

**MEDICAL SURVEILLANCE
PROCEDURES MANUAL
AND
MEDICAL MATRIX
(EDITION 11)**



NAVY AND MARINE CORPS PUBLIC HEALTH CENTER

BUREAU OF MEDICINE AND SURGERY

MEDICAL SURVEILLANCE PROCEDURES MANUAL AND MEDICAL MATRIX

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FORWARD

This 11th 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 20 years.

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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 Web site at the following Internet address:

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

Reviewed and approved



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By Direction

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Chapter 1:

C1. Medical Screening

A medical screening examination as part of a medical surveillance program is one of several tools aimed at protecting workers who are exposed or potentially exposed to hazardous substances in the workplace. Exam content is established in the Medical Matrix for performing hazard based medical examinations and certification examinations. THIS DOCUMENT ESTABLISHES THE MINIMUM REQUIREMENTS FOR MEDICAL SURVEILLANCE AND CERTIFICATION EXAMINATIONS. These requirements are based on a number of sources. They may be based on statutory regulations and instructions (as listed at the end of each examination program), standards that have been recommended by the National Institute of Occupational Safety and Health (NIOSH) and accepted by the Medical Matrix Committee, or by evidence based medical research that has been evaluated and accepted by the Medical Matrix Committee.

A medical surveillance program includes establishing exam content, performing occupational medical examinations, documenting results of examinations, informing the employee of the results of examination, following up abnormalities, counseling and education, and evaluating grouped data for trends and sub-clinical effects of exposure.

Selection of personnel for medical surveillance programs is based primarily on the results of the industrial hygiene survey and is exposure driven. This is known as "hazard based" medical surveillance. In the absence of industrial hygiene data, medical personnel will make a decision on placement in medical surveillance programs based on knowledge of the workplace processes, job requirements, and occupational history.

Special attention in performing occupational medical examinations is given to those target organs or organ systems potentially subject to the untoward effects of hazardous substances whether by inhalation, absorption or ingestion. Elements of examination include specific history questions (personal and work history), physical examination, x-ray, biological monitoring (testing of body fluids or tissues for the toxic substance itself, a metabolite or a physiologic change), and other laboratory and ancillary tests such as EKG, PFT and audiogram. Conducting occupational medical examinations to detect early organ dysfunction or early disease to benefit individual workers is "screening" or "monitoring" and constitutes secondary prevention.

As a result of the enactment of the Genetic Information Non-discrimination Act of 2010 (GINA), questions about family history have been removed from Medical Matrix Version 10.1. Providers asking any questions about family history, such as when they are assessing a suspicion of coronary artery disease in a worker, must not use such information to disqualify workers based on history alone.

An integral component of the occupational medical examination is follow-up. Follow-up may include notification, additional tests or evaluation, evaluation or modification of the workplace or removal from exposure. Workers who receive occupational medical examinations should be informed of any specific health risks identified on examination. Certain OSHA programs require written notification in the form of physician's/provider's written opinions. Examples are included in C10.2, Physician's/Provider's Written Opinion Samples.

C1.1. Types of Occupational Medical Examinations

Most medical surveillance programs consist of examinations for baseline (pre-placement), periodic and termination. If there is evidence of overexposure, a situational examination will be required. Guidelines for situational examinations are not included in the Medical Matrix.

C1.1.1. 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.

C1.1.2. 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. With certain stressors, the frequency of examinations will also depend on other variables, such as the findings from previous examinations, the history of exposure or the age of the worker.

C1.1.3. Termination Examination

This examination may be required when the worker terminates employment or is permanently removed from a position that has a potential for 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. Specific program references provide guidelines.

C1.1.4. Situational Examination

This examination is conducted in response to a specific incident for which a possible overexposure to a hazardous substance is suspected. Such an incident should prompt these examinations on all individuals with suspected overexposure, not just those already in a surveillance program. These examinations may vary significantly from routine medical surveillance protocols. Guidelines for performing situational examinations are not provided in this manual. The purpose of this manual is to provide guidance for performing routine medical surveillance.

C1.2. Standard Questions

There are now 14 standard questions included in each Medical Matrix program designed to help assess public health and safety risk factors for each worker. These questions were written for inclusion in data collection protocol when developed. The standard questions are:

1. Is Your Work Exposure History Current (OPNAV 5100/15)
2. Has anything about your health status changed since your last examination
3. Have any medications changed since your last examination
4. Major Illness or Injury
5. Hospitalization or Surgery
6. Cancer
7. Back Injury

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8. Do you drink 6 or more drinks per week?
9. Have you ever smoked?
10. Do you currently smoke? (__ Packs/day)
11. Heart Disease, High Blood Pressure or Stroke
12. Current Medication Use (Prescription or Over-The-Counter)
13. Allergies (Include Medications)
14. Any reproductive health concerns?

