteria for a recommended standard: Occupational Exposure to Hand-Arm Vibration, NIOSH Sept 1989,
2. Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. ACGIH, current edition.

3. Mansfield, Neil J. Human Response to Vibration. ACGIH: 2004; ISBN: 0-415-28238-X.
4. Wasserman, Donald E & Pelmear, P.L. Hand-Arm Vibration: A comprehensive guide for occupational health professionals. 2nd edition: OEM Press: 1998.
5. ISO 5349. Mechanical vibration—Measurement and evaluation of human exposure to hand-transmitted vibration.

REVIEWED: December 2014

WHOLE BODY VIBRATION **511**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**
whole body vibration

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Peripheral vascular disease, or do your fingers or toes turn color or become painful in cold weather	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Nausea or vomiting	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Yes	No
Kidney disease	Yes	Yes	No
Problems with urination or blood in urine	Yes	Yes	No
Current pregnancy (females only)	Yes	Yes	No
Infertility or miscarriage (self or spouse)	Yes	Yes	No
Vibration white finger	Yes	Yes	No
Exposure to vibration (segmental or whole body)	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Urine nitrite	Yes	Yes	No
Urine RBCs	Yes	Yes	No
Urine WBCs	Yes	Yes	No
Eyes	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Abdomen	Yes	Yes	No
Hemorrhoids	Yes	Yes	No
Back & musculoskeletal system	Yes	Yes	No
Peripheral vascular system, including acral (distal) micro-circulation and evidence of Reynaud's	Yes	Yes	No
Varicose veins of lower extremities	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. Seidel H., Heide R., Long-term effects of whole-body vibration; a critical survey of the literature, International Archives of Occupational Environmental Health, 1986:58:1-12.
2. Mansfield, Neil J. Human Response to Vibration. ACGIH: 2004; ISBN: 0-415-28238-X.
3. Documentation of the threshold limit values for physical agents, 7th Ed. ACGIH: 2001; Publication -0100DocP/A; ISBN: 978-1-882417-43-8.
4. ANSI S3.18-1979 (R 1993) American National Standard Guide for the Evaluation of Human Exposure to Whole-Body Vibration.
5. Navy Safety Center: Acquisition safety vibration website.

REVIEWED: December 2014

Chapter 12:

C12. Mixed Exposures

C12.1. Introduction and Changes

Mixed exposures were included in a separate section to give guidance for screening individuals who may be exposed to a category of chemicals or whose specific exposure may not be known. For a mixed chemical exposure such as mixes solvents, the worker is generally placed into this program when quantitative data on specific exposures are unknown. In some cases, it may be appropriate to use this program if there are quantitative data showing overexposure to a specific solvent and there is no corresponding matrix program for that solvent. For example, a spray painter may be exposed to multiple solvents. IH data could demonstrate overexposure to one solvent out of the mixture for which there is no corresponding matrix program. In this case, the toxicity of the specific solvent should be reviewed by an occupational medicine specialist to see if the mixed solvent program needs to be modified. When IH data are available and there is a corresponding matrix program available for that chemical, then workers should be entered in the appropriate program for the specific stressor. Occupational health staff should forward a request for review of a new program to the Matrix Committee (see Chapter C10.1, Suggested or Requested Changes in the Medical Matrix) for any stressor where IH data has indicated an overexposure requiring medical surveillance and no matrix program exists for that stressor.

C12.2. Mixed Exposures

- Acid/Alkali (pH <4.0 or >11.0)
- Metal Fumes
- Anesthetic Gases
- Metalworking Fluids
- Animal Associated Diseases
- Mixed Solvents (Volatile Organic Compounds)
- Hazardous Drugs
- Organophosphate/Carbamate Compounds
- Herbicides
- Wood Dust
- Manmade Mineral Fibers

C12.3. Significant Changes

Program 110- Hazardous Drugs

C12.4. Programs

ACID/ALKALI (PH<4.0/PH>11.0) **601**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**

Strong acid and base
See Chemical Stressors List for additional compounds

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Peripheral vascular disease, or do your fingers or toes turn color or become painful in cold weather	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Contact lens use	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Tooth or gum disease	Yes	Yes	No
Cough, other than with colds, flu or allergies	Yes	Yes	No
Exposure to hydrogen fluoride or inorganic fluorides	Yes	Yes	No
Eye injury (occupational)	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	No
Eyes	Yes	Yes	No
Mucous membranes	Yes	Yes	No
Gums (e.g., lead lines)	Yes	Yes	No
Teeth (acid erosion)	Yes	Yes	No
Respiratory system	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Peripheral vascular system, including acral (distal) micro-circulation and evidence of Reynaud's	Yes	Yes	Yes

PROGRAM DESCRIPTION:
PELs exist for numerous acids and alkalis. Chronic or repeated exposure to acid has been associated with fluorosis, mottling of the teeth, weight loss, malaise, anemia, leukopenia, discoloration of teeth, osteosclerosis, skeletal changes such as increased bone density of the spine and pelvis, calcification of ligaments, hyperostosis, and liver or kidney damage

PROVIDER COMMENTS:
None provided.

REFERENCE:
1. NIOSH Pocket Guide to Chemical Hazards
2. 29 CFR 1910.1025 App C Medical surveillance guidelines
3. ATSDR ToxFAQs—Sulfuric Acid, June 1999
4. NIOSH Criteria Documents, Criteria Documents Index

REVIEWED: October 2009

ANESTHETIC GASES **108**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
halothane	KH6550000	151-67-7
nitrous oxide	QX1350000	10024-97-2
isoflurane		26675-46-7
enflurane		13838-16-9
sevoflurane		28523-86-6

See Chemical Stressors List for additional compounds

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Hepatitis or jaundice	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Kidney disease	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Impotence or sexual dysfunction	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Epilepsy or seizures	Yes	Yes	Yes
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes
Migraine headache	Yes	Yes	Yes
Mental or emotional illness	Yes	Yes	Yes
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	Yes
Personality or behavior change	Yes	Yes	Yes
Exposure to chemotherapeutic or antineoplastic agents	Yes	Yes	Yes
Exposure to anesthetic gases	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Exposure to ethylene oxide	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
Mucous membranes	Yes	*	Yes
Liver	Yes	*	Yes
Testes	Yes	*	Yes
Central nervous system	Yes	*	Yes
Peripheral nervous system (strength, sensation, DTRs)	Yes	*	Yes

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
*Physical exam elements are given when positive answers on history questions are obtained.

REFERENCE:

1. NIOSH Criteria For a Recommended Standard Occupational Exposure to Waste Anesthetic Gases and Vapors.
2. Williams, Louise A., Reproductive Health Hazards in the Workplace, J.B. Lippincott Company, Philadelphia, 1988;
3. Greenberg MI, Hamilton RW, Phillips, SD; Occupational, Industrial and Environmental Toxicology, Mosby St. Louis, 1997;
4. Suruda, A, Health Effects of Anesthetic Gases, Occupational Medicine State of the Art Reviews, Vol. 12/No. 4, Oct-Dec 1997, Hanley & Belfus, Inc., Philadelphia.
5. Halothane Hepatotoxicity, 2004
6. Haz-Map Halothane, National Library of Medicine
7. Waste anesthetic gases, National Library of Medicine
8. OSHA Anesthetic Gases: Guidelines for Workplace Exposures

REVIEWED: July 2008

ANIMAL ASSOCIATED DISEASE **207**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**
animal associated disease

Program Frequency: *

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	*	No
Has anything about your health status changed since your last examination	Yes	*	No
Have any medications changed since your last exam	Yes	*	No
Major illness or injury	Yes	*	No
Hospitalization or surgery	Yes	*	No
Cancer	Yes	*	No
Back injury	Yes	*	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	*	No
Have you ever smoked	Yes	*	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	*	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	*	No
Current medication use (prescription or over the counter)	Yes	*	No
Medication allergies	Yes	*	No
Any reproductive health concerns	Yes	*	No
Allergies (asthma, hay fever, eczema)	Yes	*	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	*	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	*	No
Current pregnancy (females only)	Yes	*	No
Tuberculosis screening questionnaire	Yes	*	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
This surveillance category includes workers in a wide variety of settings with potential exposure to animals which may cause disease. Exposure may involve the direct care of or contact with animals (live or sacrificed) or their living quarters, viable tissues, body fluids or wastes. Exposures include laboratory animals, animal pests, and livestock.

Illnesses fall largely into one of two groups: sensitization and infectious. Infectious agents of concern can include anthrax, brucellosis, leptospirosis, ornithosis, Q-fever, toxoplasmosis, rabies, and Hantavirus.

Because of the variety of potential exposures and the specific nature of their effects, pre-placement and annual medical surveillance elements must be individualized. Placement in this

surveillance program should not be driven by job title but by identified exposures, or potential exposures, to specific animal associated disease.

General Guidelines:

A. In addition to exposure-appropriate history, physical examination, and laboratory testing, the worker should be evaluated regarding his/her understanding of the exposures, their potential health effects, and symptoms which should prompt medical attention.

B. The issue of obtaining and freezing serum from each worker at the time of preplacement examination and periodically thereafter is controversial. The decision to maintain stored serum should be individualized based on exposure, clinical necessity, and published guidance. The recommended protocol for workers exposed to Hantavirus, for instance, includes a stored frozen sample.

Examples of individual requirements follow. Local considerations may warrant more comprehensive measures. See diagram.

	RISK CATEGORY		
Test	1 rodents, rabbits and aquatics	2 cats, dogs, livestock and ferrets	3 nonhuman primates
Tb Screening	B	B	B, q 6mo
Tetanus	B,P	B,P	B, P
Toxoplasmosis Titer (1)		B	
Rabies Prophylaxis (2)		B,P	
Q Fever Titer (3)		B	
Rubeola (4)			B

B=baseline examination; P=periodic examination

(For pathology personnel, the highest category of animal examined applies.)

(1) Women of child-bearing age who are occupationally exposed to cats and/or their waste should be screened for toxoplasmosis and receive appropriate health education regarding the risk of this disease during pregnancy. Effort should be made to arrange temporary job reassignment while a susceptible employee is pregnant.

(2) Individuals who should receive pre-exposure prophylaxis with human diploid cell rabies vaccine (HDCV) include those who:

a. work directly with rabies virus,

b. have direct contact with animals in quarantine,

c. have exposure to potentially infected animal body organs or perform post-mortem examinations on animals with a history of poorly defined neurological disorders,

d. have responsibility for capturing or destroying wild animals, or

e. have large animal (category 2) contact where a potential for exposure exists.

(3) Employees at risk of exposure to Q fever include those with direct contact with Coxiella burnetti and those who handle or use products of parturition (placenta, amniotic fluid, blood or soiled bedding) from infected sheep, goats, or cattle. At the time of the preplacement exam, individual should be assessed for the likelihood of developing chronic sequela of Q fever should they acquire it, (immunosuppressed individuals and those with valvular or congenital heart valve problems).

(4) Rubeola immunization or documented evidence of immunity or vaccination.

For guidelines on preplacement requirements and periodic medical surveillance for specific animal exposures, contact the Navy and Marine Corps Public Health Center or the nearest Navy Environmental and Preventive Medicine Unit.

Tuberculosis (TB) screen, consistent with current CDC guidelines, means identifying risk factors (generally by questionnaire) for TB exposure or for latent TB to develop into disease and performing skin or blood testing on only those workers at increased risk.

ANIMAL-ASSOCIATED DISEASE:	CONSIDER:	
Respiratory hazards from inhaled dusts	Asthma specific screening questionnaire	
Dermatologic hazards	Screen for history of contact dermatitis (irritant, allergic) Screen for dermatophyte infections	
Zoonotic infections (consider screening if known exposure, high risk, or symptomatic)	Anthrax Atypical mycobacterium infections Brucellosis Capnocytophaga Cat-scratch fever Crimea-Congo hemorrhagic fever Erysipeloid	Glanders Leptospirosis Newcastle disease Orf (Contagious ecthyma) Pasteurellosis Plague Psittacosis Rift Valley fever Tularemia

*See diagram for periodicity

REFERENCE:

1. Garibaldi R, Janis B, Occupational Infections in Rom, William N, Environmental and Occupational Medicine, 2nd ed, Little Brown, 1992.
2. Riveral JC, Bayer RA, Johnson DK, The NIH animal handlers medical surveillance program. J Occup Med 26(2):115-117, 1984 (Manual revised 1/96).
3. CDC Human Rabies Prevention – United States, 2008
4. NASD, Animal Handling Safety Considerations
5. NIOSH Interim Guidance on Health and Safety Hazards When Working with Displaced Domestic Animals
6. Ladou, 3rd Ed. Pp 287-306.
7. HAZMAP Rabies

8. HAZMAP Anthrax
9. HAZMAP Brucellosis

REVIEWED: June 2008

HAZARDOUS DRUGS **110**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**

antineoplastic drugs (vincristine, dacarbazine, mitomycin, cytosine arabinoside, fluorouracil – list is not all inclusive)

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Radiation therapy or radioactive pharmaceuticals	Yes	Yes	Yes
Treatment with steroids, immunosupressive or cancer (cytotoxic) drugs	Yes	Yes	Yes
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	Yes
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	Yes
Liver disease	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes
Hair loss	Yes	Yes	Yes
Are you breastfeeding?	Yes	Yes	Yes
Exposure to chemotherapeutic or antineoplastic agents	Yes	Yes	Yes
Exposure to ionizing radiation	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes
RBC	Yes	Yes	Yes
WBC	Yes	Yes	Yes
HGB	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
MCV	Yes	Yes	Yes
MCH	Yes	Yes	Yes
MCHC	Yes	Yes	Yes
Neutrophils	Yes	Yes	Yes
Lymphocytes	Yes	Yes	Yes
Monocytes	Yes	Yes	Yes
Eosinophils	Yes	Yes	Yes
Basophils	Yes	Yes	Yes
Retic count	Yes	Yes	Yes
BUN	Yes	Yes	Yes
Creatinine	Yes	Yes	Yes
AST	Yes	Yes	Yes
ALT	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes
GGT	Yes	Yes	Yes
LDH	Yes	Yes	Yes
Albumin	Yes	Yes	Yes
Prothrombin time	Yes	Yes	Yes
TSH	Yes	Yes	Yes
Free T3	Yes	Yes	Yes
Free T4	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Eyes	Yes	Yes	Yes
Mucous membranes	Yes	Yes	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Yes	Yes
Cardiopulmonary system	Yes	Yes	Yes
Liver	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes

PROGRAM DESCRIPTION:
None provided

PROVIDER COMMENTS:
Employers should ensure that health care workers who are exposed to hazardous drugs are routinely monitored as part of a medical surveillance program. This includes workers who directly handle hazardous drugs such as nurses, pharmacists, and pharmacy technicians. In addition, other workers (e.g., nurses' aides, laundry workers, shipping and receiving personnel, custodial workers) who may come directly into contact with patient's wastes within 48 hours

after a patient has received a hazardous drug or with hazardous agents should be included in a medical surveillance program.

Virtually all workers potentially exposed to hazardous drugs will also be enrolled in the respiratory protection program, which includes the Respirator User Certification Exam.

Pregnant or breastfeeding workers should be managed per reference 1.

Post-exposure Examinations: Post-exposure evaluation is tailored to the type of exposure (e.g., spills or needle sticks from syringes containing HD's). An assessment of the extent of exposure is made and included in the confidential database (discussed below) and in an incident report. The physical examination focuses on the involved area as well as other organ systems commonly affected (i.e. for CD's the skin and mucous membranes; for aerosolized HD's the pulmonary system). Treatment and laboratory studies follow as indicated and should be guided by emergency protocols.

Unless the unique characteristics of a facility make it feasible to do so, identifying only those drugs each individual actually handles is not done. Thus, medical surveillance for hazardous drug handlers is uniform, i.e., all handlers (not all Health Care Workers, but only those identified as handlers of hazardous drugs) undergo the same lab tests, as it is assumed that any handler may be called upon to handle any hazardous drug.

Prothrombin time is done to assess anticoagulant effects of antineoplastics (as well as anticoagulants). Thyroid function tests are to assess for hypothyroid and hyperthyroid effects of nivolumab.

Thyroid studies are required surveillance of all hazardous drug handlers, as certain drugs (e.g., nivolumab) may cause both hypothyroidism and hyperthyroidism.

REFERENCE:

1. BUMEDINST 6570.3, Hazardous Drugs Safety and Health Plan, 2008
2. OSHA Technical Manual TED 1-0.15A, Chapter 2 CONTROLLING OCCUPATIONAL EXPOSURE TO HAZARDOUS DRUGS
3. NIOSH Safety and Health Topic: Occupational Exposure to Antineoplastic Agents, 2008
4. Connor TH, McDiarmid MA. Preventing occupational exposures to antineoplastic drugs in health care settings. CA Cancer J Clin. 2006; 56:354-365.
5. NIOSH Publication No. 2004-165: Preventing Occupational Exposure to Antineoplastic and Other Hazardous Drugs in Health Care Settings, 2004
6. OSHA Chemical Sampling Information: Antineoplastic Drugs
7. DHHS (NIOSH) Publication No. 2007–117 Medical Surveillance for Health Care Workers Exposed to Hazardous Drugs
8. NIOSH List of Antineoplastic and Other Hazardous Drugs in Healthcare

REVIEWED: January 2016

HERBICIDES **216**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
Paraquat	DW1960000	4685-14-7
Diquat	JM5690000	85-00-7
See Chemical Stressors List for additional compounds		

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Chest X-ray (PA)	No	Yes	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	No
Eyes	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Chronic effects of diquat dibromide are similar to those of paraquat and hence recommendations for paraquat exposure are identical to those for diquat. Chronic exposure to either herbicide causes cataracts in animals; hence visual acuity screening should be evaluated carefully.