C1.3. References

1. Halperin W, Ratcliffe J, Frazier T, et al. Medical Screening in the workplace: proposed principles, *J Occup Med.* 1986; 28:547-552.
2. Matte T, Fine L, Meinhardt T, et al. Guidelines for medical screening in the workplace, *Occup Med.: State of the Art Reviews.* 1990; 5:439-456.
3. Silverstein M. Medical Screening, Surveillance, and the Prevention of Occupational Disease. *J Occup Med.* 1990;32:1032-1036.
4. Baker E, Honchar, P, Fine, L, et al. Surveillance in Occupational Illness and Injury: Concepts and Content, *Am J. of Public Health.* 1989;79:9-11.
5. Sorgdrager B, Hulshof CT, van Dijk FJ. Evaluation of the effectiveness of pre-employment screening. *Int Arch Occup Environ Health.* 2004 May; 77(4):271-6.
6. Eckebrecht T. Occupational standards for the protection of employees in biotechnology. *Int Arch Occup Environ Health.* 2000 Jun; 73 Suppl:S4-7.
7. Rawbone RG. Future impact of genetic screening in occupational and environmental medicine. *Occup Environ Med.* 1999 Nov; 56(11):721-4.

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Chapter 2:

C2. Placement of Workers in Medical Surveillance Programs

C2.1. Hazard Based Medical Surveillance

Workers with potential exposure to hazards are placed in medical surveillance programs based on industrial hygiene (IH) and/or safety surveys that quantify exposures in the workplace. This is known as "hazard based" medical surveillance. Workplace hazard assessment takes into account exposure levels (frequency and duration) and 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 Occupational Exposure Limit) set by regulation such as the Occupational Safety and Health Administration (OSHA) standards. The decision may also be driven by other exposure standards, policy and guidance from DoD or Navy instructions, or by the professional judgment of the industrial hygienists and safety professionals. Criteria for making the recommendation to have workers included in medical surveillance can be found in NMCPHC TM6290.91-2 Rev B, Industrial Hygiene Field Operations Manual Chapter 3.

There is one notable exception to this system of using risk of exposure to direct medical surveillance. Recently, the Marine Corps decided to place all Marines into the Hearing Conservation Program's monitoring program for hearing acuity. Industrial hygienists remove members selectively. This is the opposite of the risk based recommendation described above.

Chapter 3:

C3. How to Use the Medical Matrix

C3.1. History of Development of the Medical Matrix

The Medical Matrix Validation Committee was formed in March 1988. Its tasking was to review an existing Medical Matrix 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 Technical Manual in January 1989.

The Medical Matrix Committee continues to review existing programs, evaluate the need for, and write new programs for those stressors that have chronic health effects. See C8, Reviews and Revisions, for a list of those stressors reviewed and for which no evidence of chronic health effects could be found. This list will be reviewed periodically and amended as new information indicates.

Situations may arise where industrial hygiene 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 of the stressor. Any appropriate modifications can be hand written on the forms generated. Request for review of a new program should be sent to the Matrix Committee (see Chapter 10).

C3.2. Explanation of Contents

The Medical Matrix, Edition 11, contains medical surveillance and certification examinations divided into four major sections with each section preceded by a brief introduction. Each program is organized in the same format:

- First, medical history questions; personal and work.
- Second, recommended laboratory or ancillary (EKG, PFT, audiogram) tests.
- Third, areas which should be targeted on physical examination (ex: central nervous system (CNS), respiratory system, liver)
- Last, special requirements such as qualification and certification are listed, followed by special notations such as warnings, assessment of knowledge and requirement for Physician's/provider's Written Opinion.

Each section ends with a line prompting for comments on that section, if indicated.

Following each program is a Program Description section that includes:

- General references are included as numbers that correspond to the reference list found in "General References." These general texts were used in developing each program and are additional resources. Specific references such as Navy instructions, OSHA Standards, Department of Defense, Office of Civilian Personnel Management or Civilian Personnel Instructions are listed in the program description. NOTE: References listed were current at the time of publication. However, individual users are cautioned of their responsibility to ensure use of the most current edition or version.
- Detailed guidance and interpretation may be included to further explain the program.
- Date of most recent revision.
- Web sites when available.