REFERENCE:

1. NIOSH Document: Pocket Guide to Chemical Hazards: Paraquat (Paraquat dichloride) | CDC/NIOSH
2. Morgan DP. Recognition and Management of Pesticide Poisonings, Fourth Edition. United States Environmental Protection Agency. 1989:76-82;
3. Klaassen CD, Amdur MO, Doull J. Cassarett And Doull's Toxicology, Third Edition. New York, NY: Macmillan Publishing Co. 1986:556-557;
4. Keifer, MC, Human Health Effects of Pesticides, Occupational Medicine State of the Art Reviews, Volume 12/Number 2, Apr-Jun 1997, Hanley & Belfus, Inc. 5. Stevens, J. T. and Sumner, D. D. Herbicides. In Handbook of Pesticide Toxicology. Hayes, W. J., Jr

REVIEWED: October 2009

MANMADE MINERAL FIBERS **212**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
glass wool		
glass filament		
rock wool	PY8070000	
slag wool		
ceramic fiber: Fiberfrax; Fibermax; Fireline Ceramic; Fybex; Man; Nextel; Pkt; Saffil	BD1450000	1302-76-7

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Cough, other than with colds, flu or allergies	Yes	Yes	No
Exposure to dusts (coal, blast grit, sand, nuisance)	Yes	Yes	No
Exposure to asbestos	Yes	Yes	No
Exposure to silica or sand	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Chest X-ray (PA)	Yes	Every 5 years	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	No
Mucous membranes	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards Mineral Wool fiber, September 2005
2. OSHA Synthetic Mineral Fibers Health Hazards
3. NIOSH Update: NIOSH Document on Refractory Ceramic Fibers Provides Thorough Review of Data, Exposure Recommendations, June 2006
4. ATSDR ToxFAQs—Synthetic Vitreous Fibers, September 2004
5. ATSDR Toxicological Profile for Synthetic Vitreous Fibers September 2004
6. EPA: Integrated Risk Information System Refractory ceramic fibers, 1992
7. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Fibrous Glass, 1977
8. Marsh, et al. Mortality among a cohort of US manmade mineral fiber workers: 1985 Follow-up. J Occ Med, Jul 90. Vol.32, 594-604.

REVIEWED: August 2008

METAL FUMES **602**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**
metal fumes

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Cataracts	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Eye injury	Yes	Yes	No
Perforation of nasal septum	Yes	Yes	No
Cough, other than with colds, flu or allergies	Yes	Yes	No
Kidney disease	Yes	Yes	No
Exposure to lead	Yes	Yes	No
Exposure to chromium or chromic acid	Yes	Yes	No
Eye injury (occupational)	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	No
BUN	Yes	Yes	No
Creatinine	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
AST	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No
Urine nitrite	Yes	Yes	No
Chest X-ray (PA)	Yes	No	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	No
Eyes	Yes	Yes	No
Mucous membranes	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No

PROGRAM DESCRIPTION:
References for specific metals are listed in the appropriate programs.

PROVIDER COMMENTS:
This program is focused toward nonspecific dust, fumes and other irritants as well as potential UV effects experienced by welders. Specific programs in addition to this one will depend on individual exposures and may include; lead, cadmium, chromium, nickel, manganese and others.

REFERENCE:

1. NIOSH Toxicologic Review of Selected Chemicals, Welding Fumes
2. 29 CFR 1910 Subpart Q Welding, Cutting, and Brazing
3. Occupational Safety and Health Guideline for Welding Fumes
4. NIOSH Criteria for a Recommended Standard: Welding, Brazing, and Thermal Cutting.
5. Pierce JO. Metal Fume Fever. In: Parmeggiani L, ed. Encyclopedia of Occupational Health and Safety, volume 2. Third Edition, Geneva: International Labor Office, 1983:1339-1340.

REVIEWED: March 2011

METALWORKING FLUIDS **162**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**
metalworking fluids

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Eye injury	Yes	Yes	Yes
Cough, other than with colds, flu or allergies	Yes	Yes	No
Eye injury (occupational)	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No
Urine nitrite	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Urine RBCs	Yes	Yes	No
Urine WBCs	Yes	Yes	No
Chest X-ray (PA)	Yes	No	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	No
Eyes	Yes	Yes	No
Mucous membranes	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No

PROGRAM DESCRIPTION:
Due to the modest association with prostate cancer, workers exposed to metalworking fluids should be counseled on this risk. However, as the effect requires a latency of greater than 25 years, screening for prostate cancer beyond the recommendations for the general population may not be warranted (Reference 7.)

PROVIDER COMMENTS:
None provided.

REFERENCE:

1. NIOSH Safety and Health Topic: Metalworking Fluids, November 2008
2. NIOSH METALWORKING FLUIDS (MWF) ALL CATEGORIES, 2003
3. NIOSH: What You Need to Know About Occupational Exposure to Metalworking Fluids, 1998
4. NIOSH Criteria for a Recommend Standard Occupational Exposure to Metalworking Fluids.
5. OSHA Metalworking Fluids: Safety and Health Best Practices Manual, 1999
6. Federal Registers 61:45459-45460 Occupational Exposure to Metalworking Fluids 1996
7. Agalliu I, Kriebel D, Quinn MM, Wegman DH, Eisen, EA. Prostate cancer incidence in relation to time windows of exposure to metalworking fluids in the auto industry. Epidemiology. 2005 Sep;16(5): 664-71.

REVIEWED: February 2011

MIXED SOLVENTS (VOLATILE ORGANIC COMPOUNDS) 603

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
1-bromopropane		106-94-5
See Chemical Stressors List for additional compounds		
cyclohexanone	GW1050000	108-94-1
glycol ethers (other than ethoxy and methoxy)		
hexone (methyl isobutyl ketone)	SA9275000	108-10-1
methyl n-amyl ketone	MJ5075000	110-43-0
2-pentanone (methyl propyl ketone)	SA7875000	107-87-9
cumene		98-82-8

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Hepatitis or jaundice	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Contact lens use	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Eye injury	Yes	Yes	No
Liver disease	Yes	Yes	No
Kidney disease	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Personality or behavior change	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Eye injury (occupational)	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Yes	No
BUN	Yes	Yes	No
Creatinine	Yes	Yes	No
AST	Yes	Yes	No
Bilirubin, Total	Yes	No	No
Alkaline phosphatase	Yes	No	No
Eyes	Yes	Yes	No
Respiratory system	Yes	Yes	No
Liver	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
If IH data show exposure to a specific solvent that does not have a corresponding matrix program, placement into program 603 may be done after a review of the toxicity of the solvent. (See Introduction, Mixed Exposures section.)

NOTE: References for specific solvents are listed in the appropriate programs.

REFERENCE:

1. NIOSH Current Intelligence Bulletin 48: Organic Solvent Neurotoxicity. U.S. Department of Health and Human Services; 1987. DHHS (NIOSH) Publication No. 87-104.
2. NOTE: References for specific solvents are listed in the appropriate programs.
3. OSHA/NIOSH Hazard Alert for 1-Bromopropane
4. Report on Carcinogens, Thirteenth Edition. Cumene

REVIEWED: November 2008

ORGANOPHOSPHATE/CARBAMATE COMPOUNDS (ACETYLCHOLINESTERASE INHIBITORS) 179

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
carbaryl	FC5950000	63-25-2
malathion	WM8400000	121-75-5
methyl parathion	TG0175000	298-00-0
parathion	TF4550000	56-38-2
propoxur	FC3150000	114-26-1

See Chemical Stressors List for additional compounds

Program Frequency: *See Provider Comments

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	*	No
Has anything about your health status changed since your last examination	Yes	*	No
Have any medications changed since your last exam	Yes	*	No
Major illness or injury	Yes	*	No
Hospitalization or surgery	Yes	*	No
Cancer	Yes	*	No
Back injury	Yes	*	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	*	No
Have you ever smoked	Yes	*	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	*	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	*	No
Current medication use (prescription or over the counter)	Yes	*	No
Medication allergies	Yes	*	No
Any reproductive health concerns	Yes	*	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	*	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	*	Yes
Use of anticholinergic drugs (e.g., Donnatal)	Yes	*	No
Headache, dizziness, light headedness, weakness	Yes	*	No
Nausea or vomiting	Yes	*	No
Eye irritation or blurred vision	Yes	*	Yes
Numbness, tingling, or weakness in hands or feet	Yes	*	No
Migraine headache	Yes	*	No
Do you handle organophosphate or carbamate pesticides	Yes	*	No
RBC cholinesterase	Yes	**	No
Cholinesterase, plasma	Yes	**	No
Eyes	Yes	*	Yes
Cardiovascular system	Yes	*	Yes
Respiratory system	Yes	*	No

EXAM ELEMENT	BASE	PERI	TERM
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	*	No
Central nervous system	Yes	*	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	*	No

PROGRAM DESCRIPTION:
Personnel should be entered into medical surveillance if they are: exposed to airborne concentrations above the action level for 30 or more days per year; at significant risk of absorption from dermal exposure or ingestion; or performing an operation in an area where a worker has experienced toxicity related to pesticide exposure and exposure controls have not been in place long enough to assess their effectiveness.

PROVIDER COMMENTS:
If respirator is used, then a Respirator User Certification Exam must be completed.

Local Industrial Hygiene support, supplemented by Entomology support, if available, is encouraged for information on specific products.

Serum (or plasma) and red blood cell (RBC) cholinesterase baseline levels should be done at preplacement or, if already working, before exposure (i.e., before starting pesticide work or spraying). This baseline value should be the average of two or more tests (all done prior to pesticide work) taken at least 72 hours, but not more than 14 days, apart, and analyzed at the same laboratory. If two tests are done and the difference between them exceeds 15%, a third baseline test should be performed. The average of the two closest values should be considered the true baseline value. All baseline tests should be taken when the worker has had no exposure to cholinesterase inhibitors for at least 30 days. A first, in-season, follow-up test should be done at 45-60 days, and quarterly thereafter as long as spraying continues (See Reference 3).

Guidance on interpretation is contained in references (1) and (4). NIOSH recommendations (Reference 4) are that cholinesterase levels should be tested in those exposed to organophosphates or carbamate every 4 weeks, except if the exposure is judged to be intense or of long duration. Those employees that are subject to intense exposure should have weekly testing. Those employees exposed to these chemicals for 12 hours a day or more should be tested every 3 weeks. Minimum testing must comply with Reference 3, as it is an instruction, whereas Reference 4 is a guideline.

REFERENCE:

1. National Defense Research Institute: A Review of the Scientific Literature as it Pertains to Gulf War Illnesses, Volume 8--Chapter 7 Organophosphates and Carbamates, 2005
2. OPNAVINST 6250.4C, Navy Pest Management Programs, 11 Apr 2012
3. DODI 6055.05-M, C4.6. CHOLINESTERASE
4. NIOSH Occupational Health Guideline for Parathion September 1978
5. Sidell, F.R. and A. Kaminskis. "Temporal Intrapersonal Physiological Variability of Cholinesterase in Human Plasma and Erythrocytes," Clin. Chem. 21 (1975), pp. 1961-1963.

REVIEWED: December 2015

WOOD DUST **604**

STRESSOR(S) IN THIS PROGRAM:	NIOSH#	CAS#
softwood dusts		
hardwood dusts		

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Allergies (asthma, hay fever, eczema)	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Rhinitis	Yes	Yes	No
Nose bleeds	Yes	Yes	No
Cough, other than with colds, flu or allergies	Yes	Yes	No
Prior respirator use	Yes	Yes	No
Exposure to dusts (coal, blast grit, sand, nuisance)	Yes	Yes	No
Exposure to skin irritants	Yes	Yes	No
Exposure to respiratory irritants	Yes	Yes	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Nasal mucosa (septal perforation)	Yes	Yes	No
Respiratory system	Yes	Yes	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	No

PROGRAM DESCRIPTION:
None provided.

PROVIDER COMMENTS:
Wood dust has been associated with sinonasal cancer in cohorts of hardwood dust workers. Several wood dusts have been associated with asthma and allergic skin responses.

REFERENCE:

1. NIOSH Pocket Guide to Chemical Hazards Wood Dust, September 2005
2. OSHA Safety and Health Guideline for Wood Dust, All Soft & Hardwoods except Western Red Cedar
3. OSHA Wood Products: Woodworking eTool - Health Hazards - Wood Dust - Carcinogens
4. OSHA A Guide for Protecting Workers from Woodworking Hazards, 1999
5. Blot WJ, Chow WH, McLaughlin JK: Wood dust and nasal cancer risk: A review of the evidence from North America. J Occup Environ Med 1997 Feb;39(2):148-56;
6. Demers PA, Teschke K, Kennedy SM: What to do about softwood? A review of respiratory effects and recommendations regarding exposure limits. Am J Ind Med 1997 Apr;31(4):385-398.

REVIEWED: April 2008

Chapter 13:

C13. Specialty Examinations

C13.1 Introduction and Changes

Requirements for performing specialty examinations are included in instructions, Federal law, and state laws. Instructions, technical manuals and publications used for this edition were current at the time of revision. Users of this manual must ensure that they have most current issue of the appropriate reference. Every effort was made in preparing this section of the manual to include the minimum examination requirements. Medical personnel will then be able to add tests needed to meet the requirements of local and state law or activity imposed requirements. References or written protocols should be used when adding tests routinely to examinations. Where strict instructions mandate program documentation, programs are maintained in this manual only for guidance on scheduling and to provide appropriate references. These programs are Aviation, Diver/Hyperbaric Worker, and Submarine Duty.

C13.2 Specialty Examinations

Aviation Health Care Workers (HCWs) Barber and Beauty Shop Employees Motor Vehicle Operator (Other than DOT) Childcare Worker Motor Vehicle Operator (DOT) Diver/ Hyperbaric Worker Naval Criminal Investigative Service Explosives Handlers Overseas Civilian Deployment Explosive Vehicle Driver Police/Guard Security Firefighter (Comprehensive) Respiratory User Certification Exam Forklift Operator Wastewater/Sewage Worker Freon Workers (haloalkane) Weight Handling Equipment Managers Hazardous Waste Workers and Emergency Responders Welders/Brazers/Non-destructive Inspection Techs

C13.3. Programs

AVIATION **701**

Program Frequency: By Age, see program description

EXAM ELEMENT	BASE	PERI	TERM
No tests for this program			
See MANMED Chapter 15-62 for more information			

PROGRAM DESCRIPTION:
This exam may be performed only by flight surgeons and BUMED-23 approved medical officers via special credentialing. This program is included in the Matrix only for completeness.

PROVIDER COMMENTS:
Physical exams and standards for aviation physicals are updated annually and available on the Internet at the NOMI Library home page. This document contains guidance for Class I, Class II, and Class III and enlisted aviation personnel. It also contains height and weight policies and clearance for non-military personnel to fly in USN/USMC Aircraft.

REFERENCE:
1. Manual of the Medical Department, NAVMED P-117, Chapter 15, Article 15-65.

REVIEWED: July 2015

BARBER AND BEAUTY SHOP EMPLOYEES **723**

Program Frequency: Preplacement

EXAM ELEMENT	BASE	PERI	TERM
Has anything about your health status changed since your last examination	Yes	No	No
Have any medications changed since your last exam	Yes	No	No
Major illness or injury	Yes	No	No
Hospitalization or surgery	Yes	No	No
Cancer	Yes	No	No
Back injury	Yes	No	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	No	No
Have you ever smoked	Yes	No	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	No	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	No	No
Current medication use (prescription or over the counter)	Yes	No	No
Medication allergies	Yes	No	No
Any reproductive health concerns	Yes	No	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	No	No
Hepatitis or jaundice	Yes	No	No
Tuberculosis or PPD Converter	Yes	No	No
Infectious disease	Yes	No	No
Chronic abdominal pain, vomiting, other GI symptoms	Yes	No	No
Exposure to formaldehyde	Yes	No	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	No	No

PROGRAM DESCRIPTION:
Certifications performed IAS: NAVMED P-5010, Chapter 2, Section II.

PROVIDER COMMENTS:
All barber shop and beauty shop employees, including contract personnel, must be medically screened and determined to be free of communicable disease including communicable skin diseases prior to their initial assignment.

IH sampling of the Beauty/Barber Shop should be completed to determine if there is an exposure to Formaldehyde. If it is determined that Formaldehyde is a stressor, then employee must be included in the Formaldehyde Program 151.

Unless necessary for local reasons, there is no requirement for periodic examinations. This screening examination may be performed by non-physician personnel.

REFERENCE:
1. Manual of Naval Preventive Medicine NAVMED P-5010, Chapter 2
2. COMNAVSURFORINST 6000.1, Section 4 Habitability
3. OSHA: Hair Smoothing Products

REVIEWED: October 2014

CHILD CARE WORKER **703**

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	No
Hepatitis or jaundice	Yes	Yes	No
Tuberculosis or PPD Converter	Yes	Yes	No
Infectious disease	Yes	Yes	No
History of chicken pox	Yes	Yes	No
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Yes	No
Mental or emotional illness	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Treatment for drug or alcohol use	Yes	Yes	No
Hair (head lice or nits)	Yes	Yes	No
Lungs	Yes	Yes	No
Exposed skin (head, neck, upper extremities)	Yes	Yes	No
MMR #1	Yes	Yes	No
MMR #2	Yes	Yes	No
Measles titer	Yes	Yes	No
Mumps titer	Yes	Yes	No
Rubella titer	Yes	Yes	No
Varicella vaccine #1	Yes	Yes	No
Varicella vaccine #2	Yes	Yes	No
Varicella titer	Yes	Yes	No
Hepatitis B vaccine #1	Yes	Yes	No
Hepatitis B vaccine #2	Yes	Yes	No
Hepatitis B vaccine #3	Yes	Yes	No
Hepatitis B titer	Yes	Yes	No
Hepatitis A vaccine #1	Yes	Yes	No
Hepatitis A vaccine #2	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Hepatitis A titer	Yes	Yes	No
Td (Tdap once)	Yes	Yes	No
Seasonal Influenza Vaccination	Yes	Yes	No
Polio	Yes	Yes	No
Tuberculosis screening questionnaire	Yes	Yes	No
Tuberculosis skin/blood test	Yes	By Risk	No

PROGRAM DESCRIPTION:
Reference (1), paragraph 13.1.a., requires that childcare workers "be in good physical and mental health and free from communicable disease." The purpose of the exam is to identify potentially communicable conditions and to verify that the worker is capable of safely performing job functions. The scope of the exam depends on the worker's history, local public health requirements, and communicable disease risk specific to the area.