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Following the Program Description section, the Provider Comments section may contain more detailed information about the program including 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.

C3.3. Four Divisions of the Matrix

Chemical Stressors: These programs are contained in Chapter 4 of the manual, and are typically called “medical surveillance exams.” A surveillance exam is one layer of protection built into a medical surveillance program. The purpose of the medical surveillance exams in the Chemical Stressors section 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, administrative, or personal protective equipment controls. Baseline medical surveillance exams provide baseline levels of the health status of the worker, and are not certification or fitness-for-duty exams. Many times, the examination elements are dictated by OSHA regulation or by NIOSH recommendation. The examiner may find health risks on baseline exams that would place the worker at much greater risk if an actual exposure to toxicants, and these findings may be helpful to inform the worker and management as to the wisdom of placing that particular worker in the job.

Physical Stressors: These programs are contained in Chapter 5 of the manual. These are medical surveillance programs aimed at detecting exposure to energy rather than to hazardous chemicals.

Mixed Exposures: These programs are contained in Chapter 6 of the manual. These are medical surveillance programs aimed at detecting exposure to groups or categories of chemicals for which exposure to a specific chemical is uncertain, to chemicals for which there is no separate program, to certain biological hazards, or to certain hazards that are not regulated.

Specialty Examinations: These are contained in Chapter 7 of the manual. They could also be called “Certification Exams.” They are physical exams performed when medical standards exist for workers assigned to a position. The standards can be promulgated by any number of sources, and the examiner is asked to determine whether or not a worker is medically capable of performing the duties of the job.

C4. 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).

C4.1. Introduction and Changes to Chemical Stressors Section

C4.1.1. Significant Revisions:

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

2-ACETYLAMINOFLUORENE

102

STRESSOR(S) IN THIS PROGRAM:		NIOSH #	CAS #	
2-acetylaminofluorene		AB9450000	53-96-3	
Program Frequency			Annual	
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes	
Has anything about your health status changed since your last examination	Yes	Annual	Yes	
Have any medications changed since your last examination	Yes	Annual	Yes	
Major illness or injury	Yes	Annual	Yes	
Hospitalization or surgery	Yes	Annual	Yes	
Cancer	Yes	Annual	Yes	
Back injury	Yes	Annual	Yes	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes	
Have you ever smoked	Yes	Annual	Yes	
Do you currently smoke (packs/day)	Yes	Annual	Yes	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes	
Current medication use (prescription or OTC)	Yes	Annual	Yes	
Medication allergies	Yes	Annual	Yes	
Any reproductive health concerns	Yes	Annual	Yes	
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes	
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes	
Current pregnancy (self or spouse)	Yes	Annual	Yes	
Impotence or sexual dysfunction	Yes	Annual	Yes	
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes	
Comments on medical history:	Yes	Annual	Yes	
Physical examination:				
Vital signs	Yes	Annual	Yes	
Special attention in examination to:				
Immunocompetence (lymphatic system)	Yes	Annual	Yes	
Other appropriate examination (specify)	Yes	Annual	Yes	
Comments on physical examination:	Yes	Annual	Yes	
Special notations:				
Substance(s) suspected human carcinogen	Yes	Annual	Yes	
Substance(s) suspected human mutagenic/fetotoxic effects	Yes	Annual	Yes	
Physician's written opinion required	Yes	Annual	Yes	
Is surveillance/PPE consistent with exposures?	Yes	Annual	Yes	

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EXAM ELEMENT	BASE	PERI	TERM
Are any abnormalities related to exposures/occupations?	Yes	Annual	Yes

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.

REFERENCES:

1. [29 CFR 1910.1003](#)
2. [NIOSH Occupational Health and Safety Guidelines for 2-Acetylaminofluorene](#)