PROVIDER COMMENTS:
Reference (2) requires childcare workers to be current for influenza (annually) and for all ACIP recommended immunizations. The immunization requirements promulgated by the various references can be summarized as follows:

A. Immunizations against polio, tetanus, diphtheria and pertussis must be current. On October 26, 2005 the Advisory Committee on Immunization Practices (ACIP) voted to recommend routine use of a single dose of Tetanus, Diphtheria and Pertussis (Tdap) Vaccine for adults 19-64 years of age to replace the next booster dose of tetanus and diphtheria toxoids vaccine (Td). The ACIP also recommended Tdap for adults who have close contact with infants <12 months of age.

B. Immunity is required to chickenpox (varicella), measles, mumps, and rubella. This requirement can be met by documentation of physician-diagnosed illness (except rubella), serologic evidence of immunity, or documented immunization (for measles, 2 doses one month apart after 1 year of age on individuals born on or after 1957 is required).

C. Specific requirements are outlined in the instructions listed in the program description. For those child care worker applicants without a written record of polio immunization status, attendance at public school in the U.S. is adequate for presumption of prior oral polio vaccine administration.

D. As childcare workers may be required to render first aid as part of their job duties, hepatitis B immunity or immunization and enrollment in the Blood and/or Body Fluids Program (Matrix Program 178) is required, per references (12), (13), and (14).

E. Although not specifically required by reference (2), references (11) and (15) recognize hepatitis A outbreaks in child care centers. Additionally, the mobility of the Navy and Marine population warrants consideration of precautions against endemic hepatitis A, for example as set forth in reference (16). Given the worldwide distribution of Navy activities, inconsistent hepatitis A vaccination practices, variable prevalence of hepatitis A in local populations, and asymptomatic and frequently unrecognized hepatitis A among young children, hepatitis A immunity or immunization is required of childcare workers.

F. Initial hires (i.e., baseline) should be given a 2-step tuberculin skin test (unless there is documentation of a skin or blood test within the past 12 months) or a single blood tuberculosis test. ("2-step" testing refers to administering TB skin testing twice; a questionnaire does not serve as one of the "steps.") Thereafter, screening is to be done by questionnaire (reference (6)), with skin or blood testing reserved for those identified as high risk for TB exposure or for latent TB to develop into disease, according to reference (3) (military and civilian mariners) and references (4) and (5) (civilians). Individuals who test positive for TB must be medically evaluated, by their private physician, to rule out active TB. This will also ensure appropriate treatment or prophylaxis (if medically indicated), and to receive medical clearance to work as a CYP professional. A Risk Assessment of the MTF and the surrounding civilian communities must be completed on an annual basis, according to CDC guidelines.

Annual screening shall also include any other tests deemed necessary by appropriate medical personnel.

Hearing. There is no required minimum level of hearing. However, if the worker will be among or overseeing children, the worker must have sufficient hearing to detect that a child is communicating verbally.

Speech. The worker must be capable of effective verbal communication to the degree required by the position. For example, directing toddlers and young children requires greater verbal communication abilities than changing infants' diapers.

Back and musculoskeletal system. Those working directly with children must be able to bend, lift, and carry the children and accessories. For infants, this means lifting a minimum of 15 lbs., and toddlers can weigh considerably more.

REFERENCE:

1. OPNAVINST 1700.9 (current edition), Child and Youth Programs, July 2008
2. BUMEDINST 6230.15, Immunizations and Chemoprophylaxis, current, 2006
3. BUMEDINST 6224.8 Tuberculosis Control Program
4. CDC. Targeted Tuberculin Testing and Treatment of Latent Tuberculosis Infection. ATS/CDC Statement Committee on Latent Tuberculosis Infection Membership List, June 2000. MMWR June 09, 2000, 49(RR06);1-54
5. CDC. TB Elimination Targeted Tuberculosis Testing and Interpreting Tuberculin Skin Test Results. December 2011
6. NAVMED 6224/7 (08-2008) Initial TB Exposure Risk Assessment form
7. CDC Advisory Committee for Immunization Practices (ACIP). ACIP Vaccine Recommendations
8. CDC Fact Sheet. Targeted Tuberculin Testing and Interpreting Tuberculin Skin Test Results.
9. CDC. Parasites - Lice - Head Lice Epidemiology & Risk Factors.
10. CDC: State TB Control Offices
11. CDC. Prevention of Hepatitis A Through Active or Passive Immunization. MMWR. May 19, 2006 / 55(RR07);1-23.
12. Standard Interpretations, Standard Number 1910.1030, October 21, 1999. (page last accessed 10-22-2015)

13. Standard Interpretations, Standard Number 1910.1030, September 1, 1995. (page last accessed 10-22-2015)
14. Standard Interpretations, Standard Number 1910.1030, July 21, 1992. (page last accessed 10-22-2015)
15. CDC. AAFP. AAP. Diseases and the vaccines that prevent them Hepatitis A. (page last accessed 10-22-2015)
16. CDC. MMWR. October 19, 2007 / 56(41);1080-1084. (page last accessed 10-22-2015)

REVIEWED: November 2015

DIVER/HYPERBARIC WORKER **705**

Program Frequency:	By Age
Under 50	Every 5 years
50-59	Every 2 years
60 and over	Annually

PROGRAM DESCRIPTION:
This program is designated solely to provide guidance on scheduling frequency. Disqualifying conditions, tests, and forms required are promulgated in Manual of the Medical Department, NAVMED P-117, Chapter 15, Article 15-102, Change 126. SPECWAR and Special Operations personnel are covered by NAVMED P-117, Chapter 15, Article 15-105, Change 136.

PROVIDER COMMENTS:
The DME will ideally be conducted by an Undersea Medical Officer (UMO) or Diving Medical Officer (DMO). It may be done by any Navy credentialed independent practitioner or physician assistant physician as long as it is reviewed and countersigned by an UMO. In cases where no UMO or DMO is available to review the examination, guidance should be sought from Head Undersea Medicine, BUMED.

Per OPNAVINST 3150.27B, DON civil service employee divers or diver candidates are subject to the same Diving Duty standards: NAVMED P-117, Chapter 15, Article 15-102, Change 126 DME Standards, or latest revision.

Diver candidates (or candidates for advanced diver training) must complete MILPERS 1220 Exhibit 8, U.S. Military Diving Medical Screening Questionnaire.

A full neurologic exam must be documented in block 44 of DOD 2808.

Tympanic membrane mobility must be documented in block 72b of DOD 2808.

Annual PHA must document skin cancer screening.

An audiogram is required every 5 years, and if a permanent significant threshold shift (PSTS) occurs, audiology surveillance is required every 2 years.

Divers require Hepatitis A and Hepatitis B immunizations.

Post-injury evaluations:

A. Diver requires Cardiology evaluation for a patent foramen ovale after a decompression sickness event

B. MRI scanning is required after acute CNS decompression sickness or acute gas embolism event

C. Laser corneal refractive surgery is not disqualifying

REFERENCE:

1. OPNAVINST 3150.27B
2. Manual of the Medical Department, NAVMED P-117, Chapter 15

REVIEWED: February 2011

EXPLOSIVES HANDLER AND EXPLOSIVES MATERIAL HANDLING EQUIPMENT OPERATOR 721

Program Frequency: 5 years

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Use of seat belts (always, mostly, some, none)	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Peripheral vascular disease, or do your fingers or toes turn color or become painful in cold weather	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Nervous stomach or ulcer	Yes	Yes	No
Head injury	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Change or loss in hearing	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Kidney disease	Yes	Yes	No
Epilepsy or seizures	Yes	Yes	No
Problems with balance or coordination	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Migraine headache	Yes	Yes	No
Diabetes (sugar disease) or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	Yes	No
Mental or emotional illness	Yes	Yes	No
Sleep disorder, breathing pauses while sleeping, sleep apnea, loud snoring, insomnia, daytime sleepiness	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Treatment for drug or alcohol use	Yes	Yes	No
Personality or behavior change	Yes	Yes	No
Muscle or joint problems, rheumatism, or arthritis	Yes	Yes	No
Permanent defect from illness, disease or injury	Yes	Yes	No
Do you take any prescribed or unprescribed stimulants besides caffeine	Yes	Yes	No
Do you take any prescribed or unprescribed habit-forming drug	Yes	Yes	No
Are you seeing or being treated by a psychiatrist, psychologist or counselor	Yes	Yes	No
Have you ever been diagnosed with alcoholism	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No
Urine nitrite	Yes	Yes	No
Urine RBCs	Yes	Yes	No
Urine WBCs	Yes	Yes	No
Audiogram (non-HCP)	Yes	Yes	No
Vision screen (visual acuity)	Yes	Yes	No
Color vision	Yes	Yes	No
Peripheral vision	Yes	Yes	No
Eyes	Yes	Yes	No
Ears (tympanic membranes)	Yes	Yes	No
Throat	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Respiratory system	Yes	Yes	No
Abdomen	Yes	Yes	No
Check for inguinal or femoral hernia	Yes	Yes	No
Back & musculoskeletal system	Yes	Yes	No
Extremities	Yes	Yes	No
Peripheral vascular system, including acral (distal) micro-circulation and evidence of Reynaud's	Yes	Yes	Yes
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:

It is important to note the separation of the two qualifications as Explosive Motor Vehicle Operator and Explosive Handler. Those qualified under the Explosive Motor Vehicle Operator are automatically also qualified as Explosive Handlers. Explosive Handler qualification does not imply qualification for Explosive Motor Vehicle Operator. Explosive Motor Vehicle Operators and Explosive Handlers receive the same examination. However, Handlers not meeting the standards can be "waived" and certified as Explosive Handlers.

Independent Duty Corpsmen operating within the scope of their privileging authority are authorized to certify personnel under this program.

Navy Explosive Ordnance Disposal personnel must also meet the requirements of article 15-105.

PROVIDER COMMENTS:
* Hematocrit and fasting blood glucose currently are not required as part of this exam. Medical research support for this type of screening on the exam is not strong; however, anemia and hypo/ hyperglycemia are easily correctable causes of sudden altered consciousness that some on the Medical Matrix Committee feel should be a required test for entry into the program and for periodic review. As always, inclusion of these lab tests is at the local provider's discretion.

Explosives Material Handling Equipment Operators must have the OPNAV 8020/6 certification card filled out with "D" marked in the qualification portion of the form (unless higher eligible medical rating applies).

Explosive Handlers only must have "X" in the box labeled "MILITARY/CIVILIAN Explosives Handler NOT operating MHE (721).

REFERENCE:
1. Manual of the Medical Department, U.S. Navy, NAVMED P-117, Chapter 15-107
2. NAVSEA OP 5 VOLUME 1, Ammunition and Explosives Safety Ashore
3. OPNAV 8020/6

REVIEWED: May 2016

EXPLOSIVES VEHICLE OPERATORS **720**

Program Frequency: Biennial

EXAM ELEMENT	BASE	PERI	TERM
Complete OPNAV 8020/6 (both mil & civ)	Yes	Yes	No
Complete Medical Examination Report (MER), Form MCSA-5875 (both mil & civ)	Yes	Yes	No
Complete Medical Examiner's Certificate (MEC), Form MCSA-5876 (civ only)	Yes	Yes	No
Complete CMV Driver Medical Examination Results Form, MCSA-5850 (civ only)	Yes	Yes	No

PROGRAM DESCRIPTION:
Motor Vehicle Operators (DOT) medical exams are just one of the requirements for a Commercial Driver License (CDL). A CDL is usually issued to drivers of vehicles that have a gross combination weight rating of 26,001 pounds or more, or transport 16 or more passengers including the driver, or transport hazardous material.

This program is to fulfill requirements of NAVMED P-117 Chapter 15-107 (1).

Both military and civilian drivers of vehicles carrying explosives (hazardous material) must now be certified no less frequently than every 2 years.

Physical qualifications are contained in Federal Motor Carrier Safety Regulations (FMCSRs), 49 CFR 391.41-49 (3).

PROVIDER COMMENTS:
49 CFR 383.3 (4) lists military exemption, however, per DoDM 4500.36 (5), "DoD Components will prescribe licensing requirements for its military and civilian drivers that meet or exceed the minimum national requirements issued by the Secretary of Transportation in compliance with the requirements on part 383." Therefore, 49 CFR 391 physical qualifications apply to all civilian and military CMV operators.

BUMEDINST 1500.30 (6) requires providers performing CMV exam for civilian drivers to be listed on the National Registry for Certified Medical Examiners (NRCME). Providers performing CMV exams for military drivers are not required to be listed on the National Registry, however, providers should have the same level of training and be familiar with the physical qualifications of 49 CFR 391.41-49 (3).

For civilians, FMCSRs mandate the use of the unamendable forms: the MER (7) and the MEC (8). Electronic reporting on the NRCME website using MCSA-5850 (9) must be done by the end of each calendar month.

BUMEDMEMO 6260 (10) requires military and civilian exams be documented on the MER, only civilian exams be reported on the MEC, and OPNAV 8020/6 should be used to certify all qualified operators (category "A" for civilians or "B" for military).

Additional information is available in references (11) through (16).

REFERENCE:

1. NAVMED P-117, Section 15-107, Explosives Motor Vehicle Operator and Explosives Handler Examinations and Standards, (page last accessed 7-22-2016).
2. 49 CFR 383.5 Definitions, (page last accessed 7-22-2016).
3. 49 CFR 391.41-49
4. 49 CFR 383.3 Applicability, (page last accessed 7-22-2016).
5. DoDM 4500.36, Acquisition, Management, and Use of DoD Non-Tactical Vehicles, 7 July 2015
6. BUMEDINST 1500.30, Training and Certification Requirements for Healthcare Practitioners Performing Commercial Driver Examinations, 14 May 2014
7. FMCSA Medical Examination Report Form (MER), MCSA-5875 (page last accessed 7-22-2016).
8. FMCSA Medical Examiner's Certificate (MEC), MCSA-5876 (page last accessed 7-22-2016).
9. FMCSA Medical Examination Results Form (MCSA-5850).
10. BUMEDMEMO 6260 Ser M3B7/16UM30031, New Regulations Regarding Medical Examinations for Commercial Motro Vehicle Drivers, 11 Apr 2016
11. Hartenbaum, N. The DOT Medical Examination, OEM Press, Boston, MA 2010.
12. MCO 11240.66 (series), Standard Licensing Procedures for Operators of Military Motor Vehicles
13. TM 11240-15/3 Motor Vehicle Licensing Official's Handbook
14. NAVSEA OP 5 VOLUME 1, Ammunition and Explosives Safety Ashore
15. Federal Motor Carrier Safety Administration FAQs
16. FMCSA website

REVIEWED: October 2016

FIREFIGHTER (COMPREHENSIVE) **707**

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes*
Has anything about your health status changed since your last examination	Yes	Yes	Yes*
Have any medications changed since your last exam	Yes	Yes	Yes*
Major illness or injury	Yes	Yes	Yes*
Hospitalization or surgery	Yes	Yes	Yes*
Cancer	Yes	Yes	Yes*
Back injury	Yes	Yes	Yes*
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes*
Have you ever smoked	Yes	Yes	Yes*
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes*
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes*
Current medication use (prescription or over the counter)	Yes	Yes	Yes*
Medication allergies	Yes	Yes	Yes*
Use of seat belts (always, mostly, some, none)	Yes	Yes	Yes*
Any reproductive health concerns	Yes	Yes	Yes*
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Yes	Yes*
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes*
Have you ever been evaluated for latex allergy	Yes	Yes	Yes*
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes*
Heat injury (heat cramps, exhaustion, stroke)	Yes	Yes	Yes*
Difficulty acclimating to heat	Yes	Yes	Yes*
Peripheral vascular disease, or do your fingers or toes turn color or become painful in cold weather	Yes	Yes	Yes*
Hepatitis or jaundice	Yes	Yes	Yes*
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes*
Wheezing	Yes	Yes	Yes*
Tuberculosis or PPD Converter	Yes	Yes	Yes*
Chest surgery or injury (including broken ribs)	Yes	Yes	Yes*
Shortness of breath	Yes	Yes	Yes*
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes*
Exposure (acclimatization) to heat	Yes	Yes	Yes*
Cold injury (frostbite, chill, trench foot, hypothermia)	Yes	Yes	Yes*
Head injury	Yes	Yes	Yes*
Use of eye glasses	Yes	Yes	Yes*
Change or loss of vision in either eye	Yes	Yes	Yes*
Contact lens use	Yes	Yes	Yes*
Color blindness	Yes	Yes	Yes*

EXAM ELEMENT	BASE	PERI	TERM
Eye irritation or blurred vision	Yes	Yes	Yes*
Any other eye or vision problem	Yes	Yes	Yes*
Inability or reduced ability to smell	Yes	Yes	Yes*
Ringing in the ear (tinnitus)	Yes	Yes	Yes*
Any injury to your ears (including ruptured ear drum)	Yes	Yes	Yes*
Change or loss in hearing	Yes	Yes	Yes*
A need to wear a hearing aid	Yes	Yes	Yes*
Any other hearing or ear problem	Yes	Yes	Yes*
Difficulty hearing conversations, people	Yes	Yes	Yes*
Recreational or non-occupational exposure to loud noise	Yes	Yes	Yes*
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	Yes*
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	Yes*
Frequent pain or tightness in your chest	Yes	Yes	Yes*
Swelling in legs or feet (not caused by walking)	Yes	Yes	Yes*
Cough, other than with colds, flu or allergies	Yes	Yes	Yes*
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Yes	Yes*
Kidney disease	Yes	Yes	Yes*
Current pregnancy (females only)	Yes	Yes	Yes*
Infertility or miscarriage (self or spouse)	Yes	Yes	Yes*
Epilepsy or seizures	Yes	Yes	Yes*
Problems with balance or coordination	Yes	Yes	Yes*
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes*
Thyroid disease (including heat or cold intolerance)	Yes	Yes	Yes*
Diabetes (sugar disease) or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	Yes	Yes*
Mental or emotional illness	Yes	Yes	Yes*
Sleep disorder, breathing pauses while sleeping, sleep apnea, loud snoring, insomnia, daytime sleepiness	Yes	Yes	Yes*
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	Yes*
Personality or behavior change	Yes	Yes	Yes*
Claustrophobia	Yes	Yes	Yes*
Muscle or joint problems, rheumatism, or arthritis	Yes	Yes	Yes*
Any other muscle or skeletal problem that may interfere with using a respirator	Yes	Yes	Yes*
Latex allergy or sensitivity	Yes	Yes	Yes*
Do you have any symptoms which you think may be related to hazards you are exposed to at work	Yes	Yes	Yes*
Prior respirator use	Yes	Yes	Yes*
Any problems with prior respirator use	Yes	Yes	Yes*
Exposure to excessive noise	Yes	Yes	Yes*
Exposure to skin irritants	Yes	Yes	Yes*
Exposure to respiratory irritants	Yes	Yes	Yes*
Exposure to carcinogens	Yes	Yes	Yes*
Exposure to potentially infectious body fluids	Yes	Yes	Yes*
RBC	Yes	Yes	Yes*

EXAM ELEMENT	BASE	PERI	TERM
WBC	Yes	Yes	Yes*
HGB	Yes	Yes	Yes*
MCV	Yes	Yes	Yes*
MCH	Yes	Yes	Yes*
MCHC	Yes	Yes	Yes*
HCT	Yes	Yes	Yes*
Neutrophils	Yes	Yes	Yes*
Lymphocytes	Yes	Yes	Yes*
Monocytes	Yes	Yes	Yes*
Eosinophils	Yes	Yes	Yes*
Basophils	Yes	Yes	Yes*
Platelets	Yes	Yes	Yes*
Fasting blood glucose	Yes	Yes	Yes*
BUN	Yes	Yes	Yes*
Creatinine	Yes	Yes	Yes*
HgbA1C (if Diabetic)	Yes	Yes	No
Urinary microalbumin (diabetics only)	Yes	Yes	No
Cholesterol, total	Yes	Q5Y+	No
LDL	Yes	Q5Y+	No
Percent LDL	Yes	Q5Y+	No
HDL	Yes	Q5Y+	No
Triglycerides	Yes	Q5Y+	No
AST	Yes	Yes	Yes*
ALT	Yes	Yes	Yes*
Bilirubin, Total	Yes	Yes	Yes*
Alkaline phosphatase	Yes	Yes	Yes*
Total protein	Yes	Yes	Yes*
GGT	Yes	Yes	Yes*
Albumin	Yes	Yes	Yes*
HIV	Yes	No	No
Urine Ph	Yes	Yes	Yes*
Urine specific gravity	Yes	Yes	Yes*
Urine urobilinogen	Yes	Yes	Yes*
Urine protein	Yes	Yes	Yes*
Urine glucose	Yes	Yes	Yes*
Urine ketones	Yes	Yes	Yes*
Urine blood	Yes	Yes	Yes*
Urine nitrite	Yes	Yes	Yes*
Urine RBCs	Yes	Yes	Yes*
Urine WBCs	Yes	Yes	Yes*
Chest X-ray (PA & LAT)	Yes	No	No
Electrocardiogram	Yes	35-40+	No
Audiogram (DD 2215/2216)	Yes	Yes	Yes*
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes*
Vision screen (visual acuity)	Yes	Yes	No
Color vision	Yes	Yes	Yes*

EXAM ELEMENT	BASE	PERI	TERM
Peripheral vision	Yes	Yes	No
Overall physical fitness	Yes	Yes	Yes*
Metabolic disturbance (fever, tachycardia)	Yes	Yes	Yes*
Eyes	Yes	Yes	Yes*
Ears (tympanic membranes)	Yes	Yes	Yes*
Thyroid	Yes	Yes	Yes*
Cardiovascular system	Yes	Yes	Yes*
Respiratory system	Yes	Yes	Yes*
Liver	Yes	Yes	Yes*
Genitalia (men), incl. hernia and testicular mass	Yes	Yes	Yes*
Back & musculoskeletal system	Yes	Yes	Yes*
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes*
Central nervous system	Yes	Yes	Yes*
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	Yes*
Psychiatric (especially emotional stability)	Yes	Yes	Yes*
Evidence of recent or current substance abuse	Yes	Yes	Yes*
Other appropriate examination (specify)	Yes	Yes	Yes*
Immunizations current?	Yes	Yes	No
Hepatitis B vaccine #1	Yes	Yes	No
Hepatitis B vaccine #2	Yes	Yes	No
Hepatitis B vaccine #3	Yes	Yes	No
Hepatitis B titer	Yes	No	No
Hepatitis A vaccine #1	Yes	Yes	No
Hepatitis A vaccine #2	Yes	Yes	No
Hepatitis A titer	Yes	No	No
Td (Tdap once)	Yes	Yes	No
Seasonal Influenza Vaccination (offer to worker)	Yes	Yes	No
Tuberculosis screening questionnaire	Yes	Yes	No
Tuberculosis skin/blood test	Yes	By Risk	No
Assess the examinee's knowledge of universal blood and body fluid precautions	Yes	Yes	No
Physician’s or provider’s written opinion required	Yes	Yes	No
Is surveillance/PPE consistent with exposures	Yes	Yes	Yes*
Are any abnormalities related to exposures/occupations	Yes	Yes	Yes*

PROGRAM DESCRIPTION:

This new annual “comprehensive” exam fulfills the requirements of the following medical surveillance/certification programs: Firefighter, HAZMAT/Emergency Responder, Respirator User, Motor Vehicle Operator (Other than DOT), Blood and Body Fluid, Heat, and Noise. The references that govern each of the component programs within this comprehensive firefighter program have been consolidated as well. Should the provider wish a more extensive list of references for any one of these programs, please refer to that individual program elsewhere in the Medical Matrix.

This exam (program 707) provides guidelines for both preplacement and periodic medical examinations.

PROVIDER COMMENTS:
Reference (1) mentions risk factors. However, the presence of risk factors alone without evidence of actual disease cannot be used to disqualify someone, unless the risk factor represents a direct and actual risk of sudden incapacitation. In other words, a risk factor for a risk factor (i.e., an indirect risk factor) is not disqualifying in the absence of the direct risk factor.

To help determine whether an abnormality is disqualifying, consider whether the finding constitutes a real risk or a hypothetical risk (conjecture). For example, severe hypertension is a risk factor for sudden incapacitation; hypertension may, but not always does, lead to sudden incapacitation. Thus, severe hypertension may be considered disqualifying. Hyperlipidemia may (but not always does) lead to atherosclerotic cardiovascular disease, which may, but not always does, lead to sudden incapacitation. If the examiner cannot establish that hyperlipidemia has already led to cardiovascular disease, there is no reason to think hyperlipidemia will lead to sudden incapacitation. The question before the provider is, "Is there evidence that this person is at unacceptably increased risk of sudden incapacitation?" With no hypertension, abnormal funduscopic exam, diminished pulses, bruits, edema, claudication or other symptoms or findings, there is no reason to think that lipids have caused atherosclerotic cardiovascular disease. The possibility that lipids have unacceptably increased the examinee's risk is mostly conjecture; thus, his or her hyperlipidemia would not be disqualifying.

The physical examination required is comprehensive. The examiner should become familiar with the list of disqualifying conditions in reference (2), as it is extensive.

Reference (2) makes a distinction between medical qualification of candidates and of workers (i.e., those applying to be firefighters are considered differently from those already hired as firefighters).

Per reference (3), the firefighter certification exam should not include the preventive medicine and health promotion guidance in reference (2). Firefighters have their own health insurance and benefits for that purpose.

Reference (2) contains conditions, by categories, which are considered medically disqualifying. NOTE: The guidance in reference (4) must be consulted on all civilian employees in whom there is a question of worker fitness. Firefighters may have a variety of jobs, and not all firefighter jobs will be actually fighting fires. The examiner should take into account the individual job requirements of each examinee. The presence of a medically disqualifying condition does not automatically preclude continued work. This decision should be made by management with input from Occupational Medicine, Human Resources Office and, possibly, the worker’s personal physician.

See the Matrix section "Disqualification of Workers and Candidates" for guidance when examinees are not clearly qualified.

Physician's/provider's Written Opinion letters are required by OSHA for both Hazardous Waste Workers/Emergency Responders and Blood/Body Fluid exposure. Sample letters can be found in Chapter 10.

Not all immunizations and TB testing listed among the above elements are required; however, each should be reviewed at the prescribed periodicity. According to reference (1) and consistent with reference (2), the following immunizations are required: hepatitis A, hepatitis B, tetanus, and diphtheria.

If the worker has not had Tdap, Tdap should be administered once (i.e., even before re-immunization with Td is required), and then Td immunization should be done every 10 years.

Immunizations and titers for hepatitis A and B, immunization for Varicella, and immunization for MMR are not required annually; only review of immunizations and titers to verify immune status is required.

Influenza vaccine is to be offered to firefighters, but it is not mandatory unless the firefighter works in a medical treatment facility.

Chest x-ray should be done at baseline and at any other time at the discretion of the provider.

*Workers who have had an examination within the previous 12 months do not require a termination examination.

Q5Y+ indicates testing every 5 years until age 40, then annual testing.

35-40+ indicates EKG at age 35 and then annual EKG starting at age 40.

"By Risk": Consistent with reference (2), annual TB screening is to be done according to CDC guidelines. Currently, this means initial (baseline) TB skin test ("2-step" for those who have not been tested for more than 1 year) or blood test, followed by annual risk assessment using a questionnaire (reference (15)). Skin or blood testing is required only for those at increased risk (and who have not had a positive skin test previously).

REFERENCE:

1. DODINST 6055.05M Occupational Medical Examinations and Surveillance Manual, May 2007. Chapter 3.3, Firefighters; Table C2.T14, Bloodborne Pathogens; Table C2.T16, HAZWOPER; Table C2.T15, Noise; Table C3.T1, Physical Examination Schedule For Firefighter
2. NFPA Standard on Medical Requirements for Fire Fighters, (NFPA 1582), 2013 Edition. For purchase: NFPA 1582 2013, Comprehensive Occupational Medical Program for Fire Departments.
3. Firefighter Medical Surveillance Examinations, BUMED letter 6260, Ser M3/06UM31 08, 3 March 2006.
4. 5 CFR Part 339, Medical Qualification Determinations
5. DODINST 6055.06; DoD Fire and Emergency Services (F&ES) Program
6. Qualification Standards, Fire Protection and Prevention Series, GS-081
7. OSHA Standard 29 CFR 1910.1030, Occupational Exposure to Bloodborne Pathogens.
8. 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response
9. 29 CFR 1910.95, Occupational Noise Exposure
10. 29 CFR 1910.134, Respiratory Protection

11. OPNAVINST 5100.23 (series), Navy Safety and Occupational Health (SOH) Program Manual. Chapter 15, Respiratory Protection; Chapter 18, Hearing Conservation and Noise Abatement; Chapter 26.04, Heat Stress; Chapter 28, Bloodborne Pathogens
12. NIOSH 85-115-a, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, Chapter 5
13. American National Standard for Respiratory Protection-Respirator Use, Physical Qualifications for Personnel; ANSI/AIHA Z88.6-2006 (Link to purchase)
14. BUMEDINST 6230.15B, Immunizations and Chemoprophylaxis for the Prevention of Infectious Diseases, 7 October 2013.
15. NAVMED 6224/8 (Rev. 3-2011), Tuberculosis Exposure Risk Assessment.

REVIEWED: December 2015

FORKLIFT OPERATOR / MATERIAL HANDLING EQUIPMENT **710**

Program Frequency: By Age
Up to 59 years Every 5 years
Age 60 and over Annually

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	By Age	No
Has anything about your health status changed since your last examination	Yes	By Age	No
Have any medications changed since your last exam	Yes	By Age	No
Major illness or injury	Yes	By Age	No
Hospitalization or surgery	Yes	By Age	No
Cancer	Yes	By Age	No
Back injury	Yes	By Age	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	By Age	No
Have you ever smoked	Yes	By Age	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	By Age	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	By Age	No
Current medication use (prescription or over the counter)	Yes	By Age	No
Medication allergies	Yes	By Age	No
Any reproductive health concerns	Yes	By Age	No
Headache, dizziness, light headedness, weakness	Yes	By Age	No
Head injury	Yes	By Age	No
Change or loss of vision in either eye	Yes	By Age	No
Change or loss in hearing	Yes	By Age	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	By Age	No
Repeated episodes of loss of or near loss of consciousness	Yes	By Age	No
Epilepsy or seizures	Yes	By Age	No
Problems with balance or coordination	Yes	By Age	No
Numbness, tingling, or weakness in hands or feet	Yes	By Age	No
Diabetes (sugar disease) or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	By Age	No
Mental or emotional illness	Yes	By Age	No
Depression, difficulty concentrating, excessive anxiety	Yes	By Age	No
Personality or behavior change	Yes	By Age	No
Audiogram (non-HCP)	Yes	By Age	No
Vision screen (visual acuity)	Yes	By Age	No
Color vision	Yes	By Age	No
Depth perception	Yes	By Age	No
Peripheral vision	Yes	By Age	No
Eyes	Yes	By Age	No
Ears (tympanic membranes)	Yes	By Age	No
Cardiovascular system	Yes	By Age	No

EXAM ELEMENT	BASE	PERI	TERM
Back & musculoskeletal system	Yes	By Age	No
Central nervous system	Yes	By Age	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	By Age	No

PROGRAM DESCRIPTION:
Occupations in this program:

All self-propelled MHE and Shipboard Mobile Support Equipment (SMSE), including:

Forklifts

Platform trucks

Pallet trucks

Straddle carrying trucks

Warehouse tractors

463L aircraft loaders

Automated materials handling systems

Non-powered shipboard pallet trucks

Aerial work platforms, including boom-lift and scissor-lift platforms

Civilian workers who operate MHE for handling ammunition and explosives must be examined under program 721, Explosive Handler.

All workers who operate vehicles that transport ammunition and explosives must be examined under program 706, Motor Vehicle Operators (DOT and Explosives).

PROVIDER COMMENTS:
Civilian workers who operate MHE for handling ammunition and explosives must be examined under Program #721, Explosive Handler.

Except where specifically noted, the following standards for MHE operation are based on reference (1).

Visual acuity should be correctable to 20/30 in each eye. An individual whose visual acuity is 20/40 or poorer will require the “installation medical examiner” to decide whether or not the individual’s vision is sufficient for operation of MHE. (When making that decision it might also be noted that this standard for visual acuity is more stringent than the one used for CDL drivers.) While there is no depth perception minimum standard (reference (1)), depth perception is extremely important to safe forklift operation (more important than to commercial truck driving).

“Persons with sight in only one eye can operate industrial tractors in open areas, but not in warehouses. Sight in both eyes is required for handling ammunition and explosives.”

There is no minimum standard for depth perception. However, an authority reports that depth perception is more important for forklift operators than for drivers of highway vehicles. Providers are encouraged to consider restricting or disqualifying operators who have significant deficiency - see reference (2).

Lateral gaze of 75 degrees on each side is required unless the “installation medical examiner” determines “lateral vision is sufficient for safe operation of MHE.”

“If there is any indication of colorblindness, the examinee will be given information on traffic lights, observation of other traffic, etc., which will enable the individual to operate MHE safely.”

A reaction time test (eye to foot) of 0.60 second or less is required; however, that test is obsolete and no longer performed in OEM MTFs.

Hearing acuity “in the better ear of 15/20 with or without a hearing aid” is required. This is an obsolete measurement. The approximate equivalent is 60 dB hearing loss at 500, 1000, and 2000 Hz in the better ear. (Note that this is “moderate” or “moderately severe” hearing loss.) If “measuring equipment is not available, the potential operator may be tested by determining if he or she can hear conversation spoken clearly and in moderate tone from a distance of 20 feet.”

“Amputees in good physical condition are acceptable as operators, when in the opinion of the installation medical examiner, they can perform in accordance with the physical requirements as established by the installation. The examination report will include a justification statement as to why the missing limb will not present a safety hazard.”

Reference (1) also refers to 5 CFR 930, which contains text pertaining to non-DOT motor vehicle operators. Providers are advised to consider that an MHE operator, in addition to the above requirements, at least should be able to safely operate a car on public roads.

Per reference (2), "These examinations shall be performed by an independent medical provider [i.e., Navy Independent Duty

Corpsmen (IDC), Physicians (MD or DO), Physician Assistants (PA), or Nurse Practitioners (NP)]." (IDCs may only examine military service members.)

OPNAV 8020/6 should be used to certify qualified operators (mark "E").