REVISED: SEPTEMBER 2009

ACRYLAMIDE

103

STRESSOR(S) IN THIS PROGRAM:		NIOSH #	CAS #	
acrylamide		AS3325000	79-06-1	
Program Frequency			Annual	
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes	
Has anything about your health status changed since your last examination	Yes	Annual	Yes	
Have any medications changed since your last examination	Yes	Annual	Yes	
Major illness or injury	Yes	Annual	Yes	
Hospitalization or surgery	Yes	Annual	Yes	
Cancer	Yes	Annual	Yes	
Back injury	Yes	Annual	Yes	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes	
Have you ever smoked	Yes	Annual	Yes	
Do you currently smoke (packs/day)	Yes	Annual	Yes	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes	
Current medication use (prescription or OTC)	Yes	Annual	Yes	
Medication allergies	Yes	Annual	Yes	
Any reproductive health concerns	Yes	Annual	Yes	
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes	
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes	
Shortness of breath	Yes	Annual	Yes	
Cough (dry or productive)	Yes	Annual	Yes	
Pneumonia	Yes	Annual	Yes	
Weight loss	Yes	Annual	Yes	
Neurological disorder, gait change, paresthesia, loss of coordination	Yes	Annual	Yes	
Comments on medical history:	Yes	Annual	Yes	
Physical examination:				
Vital signs	Yes	Annual	Yes	
Special attention in examination to:				
Respiratory system	Yes	Annual	Yes	
Central nervous system	Yes	Annual	Yes	
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	Yes	
Other appropriate examination (specify)	Yes	Annual	Yes	
Comments on physical examination:	Yes	Annual	Yes	

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EXAM ELEMENT	BASE	PERI	TERM
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes

PROGRAM DESCRIPTION:

REFERENCES:

[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	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes	
Has anything about your health status changed since your last examination	Yes	Annual	Yes	
Have any medications changed since your last examination	Yes	Annual	Yes	
Major illness or injury	Yes	Annual	Yes	
Hospitalization or surgery	Yes	Annual	Yes	
Cancer	Yes	Annual	Yes	
Back injury	Yes	Annual	Yes	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes	
Have you ever smoked	Yes	Annual	Yes	
Do you currently smoke (packs/day)	Yes	Annual	Yes	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes	
Current medication use (prescription or OTC)	Yes	Annual	Yes	
Medication allergies	Yes	Annual	Yes	
Any reproductive health concerns	Yes	Annual	Yes	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes	
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis, asbestosis, silicosis, pneumothorax, collapsed lung)	Yes	Annual	Yes	
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes	
Headache, dizziness, light-headedness, weakness	Yes	Annual	Yes	
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpation, or other heart problem	Yes	Annual	Yes	
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	Yes	
Shortness of breath	Yes	Annual	Yes	
Cough (dry or productive)	Yes	Annual	Yes	
Pneumonia	Yes	Annual	Yes	
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Annual	Yes	
Liver disease	Yes	Annual	Yes	
Kidney disease	Yes	Annual	Yes	

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EXAM ELEMENT	BASE	PERI	TERM
Problems with balance and coordination	Yes	Annual	Yes
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	Yes
Thyroid disease (heat or cold intolerance)	Yes	Annual	Yes
Depression, diff concentrating, excessive anxiety	Yes	Annual	Yes
Personality change	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST, ALT, total bilirubin, alk phos.	Yes	Annual	Yes
Additional lab tests:			
Stool hemocult (over age 40)	Yes	Annual	Yes
Radiology:			
Chest x-ray (PA)	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Central nervous system	Yes	Annual	Yes
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	Yes
Cardiovascular system	Yes	Annual	Yes
Abdomen	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Thyroid	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures?	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations?	Yes	Annual	Yes

PROGRAM DESCRIPTION:

REFERENCES:

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

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ALLYL CHLORIDE

105

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #	
allyl chloride	UC7350000	107-05-1	
	Program Frequency	Annual	
EXAM ELEMENT	BASE	PERI	TERM
Medical history: Have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Hepatitis or jaundice	Yes	Annual	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Change or loss of vision in either eye	Yes	Annual	No
Eye irritation	Yes	Annual	No
Liver disease	Yes	Annual	No
Kidney disease	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , ALT, Total Bilirubin, alkaline phosphatase	Yes	Annual	No
BUN and creatinine	Yes	Annual	No
Urinalysis:			
Routine Urinalysis with microscopic	Yes	Annual	No
Radiology:			

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EXAM ELEMENT	BASE	PERI	TERM
Chest x-ray (PA)	Yes	No	No
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Eyes	Yes	Annual	No
Liver	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

REFERENCES:

[NIOSH Recommended Standard for Allyl Chloride](#)

REVIEWED: JANUARY 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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs decreased immunity	Yes	Annual	Yes
Problems with urination/blood in urine	Yes	Annual	Yes
Current pregnancy (self or spouse)	Yes	Annual	Yes
Impotence or sexual dysfunction	Yes	Annual	Yes
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , ALT, Total Bilirubin, alkaline phosphatase	Yes	Annual	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			

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EXAM ELEMENT	BASE	PERI	TERM
Immunocompetence (lymphatic system)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) known human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

REFERENCES:

1. [29 CFR 1910.1003](#)
2. [NIOSH Recommended Standard for 4-aminodiphenyl.](#)