REFERENCE:

1. NAVSUP P-572 Joint Service Manual (JSM) for Storage and Materials Handling, April 1994, pages 4-77 to 4-79 (this and DoD 4140.1-R replace DOD 4145.19-R-1, a reference document previously used for forklift operators).
2. OSHA letter regarding Standard Number: 1910.178, October 20, 1976
3. NAVSUP Pub 538, Management of Materials Handling Equipment (MHE) and Shipboard Mobile Support Equipment (SMSE)

4. NAVFAC P-300, Management of Civil Engineering Support Equipment, Sept 2003 (MHE is not generally covered by this publication, but it "may be included in this program at the discretion of the activity")

REVIEWED: April 2011

HAZARDOUS WASTE WORKERS AND EMERGENCY RESPONDERS 711

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	Yes
Has anything about your health status changed since your last examination	Yes	Yes	Yes
Have any medications changed since your last exam	Yes	Yes	Yes
Major illness or injury	Yes	Yes	Yes
Hospitalization or surgery	Yes	Yes	Yes
Cancer	Yes	Yes	Yes
Back injury	Yes	Yes	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	Yes
Have you ever smoked	Yes	Yes	Yes
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	Yes
Current medication use (prescription or over the counter)	Yes	Yes	Yes
Medication allergies	Yes	Yes	Yes
Any reproductive health concerns	Yes	Yes	Yes
Allergies (asthma, hay fever, eczema)	Yes	Yes	Yes
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	Yes	Yes
Heat injury (heat cramps, exhaustion, stroke)	Yes	Yes	Yes
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Headache, dizziness, light headedness, weakness	Yes	Yes	Yes
Cold injury (frostbite, chill, trench foot, hypothermia)	Yes	Yes	Yes
Change or loss of vision in either eye	Yes	Yes	Yes
Change or loss in hearing	Yes	Yes	Yes
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	Yes
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	Yes
Current pregnancy (females only)	Yes	Yes	Yes
Epilepsy or seizures	Yes	Yes	Yes
Problems with balance or coordination	Yes	Yes	Yes
Numbness, tingling, or weakness in hands or feet	Yes	Yes	Yes
Thyroid disease (including heat or cold intolerance)	Yes	Yes	Yes
Mental or emotional illness	Yes	Yes	Yes
Do you have any symptoms which you think may be related to hazards you are exposed to at work	Yes	Yes	Yes
Exposure to skin irritants	Yes	Yes	Yes
Exposure to respiratory irritants	Yes	Yes	Yes
Exposure to carcinogens	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
RBC	Yes	Yes	Yes
WBC	Yes	Yes	Yes
HGB	Yes	Yes	Yes
MCV	Yes	Yes	Yes
MCH	Yes	Yes	Yes
MCHC	Yes	Yes	Yes
Neutrophils	Yes	Yes	Yes
Lymphocytes	Yes	Yes	Yes
Monocytes	Yes	Yes	Yes
Eosinophils	Yes	Yes	Yes
Basophils	Yes	Yes	Yes
BUN	Yes	Yes	Yes
Creatinine	Yes	Yes	Yes
Cholesterol, total	Yes	*	Yes
LDL	Yes	*	Yes
HDL	Yes	*	Yes
Triglycerides	Yes	*	Yes
AST	Yes	Yes	Yes
ALT	Yes	Yes	Yes
Bilirubin, Total	Yes	Yes	Yes
Alkaline phosphatase	Yes	Yes	Yes
Total protein	Yes	Yes	Yes
GGT	Yes	Yes	Yes
Albumin	Yes	Yes	Yes
Urine Ph	Yes	Yes	Yes
Urine specific gravity	Yes	Yes	Yes
Urine urobilinogen	Yes	Yes	Yes
Urine protein	Yes	Yes	Yes
Urine glucose	Yes	Yes	Yes
Urine ketones	Yes	Yes	Yes
Urine blood	Yes	Yes	Yes
Urine nitrite	Yes	Yes	Yes
Urine RBCs	Yes	Yes	Yes
Urine WBCs	Yes	Yes	Yes
Electrocardiogram	Yes	*	No
Audiogram (DD 2215/2216)	Yes	Yes	Yes
Chest X-ray (PA)	Yes	No	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	Yes
Vision screen (visual acuity)	Yes	Yes	Yes
Color vision	Yes	Yes	Yes
Obesity	Yes	Yes	Yes
Overall physical fitness	Yes	Yes	Yes
Metabolic disturbance (fever, tachycardia)	Yes	Yes	Yes
Eyes	Yes	Yes	Yes
Thyroid	Yes	Yes	Yes
Cardiovascular system	Yes	Yes	Yes

EXAM ELEMENT	BASE	PERI	TERM
Respiratory system	Yes	Yes	Yes
Back & musculoskeletal system	Yes	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Yes	Yes
Central nervous system	Yes	Yes	Yes
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	Yes
Physician's or provider's written opinion required	Yes	Yes	Yes

PROGRAM DESCRIPTION:
29 CFR 1910.120 establishes minimal medical surveillance for personnel who are or may be exposed to hazardous substances at or above the PEL for 30 days per year, wear a respirator 30 days per year, or sustain an overexposure incident involving hazardous substances. CFR requires an annual exam unless the attending physician feels longer intervals are appropriate. Under no circumstances should the frequency be less than every two years. A sample Physician's/ provider's Written Opinion, required by OSHA, can be found in Physician's/Provider's Written Opinion Samples.

The content of medical examinations, lab testing, and consultations are determined by the examining physician's knowledge of the potential hazardous materials, using the guidelines in Reference (2). The medical program should be developed for each site based on the specific needs, location, and potential exposures of employees at the site. The program should be designed and reviewed periodically by an experienced occupational health physician or other qualified occupational health consultant in conjunction with the site Safety Officer.

The physician's written opinion is required as follows:

1. whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from work in hazardous waste operations or emergency response, or from respirator use,

2. the physician's recommended limitations upon the employee's assigned work,

3. the results of the medical examination and tests if requested by the employee,

4. a statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further examination or treatment, and

5. the written opinion obtained by the employer shall not reveal specific findings or diagnoses unrelated to occupational exposures.

PROVIDER COMMENTS:
As a baseline set of screening labs, NIOSH recommends annual screening, including labs for liver, kidney, and blood forming function. The specific tests for specific hazard groups are listed in tables in Reference (2).

* An additional EKG and lipid profile should be performed one time for workers turning 40.

REFERENCE:

1. 29 CFR 1910.120
2. NIOSH Pub No. 85-115, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities
3. DoD 6055.05M, May 2, 2007, Table C2.T16, HAZWOPER

REVIEWED: February 2011

HEALTH CARE WORKERS (HCWS) **719**

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	No	No
Has anything about your health status changed since your last examination	Yes	No	No
Have any medications changed since your last exam	Yes	No	No
Major illness or injury	Yes	No	No
Hospitalization or surgery	Yes	No	No
Cancer	Yes	No	No
Back injury	Yes	No	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	No	No
Have you ever smoked	Yes	No	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	No	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	No	No
Current medication use (prescription or over the counter)	Yes	No	No
Medication allergies	Yes	No	No
Any reproductive health concerns	Yes	No	No
Allergies (asthma, hay fever, eczema)	Yes	No	No
Have you ever been evaluated for latex allergy	Yes	No	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	No	No
Hepatitis or jaundice	Yes	No	No
Tuberculosis or PPD Converter	Yes	No	No
History of chicken pox	Yes	No	No
Current pregnancy (females only)	Yes	No	No
Infertility or miscarriage (self or spouse)	Yes	No	No
Adverse reaction to eating any vegetable or fruit	Yes	No	No
Latex allergy or sensitivity	Yes	No	No
Multiple operations or chronic medical instrumentation	Yes	No	No
Unexplained hives or symptoms of shock	Yes	No	No
Itchy eyes, runny nose, respiratory symptoms when using latex gloves	Yes	No	No
Exposure to chemotherapeutic or antineoplastic agents	Yes	No	No
Exposure to aerosolized antibiotics or antivirals	Yes	No	No
Exposure to anesthetic gases	Yes	No	No
Exposure to ethylene oxide	Yes	No	No
Exposure to ionizing radiation	Yes	No	No
Exposure to non-ionizing radiation (laser, infra-red, microwave (except ovens), ultraviolet)	Yes	No	No
Exposure to potentially infectious body fluids	Yes	No	No
Exposure to formaldehyde	Yes	No	No
Regular contact with latex gloves or other rubber products	Yes	No	No

EXAM ELEMENT	BASE	PERI	TERM
MMR #1	Yes	No	No
MMR #2	Yes	No	No
Measles titer	Yes	No	No
Mumps titer	Yes	No	No
Rubella titer	Yes	No	No
Varicella vaccine #1	Yes	No	No
Varicella vaccine #2	Yes	No	No
Varicella titer	Yes	No	No
Hepatitis B vaccine #1	Yes	No	No
Hepatitis B vaccine #2	Yes	No	No
Hepatitis B vaccine #3	Yes	No	No
Hepatitis B titer	Yes	No	No
Td (Tdap once)	Yes	No	No
Seasonal Influenza Vaccination	Yes	Yes	No
Tuberculosis screening questionnaire	Yes	Yes	No
Tuberculosis skin/blood test	Yes	By Risk*	No

PROGRAM DESCRIPTION:
This program provides for a baseline review of immunization status and history.

The immunization requirements promulgated by the various references can be summarized as follows:

A. Hepatitis B vaccine series is required for those medical and dental workers with exposure or potential exposure to blood or body fluids unless there is a contraindication. Those with exposure to blood and other infectious bodily fluids should be placed in Program 178.

B. HCWs who have no history of varicella or serologic evidence of immunity should be counseled to report varicella exposure to the clinic since patient care restrictions may be appropriate 8 - 21 days after exposure. Those HCWs who work in patient care and have not had varicella should have varicella antibody measured.

C. Immunizations against tetanus, diphtheria and pertussis (Tdap) should be current.

D. Immunity to varicella, measles, mumps and rubella is required. This requirement can be met by documentation of physician-diagnosed illness (except rubella), serologic evidence of immunity, or documented immunization (for measles, 2 doses 1 month apart after 1 year of age in individuals born in or after 1957 is required).

E. It is reasonable to obtain rubella antibody titer for females of child-bearing age as part of the pre-employment exam.

F. Specific requirements are contained in the instructions listed in the program description.

G. Guidance on periodic screening and the booster phenomenon is covered in reference (3).

H. Annual influenza immunization for HCWs is mandatory.

There is no specific exam required. The content of the exam and assignment to specific stressors are determined by review of responses to history questions and further interview of the worker as deemed appropriate. Health care workers are potentially exposed to a wide variety of chemical, physical and biologic agents. These exposures may change over time. Annual update of work exposures allows for adjustment of exposure programs as appropriate.

PROVIDER COMMENTS:
Reference (4) follows current CDC guidelines for preventing TB transmission

in healthcare settings. Consistent with other CDC guidance on TB prevention and control, the 2005 healthcare guidance discourages routine testing of persons at low risk for TB infection. The decreasing risk of LTBI in health-care settings is due to reductions in community rates of TB and implementation of infection-control measures.

Contract healthcare workers in several states must follow the requirements set forth in their OSHA approved state plans. To date, 4 states (California, Oregon, South Carolina, and Wyoming) require healthcare workers to be screened or tested annually.

Appendix C of the 2005 CDC guidance presents a risk classification table that recommends LTBI screening frequency for healthcare workers. Link provided below. Based on numbers of beds and clinical TB cases, almost all Navy MTFs are considered low risk. Serial testing of HCWs in low risk settings is not recommended.

*By Risk: Annual TB screening is to be done according to CDC guidelines. Currently, this means initial (baseline) TB skin test ("2-step" for those who have not been tested for more than 1 year) or blood test, followed by annual risk assessment using a questionnaire (reference (11)). Skin or blood testing is required only for those at increased risk (and who have not had a positive skin test previously).

REFERENCE:

1. OSHA Standard 1910.1030
2. NIOSH, Guidelines for prevention of transmission of human immunodeficiency virus and hepatitis B virus to health-care and public-safety workers, 1989, DHHS (NIOSH) Pub. No. 89-107, US Government Printing Office, Washington, D.C.;
3. Center for Disease Control and Prevention Morbidity and Mortality Weekly Report "Guidelines for Preventing the Transmission of Mycobacterium Tuberculosis in Healthcare Facilities, 30 Dec 2005, Volume 54, No. RR-17;
4. BUMEDINST 6224.8 (series), Tuberculosis Control Program
5. McDiarmid MA, Kessler, ER, The Health Care Worker, Occupational Medicine State of the Art Reviews, Vol. 12/Number 4, Oct-Dec 1997, Hanley & Belfus, Inc.;
6. NIOSH alert, Preventing Allergic Reactions to Natural Rubber Latex in the Workplace, June 1997, DHHS (NIOSH) Publication No. 97-135
7. Preventing Tetanus, Diphtheria, and Pertussis Among Adults: Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine, Recommendations of the Advisory Committee on Immunization Practices (ACIP) and Recommendation of ACIP, support
8. BUMEDINST 6230.15 (series), Immunizations and Chemoprophyaxis
9. DODI 6055.05-M, Table C2.T14, Bloodborne Pathogens

10. Field Operations Manual.
11. NAVMED 6224/8 (Rev. 3-2011), Tuberculosis Exposure Risk Assessment.

REVIEWED: January 2016

MOTOR VEHICLE OPERATOR (OTHER THAN DOT) **712**

Program Frequency: 4 years

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Use of seat belts (always, mostly, some, none)	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Head injury	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Change or loss in hearing	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Epilepsy or seizures	Yes	Yes	No
Problems with balance or coordination	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Diabetes (sugar disease) or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	Yes	No
Mental or emotional illness	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Personality or behavior change	Yes	Yes	No
Audiogram (non-HCP)	Yes	Yes	No
Vision screen (visual acuity)	Yes	Yes	No
Color vision	*	*	No
Peripheral vision	*	*	No
Eyes	Yes	Yes	No
Ears (tympanic membranes)	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Back & musculoskeletal system	Yes	Yes	No
Central nervous system	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No
Psychiatric (especially emotional stability)	**	**	No

PROGRAM DESCRIPTION:
Form OF 345, Physical Fitness Inquiry for Motor Vehicle Operators, is used by licensing examiners to screen health status.

This program, #712, can be used to meet local requirements for performing periodic medical examinations when requested.

Reference (3) provides procedures that should be used in conjunction with locally developed transportation instructions by all personnel concerned with..operation..of automotive vehicles, construction, and railway equipment; collectively referred to as Civil Engineering Support Equipment (CESE)

Railroad engineers operating for the Navy must also adhere to the medical requirements listed in Reference (6). These standards for hearing and vision are different than those outlined in Reference (3). The more stringent standard using both references should apply for railroad engineers.

Operators of Marine Corps vehicles must adhere to the physical requirements listed in Ref (7). The vision requirements in this document differ from the requirements in Reference (5). Marine Corps vehicle operators must have at least 20/40 visual acuity with or without correction. They must have a visual field of 60 degrees right and left when gazing straight ahead, and they do not have to have color vision. Those not qualified under this reference must have no less than 20/30 in one eye and 20/50 in the other eye, with or without correction. They must have color vision that distinguishes red and green, and they do not have to have visual field testing.

PROVIDER COMMENTS:
Guidelines for examinations for interstate driving and any driver covered by Federal Motor Carrier Safety regulations, 49 CFR 391.41-49, Subpart E, are contained in Program #706.

Federal Railroad Administration regulations delineate minimum requirements for hearing and vision: Distant visual acuity of at least 20/40 (Snellen) in each eye without corrective lenses or distant visual acuity separately corrected to at least 20/40 (Snellen) with corrective lenses and distant binocular acuity of at least 20/40 (Snellen) in both eyes with or without corrective lenses; A field of vision of at least 70 degrees in the horizontal meridian in each eye; and the ability to recognize and distinguish between the colors as demonstrated by successfully completing one of the tests in appendix F; hearing acuity of not less than 40 decibels at 500Hz, 1,000 Hz, and 2,000 Hz with or without use of a hearing aid.

OPNAV 8020/6 should be used to certify qualified operators (mark "G").

*Standards differ for testing in pertinent references. See Program Description notes.

**Is there any evidence of a poor attitude, emotional instability, or insufficient responsibility to safely drive a motor vehicle on public roads?

REFERENCE:

1. 5 CFR Part 930.108, Subpart A-Motor Vehicle Operators.
2. 5 CFR Part 930.110.
3. 5 CFR Part 339.
4. DoD 4500.36-R, Management, Acquisition and Use of Motor Vehicles.
5. NAVFAC P-300, Management of Civil Engineering Support Equipment, current edition
6. 49 CFR 240.121, Federal Railroad Administration Medical Standards
7. Marine Corps TM 11240-14/3B, Standard Licensing Procedures for Operators of Military Motor Vehicles
8. Form OF 345, Physical Fitness Inquiry for Motor Vehicle Operators

REVIEWED: February 2011

MOTOR VEHICLE OPERATORS (DOT) **706**

Program Frequency: Biennial

EXAM ELEMENT	BASE	PERI	TERM
Complete OPNAV 8020/6 (both mil & civ)	Yes	Yes	No
Complete Medical Examination Report (MER), Form MCSA-5875 (both mil & civ)	Yes	Yes	No
Complete Medical Examiner's Certificate (MEC), Form MCSA-5876 (civ only)	Yes	Yes	No
Complete CMV Driver Medical Examination Results Form, MCSA-5850 (civ only)	Yes	Yes	No

PROGRAM DESCRIPTION:
Motor Vehicle Operators (DOT) medical exams are just one of the requirements for a Commercial Driver License (CDL). A CDL is usually issued to drivers of vehicles that have a gross combination weight rating of 26,001 pounds or more, or transport 16 or more passengers including the driver, or transport hazardous material.

Operators of vehicles carrying explosives are examined with these same physical qualification standards, but are to be examined under Medical Matrix Program 720 (1).

Both military and civilian drivers of CMVs must be certified no less frequently than every 2 years.

Physical qualifications are contained in Federal Motor Carrier Safety Regulations (FMCSRs), 49 CFR 391.41-49 (3).

PROVIDER COMMENTS:
49 CFR 383.3 (4) lists military exemption, however, per DoDM 4500.36 (5), "DoD Components will prescribe licensing requirements for its military and civilian drivers that meet or exceed the minimum national requirements issued by the Secretary of Transportation in compliance with the requirements on part 383." Therefore, 49 CFR 391 physical qualifications apply to all civilian and military CMV operators.

BUMEDINST 1500.30 (6) requires providers performing CMV exam for civilian drivers to be listed on the National Registry for Certified Medical Examiners (NRCME). Providers performing CMV exams for military drivers are not required to be listed on the National Registry, however, providers should have the same level of training and be familiar with the physical qualifications of 49 CFR 391.41-49 (3).

For civilians, FMCSRs mandate the use of the unamendable forms: the MER (7) and the MEC (8). Electronic reporting on the NRCME website using MCSA-5850 (9) must be done by the end of each calendar month.

BUMEDMEMO 6260 (10) requires military and civilian exams be documented on the MER, only civilian exams be reported on the MEC, and OPNAV 8020/6 should be used to certify all qualified operators (category "A" for civilians or "B" for military).

Additional information is available in references (11) through (15).

REFERENCE:

1. NAVMED P-117, Section 15-107, Explosives Motor Vehicle Operator and Explosives Handler Examinations and Standards, (page last accessed 7-22-2016).
2. 49 CFR 383.5 Definitions, (page last accessed 7-22-2016).
3. 49 CFR 391.41-49
4. 49 CFR 383.3 Applicability, (page last accessed 7-22-2016).
5. DoDM 4500.36, Acquisition, Management, and Use of DoD Non-Tactical Vehicles, 7 July 2015
6. BUMEDINST 1500.30, Training and Certification Requirements for Healthcare Practitioners Performing Commercial Driver Examinations, 14 May 2014
7. FMCSA Medical Examination Report Form (MER), MCSA-5875, (page last accessed 7-22-2016).
8. FMCSA Medical Examiner's Certificate (MEC), MCSA-5876, (page last accessed 7-22-2016).
9. FMCSA Medical Examination Results Form (MCSA-5850).
10. BUMEDMEMO 6260 Ser M3B7/16UM30031, New Regulations Regarding Medical Examinations for Commercial Motro Vehicle Drivers, 11 Apr 2016
11. Hartenbaum, N. The DOT Medical Examination, OEM Press, Boston, MA 2010.
12. MCO 11240.66 (series), Standard Licensing Procedures for Operators of Military Motor Vehicles
13. TM 11240-15/3 Motor Vehicle Licensing Official's Handbook
14. Federal Motor Carrier Safety Administration FAQs
15. FMCSA website

REVIEWED: October 2016

NAVAL CRIMINAL INVESTIGATIVE SERVICE **713**

Program Frequency:	By Age
Up to 37 years	Every 3 years
Age 38 to 40 years	Every 2 years
Age 41 and over	Annually

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	By Age	No
Has anything about your health status changed since your last examination	Yes	By Age	No
Have any medications changed since your last exam	Yes	By Age	No
Major illness or injury	Yes	By Age	No
Hospitalization or surgery	Yes	By Age	No
Cancer	Yes	By Age	No
Back injury	Yes	By Age	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	By Age	No
Have you ever smoked	Yes	By Age	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	By Age	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	By Age	No
Current medication use (prescription or over the counter)	Yes	By Age	No
Medication allergies	Yes	By Age	No
Any reproductive health concerns	Yes	By Age	No
Tuberculosis or PPD Converter	Yes	By Age	No
Communicable disease	Yes	By Age	No
Nervous stomach or ulcer	Yes	By Age	No
Change or loss of vision in either eye	Yes	By Age	No
Color blindness	Yes	By Age	No
Change or loss in hearing	Yes	By Age	No
A need to wear a hearing aid	Yes	By Age	No
Difficulty hearing conversations, people	Yes	By Age	No
Epilepsy or seizures	Yes	By Age	No
Mental or emotional illness	Yes	By Age	No
Permanent defect from illness, disease or injury	Yes	No	No
Any difficulty with heavy to moderate lifting/carrying	Yes	By Age	No
RBC	Yes	By Age	No
WBC	Yes	By Age	No
HGB	Yes	By Age	No
MCV	Yes	By Age	No
MCH	Yes	By Age	No
MCHC	Yes	By Age	No
BUN	Yes	By Age	No
Creatinine	Yes	By Age	No
Uric acid	Yes	By Age	No
Calcium	Yes	By Age	No

EXAM ELEMENT	BASE	PERI	TERM
Cholesterol, total	Yes	By Age	No
LDL	Yes	By Age	No
HDL	Yes	By Age	No
Triglycerides	Yes	By Age	No
AST	Yes	By Age	No
Bilirubin, Total	Yes	By Age	No
Alkaline phosphatase	Yes	By Age	No
Urine Ph	Yes	By Age	No
Urine specific gravity	Yes	By Age	No
Urine urobilinogen	Yes	By Age	No
Urine protein	Yes	By Age	No
Urine glucose	Yes	By Age	No
Urine ketones	Yes	By Age	No
Urine blood	Yes	By Age	No
Urine nitrite	Yes	By Age	No
Urine RBCs	Yes	By Age	No
Urine WBCs	Yes	By Age	No
Electrocardiogram	Yes	*	No
Audiogram (DD 2215/2216)	Yes	By Age	No
Chest X-ray (PA)	Yes	No	No
Vision screen (visual acuity)	Yes	By Age	No
Color vision	Yes	By Age	No
Back & musculoskeletal system	Yes	By Age	No
Physician’s or provider’s written opinion required	Yes	By Age	No

PROGRAM DESCRIPTION:
None Provided.

PROVIDER COMMENTS:
Agent must also be cleared for Motor Vehicle Operator (Other than DOT) Matrix Program 714

According to reference (1), there has been a change in reporting requirements for the Agent’s physical exam process. The results of the Agent’s physical exam will be recorded on the PC Matrix SF600. Only the information on the Physicians Written Opinion (PWO) will be provided to the Agent to document the results of the physical evaluation. A copy of the PWO will also be mailed/emailed to Code 10D

Address:

NAVAL CRIMINAL INVESTIGATIVE SERVICE

CODE 10D PHYSICAL EXAMS

27130 TELEGRAPH RD

QUANTICO, VA 22134-2253

Email: ncis_saphysicals@navy.mil

The physical exam must be performed by a Navy Medical Officer or Federal Medical Officer (reference (1)).

The physical exam will be maintained by the Navy Medical Facility. It is no longer required to mail a copy of the entire periodic physical to the NCIS headquarters. The physical evaluation documentation shall be filed in a medical record folder and shall remain in the Medical Records Department of the MTF or Occupational Medicine Clinic according to the protocol of the facility.

Certifications performed IAW NCIS Manual for Administration.

Reference (2) considers public safety workers, including both policemen and firefighters at risk for exposure to blood borne pathogens. This risk is not universal since duties of public safety workers vary greatly between departments and locations. Those who are felt to be at significant risk should be placed in Program 178, Blood and/or Body Fluids.

Certificate of Medical Examination, OF178, is used for preplacement examinations.

The following is provided from reference (1), as that document may not be readily accessible.

Per reference (1), the worker must be able to operate motor vehicles, use firearms and react appropriately to unexpected emergency situations, including temporary or sustained assignment to overseas areas where medical facilities meeting normal U.S. standards may not be available, use both hands and fingers/legs, walk, stand, reach above shoulders, lift and carry.

Vision in both eyes is required, near vision correctable at 13 to 16 inches to Jaeger 1 to 4. Must be able to pass a red/green color vision test and distinguish basic colors and shades of colors.

The following conditions are disqualifying: active tuberculosis (previous cases must be proven to be arrested for at least five years), uncontrolled diabetes (control must be achieved by diet, oral medication, or 25 units or less of insulin per day, with no insulin reaction, diabetic coma, or serious side effects within the past 2 years, and no significant change in the amount of insulin required during the past 2 years), peptic ulcer (unless it has been healed), systolic pressure above 150, diastolic above 90, use of hearing aids are permitted, however hearing loss exceeding a 25 decibel average in either ear at 500, 1000, and 2000 hertz, corrected vision worse than 20/20 in one eye and 20/30 in the other eye (an applicant who has undergone radial keratotomy, photo-refractive radial keratotomy or laser surgery must wait 1 year after surgery and submit a letter from the ophthalmologist concerning the prognosis of the procedure).

The following conditions require referral to a Federal Medical Officer for an employability opinion: communicable diseases such as syphilis, Acquired Immune Deficiency Syndrome (AIDS), gonorrhea, Chlamydia or herpes, mental disease, epilepsy, organic heart disease, or any severe crippling condition.

SF-600 from Medical Matrix Online is an acceptable form for this examination. Original forms are submitted for headquarters review. A copy of the examination should be kept in a health record. Certificate of Medical Examination, SF 78, is used for replacement examinations.

*The EKG is given every 5 years beginning at age 35.

REFERENCE:

1. NCIS Administrative Manual, NCIS-1, Chapter 13.
2. OSHA Standard 1910.1030.
3. 5 CFR 339
4. 5 CFR 842

REVIEWED: October 2014

OCONUS DEPLOYMENT GREATER THAN 30 DAYS **798**

Program Frequency: Per Deployment

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	No	No
Is your Periodic Health Assessment (PHA) current	Yes	No	No
Is your Pre-Deployment Health Assessment current (DD 2795)	Yes	No	No
Has anything about your health status changed since your last examination	Yes	No	No
Have any medications changed since your last exam	Yes	No	No
Major illness or injury	Yes	No	No
Hospitalization or surgery	Yes	No	No
Cancer	Yes	No	No
Back injury	Yes	No	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	No	No
Have you ever smoked	Yes	No	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	No	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	No	No
Current medication use (prescription or over the counter)	Yes	No	No
Medication allergies	Yes	No	No
Any reproductive health concerns	Yes	No	No
Allergies (asthma, hay fever, eczema)	Yes	No	No
Color blindness	Yes	No	No
Kidney disease	Yes	No	No
Current pregnancy (females only)	Yes	No	No
Problems with balance or coordination	Yes	No	No
Numbness, tingling, or weakness in hands or feet	Yes	No	No
Unexplained fatigue	Yes	No	No
Thyroid disease (including heat or cold intolerance)	Yes	No	No
Diabetes (sugar disease) or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	No	No
Sleep disorder, breathing pauses while sleeping, sleep apnea, loud snoring, insomnia, daytime sleepiness	Yes	No	No
Permanent defect from illness, disease or injury	Yes	No	No
Psychological disorders, Depression	Yes	No	No
Do you currently have 2 pairs of glasses and/or contacts	Yes	No	No
RBC	Yes	No	No
WBC	Yes	No	No
HGB	Yes	No	No
MCV	Yes	No	No
MCH	Yes	No	No
MCHC	Yes	No	No
HgbA1C (if Diabetic)	Yes	No	No
Blood type	Yes	No	No

EXAM ELEMENT	BASE	PERI	TERM
Cholesterol, total	*	No	No
LDL	*	No	No
HDL	*	No	No
Triglycerides	*	No	No
AST	Yes	No	No
ALT	Yes	No	No
Bilirubin, Total	Yes	No	No
Alkaline phosphatase	Yes	No	No
HIV	Yes	No	No
DNA	Yes	No	No
G6PD	Yes	No	No
HCG	Yes	No	No
Urine Ph	Yes	No	No
Urine specific gravity	Yes	No	No
Urine urobilinogen	Yes	No	No
Urine protein	Yes	No	No
Urine glucose	Yes	No	No
Urine ketones	Yes	No	No
Urine blood	Yes	No	No
Urine nitrite	Yes	No	No
Urine RBCs	Yes	No	No
Urine WBCs	Yes	No	No
Electrocardiogram	*	No	No
Audiogram (DD 2215/2216)	Yes	No	No
Vision screen (visual acuity)	Yes	No	No
Color vision	Yes	No	No
Dental screen (Class I or II)	Yes	No	No
Eyes	Yes	No	No
Ears (tympanic membranes)	Yes	No	No
Cardiovascular system	Yes	No	No
Respiratory system	Yes	No	No
Abdomen	Yes	No	No
Check for inguinal or femoral hernia	Yes	No	No
Back & musculoskeletal system	Yes	No	No
Extremities	Yes	No	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	No	No
Central nervous system	Yes	No	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	No	No
MMR #1	Yes	No	No
MMR #2	Yes	No	No
Measles titer	Yes	No	No
Mumps titer	Yes	No	No
Rubella titer	Yes	No	No
Varicella vaccine #1	Yes	No	No
Varicella vaccine #2	Yes	No	No
Varicella titer	Yes	No	No

EXAM ELEMENT	BASE	PERI	TERM
Hepatitis B vaccine #1	Yes	No	No
Hepatitis B vaccine #2	Yes	No	No
Hepatitis B vaccine #3	Yes	No	No
Hepatitis B titer	Yes	No	No
Hepatitis A vaccine #1	Yes	No	No
Hepatitis A vaccine #2	Yes	No	No
Td (Tdap once)	Yes	No	No
Meningococcal	**	No	No
Polio	Yes	No	No
Typhoid	**	No	No
Yellow Fever	Yes	No	No
Anthrax	**	No	No
Smallpox	**	No	No
Japanese Encephalitis Virus	**	No	No
Tuberculosis screening questionnaire	Yes	No	No

Footnotes:
*26 - Immunization status will be current based on the theater-specific location and the Military Vaccine Agency Website (http://www.vaccines.mil). Documentation of immunity or immunization is required for all personnel.
*27 - Females:
a) PAP smear (documented results within one year).
b) Mammogram (documented results within two years of deployment date if over 40 y/o and within one year if over 50 y/o)
c) Pregnancy test (urine), within 30 days of deployment. Women who have had hysterectomies, bilateral tube ligation, or who are post menopausal are exempt.

PROGRAM DESCRIPTION:
All personnel (military, civilian and contractor) must be medically evaluated no earlier than 90 days prior and no later than 30 days prior to deployment date to determine each individual's medical, psychological and physical fitness for deployments, special medications taken during the deployment, possible deployment-related occupational/environmental exposures, and to discuss deployment-related health concerns.

Pre-Deployment services for contractor employees, including immunizations, dental and evaluation of fitness are the responsibility of the contractor.

NCTS personnel are employed to provide technical assistance and training to U.S. Navy and U.S. Marine Corps aviation maintenance personnel in a variety of operational environments. These environments include duty aboard naval vessels and/or assignments inside the Continental United States (CONUS) and outside the continental United States (OCONUS) including foreign countries/overseas, combat zones, and other hazardous duty location.

The DD Form 2796 must be completed electronically or in web-enabled format following service-specific directives and using one of the following service-specific data systems: Army

MEDPROS (Medical Protection System); Air Force PIMR (Preventive Health Assessment and Individual Medical Readiness) or AFCITA (Air Force Complete Immunization Tracking System) for AFRC; or Navy EDHA (Electronic Deployment Health Assessment). The data will be sent electronically through the service-specific data system to the Armed Forces Health Surveillance Center (AFHSC). DD Form 2796 should be printed and placed in the individual's permanent medical record. In accordance with DoDI 6490.03, Deployment Health, 11 Aug 06, DD Form 2796 should be completed "as close to the redeployment date as possible, but not earlier than 30 days before the expected redeployment date and NLT 30 days after redeployment, and for Reserve Component members, before they are released from active duty."

Medical Waiver approval is processed by the individual's administrative office to the appropriate AOR Surgeon Office (USCENTCOM, USAFRICOM, USPACOM, USEUCOM)

PROVIDER COMMENTS:
Malaria Chemoprophylaxis - Personnel who will be traveling to a malaria-risk country will be started on chemoprophylaxis prior to and during deployment, and must be evaluated for terminal malaria chemoprophylaxis upon return in accordance with Service-specific policies.

Dental – The "BUMED approved EZ603.2 (Dental Exam)" form or "DD Form 2813 (DOD Active Duty/Reserve Forces Dental Examination)" are the only forms used to document the individuals dental examination status. Only individuals whose Dental examination status classified as either 1) BUMED approved EZ603.2: Dental Fitness Category Class 1-2 or 2) DD Form 2813: Examination Results (Question #6): block 1 or 2 are "Deployable." Individuals classified as either Dental Fitness Category Class 3-4 or Question #6: block 3 are "Non-Deployable", and must have corrective dental actions completed prior to being "Deployable."

Per reference (11), contract personnel:

(1) It is the responsibility of the Defense contractor to provide medically and psychologically fit contingency contractor personnel to perform contracted duties.

(2) The contractor's own physician/dentist shall complete the medical and dental requirements (immunizations, laboratory, vision, hearing and dental) prior to the Pre-Deployment exam, unless otherwise specified in their contract.

(3) Contract personnel are authorized to receive certain theater-specific military immunizations (ex. Anthrax, Smallpox) during the Pre-Deployment exam.

(4) Individuals who are deemed not medically qualified during the pre-deployment process or require extensive preventative dental care will not be authorized to deploy.

Advise obtaining Medical Warning tag if applicable

Advise to deploy with 90-day supply of medication.

Advise to deploy with 2 pairs of glasses.

Advise to take a copy of medical and dental records during deployment

All individuals deemed not "Deployable" shall return to their originating unit with a DD Form 2795 and a summary of their non-deployable medical condition to provide to the unit medical personnel.

Tuberculosis (TB) screen, consistent with current CDC guidelines, means identifying risk factors (generally by questionnaire) for TB exposure or for latent TB to develop into disease and performing skin or blood testing on only those workers at increased risk.

*EKG/Lipid panel should be done one time after age 40.

REFERENCE:

1. DoDI 6490.03, Deployment Health
2. DoDI 6490.07, Deployment-Limiting Medical Conditions for Service Members and DoD Civilian Employees
3. Department of the Army Personnel Policy Guidance for Overseas Contingency Operations.
4. MOD Ten to USCENTCOM Individual Protection and Individual/Unit Deployment Policy
5. DOD Deployment Health Clinical Center
6. DODD 1404.10, DOD Civilian Expeditionary Workforce
7. DOD Civilian Expeditionary Workforce
8. DODI 1400.24, Civilian Mobility Program
9. DODI 6025.19, Individual Medical Readiness (IMR)
10. DOD 4500.54-M, DoD Foreign Clearance Manual
11. DoDI 3020.41, Contractor Personnel Authorized to Accompany the U.S. Armed Forces
12. NATECINST 12339.1A, Navy Civilian Technical Specialist (NCTS) Qualification Standards and Examination Procedures
13. NAVMED 1300/4 Expeditionary Medical and Dental Screening

REVIEWED: March 2011

POLICE/SECURITY WORKER **714**

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Shortness of breath	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Problems with night vision	Yes	Yes	No
Change or loss in hearing	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Epilepsy or seizures	Yes	Yes	No
Problems with balance or coordination	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Thyroid disease (including heat or cold intolerance)	Yes	Yes	No
Diabetes (sugar disease) or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	Yes	No
Mental or emotional illness	Yes	Yes	No
Sleep disorder, breathing pauses while sleeping, sleep apnea, loud snoring, insomnia, daytime sleepiness	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No
Personality or behavior change	Yes	Yes	No
Exposure to potentially infectious body fluids	Yes	Yes	No
BUN	Yes	Yes	No
Creatinine	Yes	Yes	No
Cholesterol, total	Yes	No	No
LDL	Yes	No	No
HDL	Yes	No	No

EXAM ELEMENT	BASE	PERI	TERM
Triglycerides	Yes	No	No
AST	Yes	Yes	No
Bilirubin, Total	Yes	Yes	No
Alkaline phosphatase	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No
Urine nitrite	Yes	Yes	No
Urine RBCs	Yes	Yes	No
Urine WBCs	Yes	Yes	No
Electrocardiogram	Yes	No	No
Audiogram (DD 2215/2216)	Yes	Yes	No
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Vision screen (visual acuity)	Yes	Yes	No
Color vision	Yes	Yes	No
Color vision	Yes	Yes	No
Peripheral vision	Yes	Yes	No
Peripheral vision	Yes	Yes	No
Overall physical fitness	Yes	Yes	No
Metabolic disturbance (fever, tachycardia)	Yes	Yes	No
Eyes	Yes	Yes	No
Gaze (muscle balance, nystagmus)	Yes	Yes	No
Ears (tympanic membranes)	Yes	Yes	No
Nose	Yes	Yes	No
Throat	Yes	Yes	No
Thyroid	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Respiratory system	Yes	Yes	No
Back & musculoskeletal system	Yes	Yes	No
Skin (malignant & pre malignant conditions)	***	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No
Psychiatric (especially emotional stability)	Yes	Yes	No
Hepatitis B vaccine #1	Yes	Yes	No
Hepatitis B vaccine #2	Yes	Yes	No
Hepatitis B vaccine #3	Yes	Yes	No
Hepatitis B titer	Yes	Yes	No
Td (Tdap once)	Yes	Yes	No

PROGRAM DESCRIPTION:
Reference (1) is the primary DoD guidance on general requirements for military and civilian police and security workers (PSWs). Active Duty Military (e.g., Master-of-Arms) are NOT required to participate in this program.

Reference (2), while an Army document, provides guidance on periodicity of medical examinations and physical fitness testing requirements for Navy civilians functioning as PSWs. Eye and vision requirements are listed as follows:

* Correct distance vision at least 20/30 in one eye and 20/100 in the other, or 20/40 in one eye and 20/70 in the other

* Correct near vision correctable to 20/40 binocularly (both eyes open)

* Uncorrected binocular visual acuity should be at least 20/100

* Able to discriminate between vivid red and green colors

* Normal muscle balance, defined as the lack of strabismus (greater than 15 diopters), nystagmus, and diplopia

* At least a total horizontal visual field of 120 degrees and at least a total vertical visual field of 40 degrees (20 above the horizontal meridian and 20 below the horizontal meridian) in each eye

* No history of abnormal night vision.

Reference (3), paragraph C3.4., provides additional DoD-wide qualification guidance for surveillance exams on this class of worker.

Reference (4) provides basic medical requirements for USMC civilian police officers, security guards and physical security specialists.

No specific psychological or psychiatric testing is necessary. Reference (5) states that “any individual with a psychiatric diagnosis for which medication is necessary, unless recommended for a waiver” is disqualified from being issued a weapon or ammunition. If the examiner finds evidence or history of psychiatric disorder or use of psychoactive medication, referral for psychologist or psychiatrist evaluation is appropriate, reference (3), paragraph C3.4.2.7.

Previous guidance has included risk factors, including family history, as a basis for disqualification from PSW jobs. The Genetic Information Non-disclosure Act and Americans with Disabilities Act have changed that practice. Providers must consider presence of disease, not risk of disease, when qualifying or disqualifying a candidate or worker from police or security work.

Reference (6) notes that security personnel who have animal control duties should have the rabies vaccination.

Physical agility testing (PAT) is a very strenuous physical fitness test that all PSWs are expected to undergo. Therefore, the provider must consider PAT as part of the essential job functions

of a PSW, regardless of the usual duties of the specific police or security candidate or worker. Requests not to include “fitness to participate in PAT” as part of this exam should be directed back to Human Resources in order for the worker to be considered for positions other than PSW.

Physical fitness testing, including the PAT, is not the responsibility of occupational health.

Reference (7) notes that the activity level of police and security duties may require oxygen consumption of 12 METS (40-41 mL/kg/minute) or greater, and that those in Class II are unable to perform activities that require a maximum oxygen consumption of more than 6 METS. Thus individuals with function classifications in Class II to Class IV or therapeutic classifications in Class B to Class E would necessarily be unable to safely perform such duties. Individuals in Class I or Class A may (but not necessarily will) be able to safely perform such duties.

See the Matrix "Disqualification of Workers and Candidates" section for guidance in cases where findings leave the provider with uncertainty about an examinee’s medical qualification.

References (6) and (7) contain considerable guidance regarding diabetes in police and security workers.

Reference (6) states “Any color-testing method must be able to: 1) test for red-green deficits; 2) test for blue-yellow deficits; and 3) distinguish between mild, moderate and sever deficiencies if present.”

If specific job conditions would cause relapse or exacerbation of a skin condition, or would, because of a skin condition, render the worker unable to perform essential job functions safely and effectively, including the use of respirators or other personal protective equipment, then the individual is unsuitable for such work.

OSHA regulation considers public safety workers, including both policemen and firefighters, at risk for exposure to blood borne pathogens. This risk is not universal since duties of public safety workers vary greatly between departments and locations. The purpose of the requirement for assessment of hepatitis B immune status is to determine for the individual the extent of potential exposure. Those who are felt to be at significant risk may be placed in Program 178, Blood and / or Body Fluids.

Providers should be alert to medications that may cause impairment (e.g. drowsiness) or treat conditions that may be associated with impairment (e.g., diabetes, epilepsy, arrhythmias, depression or other psychiatric condition, pain, migraines, etc.).

Local activities may have more stringent examination and frequency requirements. If local requirements are more stringent, the medical clinic should keep a copy of written requirements for additional tests.

PROVIDER COMMENTS:
If adequate funduscopic exam is not possible without pupil dilation, use mydriatics or refer to optometry or ophthalmology.

***Significant skin findings include gang-related tattoos, evidence of drug abuse, or conditions restricting the ability to wear gloves, handle weapons, apply restraints, etc., or to work in the cold (e.g., Raynaud's) or sun (e.g., photodermatitis, heat intolerance).

REFERENCE:

1. DoDI 5525.15, Law Enforcement (LE) Standards and Training in the DoD, April 27, 2012.
2. AR 190-56, The Army Civilian Police and Security Guard Program
3. DoDI 6055.05-M Occupational Medicine Surveillance Exams for Police Officers and Security Guards
4. MCO 5580.2 (series), Enclosure (1); The Marine Corps Law Enforcement Manual
5. OPNAV INST 3591, Small Arms Training and Qualifications
6. BUMEDINST 6230.15 (series), Immunizations and Chemoprophylaxis
7. Goldberg RL, Spilberg SW, Weyers SG. Medical Screening Manual for California Law Enforcement. California Commission on Peace Officer Standards and Training (POST). Copyright 2004.
8. ACOEM Guidance for the Medical Evaluation of Law Enforcement Officers
9. 29 CFR 1910.1030
10. 5 CFR 930
11. X-118 Series GS-083.
12. U.S. Office of Personnel Management Policies and Instructions Medical Requirements

REVIEWED: May 2015

RESPIRATOR USER CERTIFICATION EXAM **716**

Program Frequency:	By Age*
15 to 34 years	Every 5 years
35 to 44 years	Every 2 years
45+ years	Annually

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	By Age*	No
Has anything about your health status changed since your last examination	Yes	By Age*	No
Have any medications changed since your last exam	Yes	By Age*	No
Major illness or injury	Yes	By Age*	No
Hospitalization or surgery	Yes	By Age*	No
Cancer	Yes	By Age*	No
Back injury	Yes	By Age*	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	By Age*	No
Have you ever smoked	Yes	By Age*	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	By Age*	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	By Age*	No
Current medication use (prescription or over the counter)	Yes	By Age*	No
Medication allergies	Yes	By Age*	No
Any reproductive health concerns	Yes	By Age*	No
Allergies (asthma, hay fever, eczema)	Yes	By Age*	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	By Age*	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	By Age*	No
Wheezing	Yes	By Age*	No
Tuberculosis or PPD Converter	Yes	By Age*	No
Chest surgery or injury (including broken ribs)	Yes	By Age*	No
Shortness of breath	Yes	By Age*	No
Use of eye glasses	Yes	By Age*	No
Change or loss of vision in either eye	Yes	By Age*	No
Contact lens use	Yes	By Age*	No
Color blindness	Yes	By Age*	No
Eye irritation or blurred vision	Yes	By Age*	No
Any other eye or vision problem	Yes	By Age*	No
Inability or reduced ability to smell	Yes	By Age*	No
Any injury to your ears (including ruptured ear drum)	Yes	By Age*	No
Change or loss in hearing	Yes	By Age*	No
A need to wear a hearing aid	Yes	By Age*	No
Any other hearing or ear problem	Yes	By Age*	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	By Age*	No

EXAM ELEMENT	BASE	PERI	TERM
Repeated episodes of loss of or near loss of consciousness	Yes	By Age*	No
Frequent pain or tightness in your chest	Yes	By Age*	No
Swelling in legs or feet (not caused by walking)	Yes	By Age*	No
Cough, other than with colds, flu or allergies	Yes	By Age*	No
Current pregnancy (females only)	Yes	By Age*	No
Epilepsy or seizures	Yes	By Age*	No
Problems with balance or coordination	Yes	By Age*	No
Numbness, tingling, or weakness in hands or feet	Yes	By Age*	No
Diabetes (sugar disease) or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	By Age*	No
Mental or emotional illness	Yes	By Age*	No
Claustrophobia	Yes	By Age*	No
Muscle or joint problems, rheumatism, or arthritis	Yes	By Age*	No
Any other muscle or skeletal problem that may interfere with using a respirator	Yes	By Age*	No
Prior respirator use	Yes	By Age*	No
Any problems with prior respirator use	Yes	By Age*	No
Eyes	Yes	By Age*	No
Ears (tympanic membranes)	Yes	By Age*	No
Cardiovascular system	Yes	By Age*	No
Respiratory system	Yes	By Age*	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	By Age*	No

PROGRAM DESCRIPTION:

Military personnel, who have been confirmed by their region or activity as “Fit for Full Duty” based on their current periodic military physicals (Manual of the Medical Department (P-117), and their annual Preventive Health Assessment (OPNAVINST 6120.3)) are considered qualified to wear any type of respiratory protection. Shipboard personnel undergoing shore firefighting training are not required to obtain medical qualification or respirator fit testing for SCBAs, including the OBA, prior to reporting for training. See Reference 8 for further information.

PROVIDER COMMENTS:

Spirometry and chest x-rays are not routinely required. They are not recommended solely as data to determine if a respirator should be worn, but may be medically indicated in some cases when additional information is needed to determine fitness (Reference 2). Workers who wear respirators may receive spirometry and chest x-rays as part of surveillance requirements for specific hazards.

Reference (2) provides good guidance on qualification criteria and follow-up testing of candidates that the provider has concerns about respirator use.

*Program Frequency for SCBA users is 12 months regardless of age

REFERENCE:

1. OSHA Standard 29 CFR 1910.134;

2. American National Standard for Respiratory Protection-Respirator Use, Physical Qualifications for Personnel; ANSI/AIHA Z88.6-2006
3. NIOSH Respirator Decision Logic, U.S. Department of Health and Human Services, DHHS (NIOSH) Pub. No. 2005-100;
4. OPNAVINST 5100.23 (series), Chapter 15;
5. OPNAVINST 5100.19 (series), Chapter B6;
6. OPNAVINST 6120.3 Preventive Health Assessment
7. American Thoracic Society, Respiratory Protection Guidelines, American Journal of Respiratory Critical Care Medicine, Vol. 154. pp 1153-1165, 1996;
8. Navy Message: Clarification of Respirator Examination for Active Duty Service Members

REVIEWED: May 2014

SUBMARINE DUTY **717**

Program Frequency: *

EXAM ELEMENT	BASE	PERI	TERM

*See Medical Matrix for more information

PROGRAM DESCRIPTION:
This program is designated solely to provide guidance on scheduling frequency. Disqualifying conditions, tests, and forms required are promulgated in Manual of the Medical Department, NAVMED P-117, Chapter 15, Article 15-106, Change 126 for Submarine Qualified Military, and in OPNAVINST 6420.1, 22 Dec 2005 for Non-submarine Qualified Military, all civilians, governmental and contractor employees, and military dependents. (Reference (b) of OPNAVINST 6420.1 is no longer current).Women aboard submarines, if pregnant, may have specific health issues that are discussed in NMCPHC Technical Manual NMCPHC-TM-OEM 6260.01C, Reproductive and Developmental Hazards: A Guide for Occupational Health Professionals.

PROVIDER COMMENTS:
Active Duty Submarine Duty Candidates and Submarine Qualified—the exam is given in accordance with MANMED article 15-106 and must be reviewed and signed by a UMO.

Cruises of Short Duration (such as builder's trials and tests of submarine equipment) have the following requirements for on-submarine Qualified Military, all civilians, governmental and contractor employees, and military dependents.

1. Enclosure (1) of OPNAVINST 6420.1 must be completed.

2. The completed OPNAVINST 6420.1 enclosure (1) and the medical record must be reviewed by a submarine duty Independent Duty Corpsman (IDC) or Undersea Medical Officer (UMO) to determine suitability to embark on a submarine. Enclosure 2 of OPNAVINST 6420.1 provides guidance to determine qualification to embark on a submarine.

3. A UMO must make the final determination of qualification to embark utilizing the guidelines in enclosure (2) of OPNAVINST 6420.1.

4. If the UMO determines additional medical evaluation is required to clear the individual for embarkation, the civilian or his/her employer will be responsible for obtaining the required medical consultation and forwarding it to the screening UMO in a timely manner.

Cruises of Long Duration or Forward Deployed have the following requirements.

1. A physical exam must be completed within 12 months of the anticipated embarkation date certifying that the individual meets the requirements of enclosure (2) of OPNAVINST 6420.1.

2. An interview and review of the individual's health record must be documented using enclosure (3) of OPNAVINST 6420.1.

3. A UMO shall make the final recommendation concerning the individual's fitness for embarkation. Completion of enclosure (1) of OPNAVINST 6420.1 is required within 1 month of scheduled embarkation.

4. A health record review by the Submarine Independent Duty Corpsman must be performed upon embarkation.

NOTE: The responsibility for ensuring that each individual to be embarked on submarines for extended periods has received an appropriate physical examination rests with the command issuing the travel orders. Military non-submarine and civilian employees of the government should be examined by the command to which the individual is attached prior to commencement of travel to embarkation location. If medical examinations are ordered or offered to civilian employees of the government, the activity must follow procedures established by reference (4). Other civilian or non-governmental personnel should be examined by their company-designated physician or, if that is not appropriate, by their personal physician prior to reporting for embarkation. The examination shall utilize enclosure (2) of OPNAVINST 6420.1, and phone consultation with the local ISIC UMO as applicable.

Program Frequency:

For Active Duty accessions to submarine duty or submarine qualified: upon initial application and subsequently every 5 years.

For Non-submarine Qualified Military, all civilians, governmental and contractor employees, and military dependents:

prior to embarkation on a submarine.

REFERENCE:

1. Manual of the Medical Department, US Navy, NAVMED P -117 Chapter 15
2. OPNAVINST 6420.1 Physical Requirements for Non-Submarine Personnel Embarked in Submarines Please note that Reference (b) CPI 339 is not longer current. However the OPNAVINST 6420.1 is still current.
3. NMCPHC Technical Manual NMCPHC-TM-OEM 6260.01C, Reproductive and Developmental Hazards: A Guide for Occupational Health Professionals
4. 5 CFR 339.202.
5. NAVMED P-117, Chapter 15
6. OPNAVINST 6420.1
7. Reproductive and Developmental Hazards: A Guide for Occupational Health Professionals

REVIEWED: April 2011

WASTEWATER/SEWAGE WORKER **702**

Program Frequency: Baseline Only

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	No	No
Has anything about your health status changed since your last examination	Yes	No	No
Have any medications changed since your last exam	Yes	No	No
Major illness or injury	Yes	No	No
Hospitalization or surgery	Yes	No	No
Cancer	Yes	No	No
Back injury	Yes	No	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	No	No
Have you ever smoked	Yes	No	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	No	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	No	No
Current medication use (prescription or over the counter)	Yes	No	No
Medication allergies	Yes	No	No
Any reproductive health concerns	Yes	No	No
Skin disease, rash, erosion, ulcer, eczema, pigmentation abnormality or other skin abnormality	Yes	No	No
Td (Tdap once)	Yes	No	No
Polio	Yes	No	No

PROGRAM DESCRIPTION:
Wastewater/sewage workers should be immunized for polio (reference 1) and tetanus, diphtheria, and pertussis (reference 2). Current CDC recommendations do not support hepatitis A vaccination for sewage workers.

Workers should be advised to get a booster Td at least every 10 years.

PROVIDER COMMENTS:
For those applicants without a written record of polio immunization status, attendance at public school in the U.S. is adequate for presumption of prior oral polio vaccine administration.

REFERENCE:

1. NAVMED P-5010-7, Manual of Naval Preventive Medicine; Wastewater Treatment and Disposal, Ashore and Afloat
2. BUMEDINST 6230.15A, Immunizations and Chemoprophylaxis
3. DHHS (NIOSH) Publication Number 2002-149, Guidance For Controlling Potential Risks To Workers Exposed to Class B Biosolids.

REVIEWED: February 2011

WEIGHT HANDLING EQUIPMENT (MANAGEMENT OF) **704**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**

Crane operators

Program Frequency: Biennial

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Use of seat belts (always, mostly, some, none)	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Lung or respiratory disease (ex: COPD, bronchitis, pneumonia, asbestosis, silicosis, pneumothorax / collapsed lung)	Yes	Yes	No
Headache, dizziness, light headedness, weakness	Yes	Yes	No
Nervous stomach or ulcer	Yes	Yes	No
Head injury	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Change or loss in hearing	Yes	Yes	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Yes	No
Repeated episodes of loss of or near loss of consciousness	Yes	Yes	No
Kidney disease	Yes	Yes	No
Epilepsy or seizures	Yes	Yes	No
Problems with balance or coordination	Yes	Yes	No
Numbness, tingling, or weakness in hands or feet	Yes	Yes	No
Migraine headache	Yes	Yes	No
Diabetes (sugar disease) or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	Yes	No
Mental or emotional illness	Yes	Yes	No
Sleep disorder, breathing pauses while sleeping, sleep apnea, loud snoring, insomnia, daytime sleepiness	Yes	Yes	No
Depression, difficulty concentrating, excessive anxiety	Yes	Yes	No

EXAM ELEMENT	BASE	PERI	TERM
Treatment for drug or alcohol use	Yes	Yes	No
Personality or behavior change	Yes	Yes	No
Muscle or joint problems, rheumatism, or arthritis	Yes	Yes	No
Permanent defect from illness, disease or injury	Yes	Yes	No
Do you take any prescribed or unprescribed stimulants besides caffeine	Yes	Yes	No
Do you take any prescribed or unprescribed habit-forming drug	Yes	Yes	No
Are you seeing or being treated by a psychiatrist, psychologist or counselor	Yes	Yes	No
Have you ever been diagnosed with alcoholism	Yes	Yes	No
Urine Ph	Yes	Yes	No
Urine specific gravity	Yes	Yes	No
Urine urobilinogen	Yes	Yes	No
Urine protein	Yes	Yes	No
Urine glucose	Yes	Yes	No
Urine ketones	Yes	Yes	No
Urine blood	Yes	Yes	No
Urine nitrite	Yes	Yes	No
Urine RBCs	Yes	Yes	No
Urine WBCs	Yes	Yes	No
Audiogram (non-HCP)	Yes	Yes	No
Vision screen (visual acuity)	Yes	Yes	No
Color vision	Yes	Yes	No
Peripheral vision	Yes	Yes	No
Overall physical fitness	Yes	Yes	No
Eyes	Yes	Yes	No
Ears (tympanic membranes)	Yes	Yes	No
Cardiovascular system	Yes	Yes	No
Respiratory system	Yes	Yes	No
Abdomen	Yes	Yes	No
Check for inguinal or femoral hernia	Yes	Yes	No
Back & musculoskeletal system	Yes	Yes	No
Extremities	Yes	Yes	No
Peripheral vascular system, including acral (distal) micro-circulation and evidence of Reynaud's	Yes	Yes	No
Central nervous system	Yes	Yes	No
Peripheral nervous system (strength, sensation, DTRs)	Yes	Yes	No

PROGRAM DESCRIPTION:

For many years, this program was noted to be aimed at crane operators, railroad engineers, brakemen, riggers, and climbers. The provisions of Reference (1) were never to have included anyone but crane operators. Railroad workers are covered under the provisions of NAVSUP P-300 and the portions of the Code of Federal Regulations dealing with the Federal Rail Administration. These are provisions addressed in the Motor Vehicle Operator, Other Than DOT physical exam (#712). Riggers and climbers have no specific regulatory requirement for fitness for duty physical examination.

A physical examination by a licensed health care professional is required. The examination shall be in accordance with the criteria established in U.S. Department of Transportation, Federal Highway Administration, Motor Carrier Safety Regulation, 49 CFR 391, Sections 41-43. (Where the term “motor vehicle” is referenced in 49 CFR 391, it shall mean “crane.”)

Waivers for previously qualified operators are authorized by activity Commanding Officers after appropriate medical and management review. Normally, waivers are not granted for applicants that have never been previously qualified.

Contractors must be qualified under these same medical standards if they are operating cranes owned by the Navy (medical surveillance will not be completed by the Navy unless so stated in the Crane Operator’s contract).

Physical qualifications are contained in Federal Motor Carrier Safety Regulations, U. S. Department of Transportation, Federal Highway Administration, 49 CFR 391.41-49.

PROVIDER COMMENTS:
Any limitations imposed by reason of physical defects shall be noted on the operator’s license and license record in the “Restrictions” portion of the license, and the narrative explanation and/ special tests may be recorded on the SF-600.

OPNAV 8020/6 should be used to certify qualified operators (mark "C").

REFERENCE:

1. NAVFAC P-307, Management of Weight Handling Equipment
2. U.S. Department of Transportation; 49 CFR 391.41-49.
3. Federal Motor Carrier Safety Administration FAQs.
4. Hartenbaum, N. The DOT Medical Examination, OEM Press, Boston, MA 2010.

REVIEWED: September 2015

WELDERS/BRAZIERS/NON-DESTRUCTIVE INPECTION TECHS **708**

STRESSOR(S) IN THIS PROGRAM: **NIOSH#** **CAS#**

UV light

Program Frequency: Annual

EXAM ELEMENT	BASE	PERI	TERM
Is your work exposure history current (OPNAV 5100/15), and is surveillance/PPE consistent with exposures/occupations	Yes	Yes	No
Has anything about your health status changed since your last examination	Yes	Yes	No
Have any medications changed since your last exam	Yes	Yes	No
Major illness or injury	Yes	Yes	No
Hospitalization or surgery	Yes	Yes	No
Cancer	Yes	Yes	No
Back injury	Yes	Yes	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Yes	No
Have you ever smoked	Yes	Yes	No
Do you currently smoke or use smokeless tobacco or electronic cigarettes (___ packs/day)	Yes	Yes	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Yes	No
Current medication use (prescription or over the counter)	Yes	Yes	No
Medication allergies	Yes	Yes	No
Any reproductive health concerns	Yes	Yes	No
Change or loss of vision in either eye	Yes	Yes	No
Cataracts	Yes	Yes	No
Eye irritation or blurred vision	Yes	Yes	No
Eye injury	Yes	Yes	No
Vision screen (visual acuity)	Yes	Yes	No
Color vision	Yes	Yes	No
Eyes	Yes	Yes	No

PROGRAM DESCRIPTION:

The NAVSEA vision requirements for welders were combined with the exposure recommendations from OSHA and NIOSH on metal fumes to create this exam.

This program is focused toward medical certification of welders, brazers, and non-destructive inspection techs. The physical looks for the potential UV effects experienced by welders, as well as documenting that they have adequate visual acuity and color perception to adequately evaluate welds.

Reference (2) pertains to Non-destructive Inspection Technicians working in NAVAIR facilities. That group of workers only has the visual acuity and color testing requirements of the exam to qualify for the work. They may also be enrolled in the ionizing radiation stressor program, as a result of working with radioactive sources for non-destructive radiographic inspection of welds.

PROVIDER COMMENTS:
Visual acuity of at least 20/25 in one eye, with our without correction. Also, color perception criteria notes the welder must be able to distinguish silver, straw, light blue, dark blue, purple, and gray.

REFERENCE:

1. NAVSEA TM-S9074-AQ-GIB-010/248, Requirements for Welding and Brazing Procedures and Performance Qualification
2. COMNAVAIRFORINST 4790.2 (current), Naval Aviation Maintenance Program.

REVIEWED: February 2011

Physician Opinion Letters

From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

(Name)	(Last 4 ID #)	(Dept/Code)

1. The above noted individual was monitored and/or examined according to 29 CFR 1910.1018 regarding **inorganic arsenic** on _____ (date). On the basis of this examination the following comments are submitted.

   a. A medical condition WAS / WASN'T detected that would place the employee at increased risk of material impairment of the employee's health from exposure to inorganic arsenic.

   b. Limitations on this employee's exposure to inorganic arsenic or use of personal protective equipment such as clothing or respirators ARE / AREN'T recommended, as noted below.

2. The employee has been informed by the physician of the results of the medical examination and any medical conditions which require further explanation or treatment.

(examiner's signature and stamp)	(date)

Original: Employer
Copies: Employee
Medical record
Cognizant Industrial Hygienist (if indicated)

FOR OFFICIAL USE ONLY - Privacy Sensitive
Any misuse or unauthorized disclosure may result in both civil and criminal penalties.

From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

(Name)	(Last 4 ID #)	(Dept/Code)

1. The above noted individual was monitored and/or examined according to 29 CFR 1910.1001 regarding **asbestos** on _____ (date). On the basis of this examination the following comments are submitted.

   a. A medical condition WAS / WASN'T detected that would place the employee at an increased risk of material health impairment of the employee's health from exposure to asbestos, tremolite, anthophyllite, or actinolite.

   b. Limitations on this employee's use of personal protective equipment such as clothing or respirators ARE / AREN'T recommended, as noted below.

   c. The following results from the medical examination and tests may be related to occupational exposures.

2. The employee has been informed of the results of this medical evaluation and of any medical conditions resulting from asbestos exposure that require further evaluation or treatment.

3. The employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure.

(examiner's signature and stamp)	(date)

Original: Employer
Copies: Employee
Medical record
Cognizant Industrial Hygienist (if indicated)

FOR OFFICIAL USE ONLY - Privacy Sensitive
Any misuse or unauthorized disclosure may result in both civil and criminal penalties.

From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

(Name)	(Last 4 ID #)	(Dept/Code)

1. The above noted individual was evaluated according to 29 CFR 1910.1030 regarding **blood and/or body fluids** on _____ (date). On the basis of this examination the following comments are submitted.

   a. Hepatitis B vaccination IS / ISN'T recommended for this employee.

   b. This employee HAS / HASN'T received hepatitis B vaccination.

2. The employee has been informed of the results of this evaluation and about any medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment.

(examiner's signature and stamp)	(date)

Original: Employer
Copies: Employee
Medical record
Cognizant Industrial Hygienist (if indicated)

FOR OFFICIAL USE ONLY - Privacy Sensitive
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From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

(Name)	(Last 4 ID #)	(Dept/Code)

1. The above noted individual was monitored and/or examined according to 29 CFR 1910.1051 regarding **butadiene** on _____ (date). On the basis of this examination the following comments are submitted.

   a. A medical condition WAS / WASN'T detected that would place the employee at an increased risk of material health impairment of the employee's health from exposure to butadiene.

   b. Limitations on this employee's exposure to butadiene or use of personal protective equipment such as clothing or respirators ARE / AREN'T recommended, as noted below.

   c. The following results from the medical examination and tests may be related to occupational exposures.

2. The employee has been informed of the results of this medical evaluation and of any medical conditions resulting from butadiene exposure that require further explanation or treatment.

(examiner's signature and stamp)	(date)

Original: Employer
Copies: Employee
Medical record
Cognizant Industrial Hygienist (if indicated)

FOR OFFICIAL USE ONLY - Privacy Sensitive
Any misuse or unauthorized disclosure may result in both civil and criminal penalties.

From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

(Name)	(Last 4 ID #)	(Dept/Code)

1. The above noted individual was monitored and/or examined according to 29 CFR 1910.1027 regarding **cadmium** on _____ (date). On the basis of this examination the following comments are submitted.

   a. The diagnosis is cadmium occupational medical surveillance examination.

   b. A medical condition WAS / WASN'T detected that would place the employee at an increased risk of material health impairment of the employee's health from further exposure to cadmium, including any indications of potential cadmium toxicity.

   c. Any removal from, or limitations on the activities or duties of the employee or on this employee's use of personal protective equipment such as clothing or respirators ARE / AREN'T recommended, as noted below.

   d. The following are the results from the medical examination and any biological or other testing or related evaluations that directly assess the employee's absorption of cadmium.

2. I have clearly and carefully explained to the employee the results of the medical examination, including all biological monitoring results and any medical conditions related to cadmium exposure that require further evaluation or treatment, and any limitation on the employee's diet or use of medications..

(examiner's signature and stamp)	(date)

Original: Employer
Copies: Employee
Medical record
Cognizant Industrial Hygienist (if indicated)

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From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

(Name)	(Last 4 ID #)	(Dept/Code)

1. The above noted individual was monitored and/or examined according to 29 CFR 1910.1026 regarding **chromium** on _____ (date). On the basis of this examination the following comments are submitted.

   a. The diagnosis is chromium occupational medical surveillance examination.

   b. A medical condition WAS / WASN'T detected that would place the employee at increased risk of material impairment to health from further exposure to chromium (VI).

   c. Any removal from, or limitations on the activities or duties of the employee or on this employee's use of personal protective equipment such as respirators ARE / AREN'T recommended, as noted below.

   d. The following are the results from the medical examination and any biological or other testing or related evaluations that directly assess the employee's absorption of chromium.

2. I have clearly and carefully explained to the employee the results of the medical examination, including all biological monitoring results and any medical conditions related to chromium exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment.

(examiner's signature and stamp)	(date)

Original: Employer
Copies: Employee
Medical record
Cognizant Industrial Hygienist (if indicated)

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From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

(Name)	(Last 4 ID #)	(Dept/Code)

1. The above noted individual was monitored and/or examined according to 29 CFR 1910.1001 regarding **ethylene oxide (EtO)** on _____ (date). On the basis of this examination the following comments are submitted.

   a. A medical condition IS / ISN'T detected that would place the employee at an increased risk of material health impairment of the employee's health from exposure to ethylene oxide.

   b. Limitations on this employee's use of personal protective equipment such as clothing or respirators ARE / AREN'T recommended, as noted below.

   c. The following results from the medical examination and tests may be related to occupational exposures.

2. The employee has been informed of the results of this medical evaluation and of any medical conditions resulting from ethylene oxide exposure that require further explanation or treatment.

(examiner's signature and stamp)	(date)

Original: Employer
Copies: Employee
Medical record
Cognizant Industrial Hygienist (if indicated)

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From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

(Name)	(Last 4 ID #)	(Dept/Code)

1. The above noted individual was monitored and/or examined according to 29 CFR 1910.1001 regarding **formaldehyde** on _____ (date). On the basis of this examination the following comments are submitted.

   a. A medical condition WAS / WASN'T detected that would place the employee at an increased risk of material health impairment of the employee's health from exposure to formaldehyde.

   b. Limitations on this employee's use of personal protective equipment such as clothing or respirators ARE / AREN'T recommended, as noted below.

   c. The following results from the medical examination and tests may be related to occupational exposures.

2. The employee has been informed of the results of this medical evaluation and of any medical conditions which would be aggravated by exposure to formaldehyde, whether these conditions may have resulted from past formaldehyde exposure or from exposure in an emergency, and whether there is a need for further examination or treatment.

(examiner's signature and stamp)	(date)

Original: Employer
Copies: Employee
Medical record
Cognizant Industrial Hygienist (if indicated)

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From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

(Name)	(Last 4 ID #)	(Dept/Code)

1. The above noted individual was monitored and/or examined according to 29 CFR 1910.120 regarding **hazardous waste operations or emergency response** on _____ (date). On the basis of this examination the following comments are submitted.

   a. The diagnosis is hazardous waste operations or emergency response occupational medical surveillance examination.

   b. A medical condition ARE / AREN'T detected that would place the employee at increased risk of material impairment of the employee's health from work in hazardous waste operations or emergency response, or from respirator use. Comments (if applicable):

   c. Any limitations upon the employee's assigned work ARE / AREN'T recommended, as noted below.

   d. If requested by the employee, the results of the medical examination and tests are noted below.

2. I have clearly and carefully explained to the employee the results of the medical examination, and any medical conditions that require further examination or treatment.

(examiner's signature and stamp)	(date)

Original: Employer
Copies: Employee
Medical record
Cognizant Industrial Hygienist (if indicated)

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From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

(Name)	(Last 4 ID #)	(Dept/Code)

1. The above noted individual was monitored and/or examined according to 29 CFR 1910.1025 regarding occupational exposure to **lead** on _____ (date). On the basis of this examination the following comments are submitted.
   a. A medical condition WAS / WASN'T detected that would place the employee at an increased risk of material impairment of the employee's health from exposure to lead.
   b. Special protective measures recommended to be provided to the employee, or limitations to be placed upon the employee's exposure to lead, are the following, if any (NONE).

   c. Limitations ARE / AREN'T recommended on this individual's exposure or use of respirators, including the following.
      i. The employee CAN / CAN'T wear a negative pressure respirator.
      ii. The employee ARE / AREN'T wear a powered air purifying respirator (PAPR).
2. The blood lead level was determined to be _____.
3. The employee has been counseled regarding the results of this medical evaluation and of any medical conditions resulting from lead exposure that require further evaluation or treatment.

(examiner's signature and stamp)	(date)

Original: Employer
Copies: Employee
Medical record
Cognizant Industrial Hygienist (if indicated)

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From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

(Name)	(Last 4 ID #)	(Dept/Code)

1. The above noted individual was monitored and/or examined according to 29 CFR 1910.1052 regarding **methylene chloride (MC)** on _____ (date). On the basis of this examination the following comments are submitted.

   a. Exposure to MC MAY / IS LIKELY TO contribute to or aggravate the employee's existing cardiac, hepatic, neurological (including stroke) or dermal disease

   b. A medical condition WAS / WASN'T detected that would place the employee at an increased risk of material health impairment of the employee's health from exposure to MC.

   c. Limitations on this employee's exposure to MC or on the employee's use of personal protective equipment such as clothing or respirators ARE / AREN'T recommended, as noted below.

   d. The following results from the medical examination and tests may be related to occupational exposures.

2. The employee has been informed that MC is a potential occupational carcinogen, of risk factors for heart disease and the potential for exacerbation of underlying heart disease by exposure to MC through its metabolism to carbon monoxide, and of the results of this medical evaluation and of any medical conditions resulting from MC exposure that require further explanation or treatment.

(examiner's signature and stamp)	(date)

Original: Employer
Copies: Employee
Medical record
Cognizant Industrial Hygienist (if indicated)

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From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

(Name)	(Last 4 ID #)	(Dept/Code)

1. The above noted individual was monitored and/or examined according to 29 CFR 1910.1001 regarding **methylenedianiline (MDA)** on _____ (date). On the basis of this examination the following comments are submitted.

   a. A medical condition WAS / WASN'T detected that would place the employee at an increased risk of material health impairment of the employee's health from exposure to methylenedianiline.

   b. Limitations on this employee's use of personal protective equipment such as clothing or respirators ARE / AREN'T recommended, as noted below.

   c. The following results from the medical examination and tests may be related to occupational exposures.

2. The employee has been informed of the results of this medical evaluation and of any medical conditions resulting from methylenedianiline exposure that require further explanation or treatment.

(examiner's signature and stamp)	(date)

Original: Employer
Copies: Employee
Medical record
Cognizant Industrial Hygienist (if indicated)

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NOTICE OF SIGNIFICANT THRESHOLD SHIFT

Name	(Last 4 ID #)	Dept/Code

Ref: (a) 29 CFR 1910.95

1. The results of the hearing test provided to you as part of the Navy Hearing Conservation Program indicate that you may have suffered deterioration in your hearing sensitivity. This condition is referred to as a Significant Threshold Shift (STS). Because of the test results, you have been or will be scheduled for one or more hearing tests to confirm the findings. Also, you may be given a medical examination to determine the probable cause of the STS. This written notification is presented under the requirements of reference (a).
2. Audiometric technicians have provided you with properly fitted hearing protection devices and given you a reindoctrination of the Hearing Conservation Program requirements. In addition, the following steps have been taken in response to your change in hearing:

_____ Follow-up Audiogram(s)

_____ Medical Consultation

_____ Referral to Audiologist

_____ Other:

3. In order to preserve your hearing, it is very important that you wear your hearing protection at all times when in areas identified as noise hazardous or in the vicinity of noise hazardous tools, weapons or operations.

I HAVE READ AND UNDERSTAND THE ABOVE INFORMATION:

(patient's signature)	(date)

(Audiometric Technician’s Signature and Stamp)	(date)

Original: Employer
Copies: Employee
Medical record
Cognizant Industrial Hygienist (IH) (if indicated)

FOR OFFICIAL USE ONLY - Privacy Sensitive
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