REVIEWED: OCTOBER 2010

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
Medical history: Have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week? (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Eye irritation	Yes	Annual	Yes
Shortness of breath	Yes	Annual	Yes
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Annual	Yes
Work history of:			
Exposure to skin irritants	Yes	Annual	Yes
Family history of:			
Cancers (leukemia, tumors)	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Cardiology:			
Electrocardiogram	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Radiology:			
Chest x-ray (PA)	Yes	Annual	Yes
Spirometry:	Yes	Annual	Yes
Comments on laboratory results:			
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Cardiovascular system	Yes	Annual	Yes
Eyes	Yes	Annual	Yes
Mucous membranes	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

PROVIDER COMMENTS:

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

REFERENCES:

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](#)

REVIEWED: AUGUST 2009

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Do you have breathlessness, cough (dry or productive), sputum production, or wheezing (none, mild, moderate, severe)	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Coughing up blood (hemoptysis)	Yes	Annual	Yes
Shortness of breath	Yes	Annual	Yes
Cough (dry or productive)	Yes	Annual	Yes
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	Yes
Work history of:			
10 or more yrs since first exposure to arsenic	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Radiology:			
Chest x-ray (PA)	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	Yes
Cardiovascular system	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Nasal mucosa (septal perforation)	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Laboratory:			
Hematology:			
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	Annual	Yes
Special notations:			
Substance(s) known human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures listed on OPNAV 5100/15?	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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.

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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
Medical history: Have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Annual	Yes
Change in frequency or appearance of bowel movements	Yes	Annual	Yes
Any finding related to asbestos exposure?	Yes	Annual	Yes
Laboratory:			
Radiology			
Chest x-ray (asbestos) using NAVMED 6260/7 (Circle correct frequency)	Yes	Circle:	Yes
Age of employee:	15 to 35	35 to 45	45+
Years since first exposure:			
0 to 10	5 years	5 years	5 years
10+	5 years	2 years	1 year
Spirometry:			

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EXAM ELEMENT	BASE	PERI	TERM
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	Yes
Qualifications:			
Respiratory protection	Yes	Annual	Yes
Special notations:			
Substance(s) known human carcinogen	Yes	Annual	Yes
Counseling regarding the combined effects of smoking and asbestos exposure	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures listed on OPNAV 5100/15?	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	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.

Until there is a change in International Labour Organization (ILO)/National Institute for Occupational Safety and Health (NIOSH) requirements (reference 5), chest x-rays must be plain film format (also called film screen radiography or FSR) for current asbestos workers.

REFERENCES:

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

REVIEWED: SEPTEMBER 2010

ASBESTOS PAST WORKER ≤ 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 yrs

EXAM ELEMENT	BASE	PERI	TERM
Medical history: Have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	5 yrs	
Has anything about your health status changed since your last examination	Yes	5 yrs	
Have any medications changed since your last examination	Yes	5 yrs	
Special notations:			
Substance(s) known human carcinogen	Yes	5 yrs	
Counseling regarding the combined effects of smoking and asbestos exposure	Yes	5 yrs	
Is surveillance/PPE consistent with exposures listed on OPNAV 5100/15?	Yes	5 yrs	
Are any abnormalities related to exposures/occupations	Yes	5 yrs	
Recommendations:	Yes	5 yrs	

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.

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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.

As radiograph protocols for past workers are not mandated by OSHA, either plain film (also called film screen radiography or FSR) or digital chest x-rays are acceptable for B-reading for past workers.

REFERENCES:

1. [OPNAVINST 5100.23](#) (current series), Chapter 17;
2. [OPNAVINST 5100.19](#) (current series), Chapter B1;
3. [Occupational Medicine Field Operations Manual, current edition](#)

REVISED: SEPTEMBER 2010

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	Age dependent

EXAM ELEMENT	BASE	PERI	TERM
Medical history: Have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	YES	***	
Has anything about your health status changed since your last examination	YES	***	
Have any medications changed since your last examination	YES	***	
Is surveillance/PPE consistent with exposures	YES	***	
Are any abnormalities related to exposures/occupations?	YES	***	
Recommendations:	YES	***	

*****FREQUENCY OF EXAMINATION**

AGE	FREQUENCY
15 To 34	5 yrs
35 To 44	2 yrs
45+	Annual

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

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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.

As radiograph protocols for past workers are not mandated by OSHA, either plain film (also called film screen radiography or FSR) or digital chest x-rays are acceptable for B-reading for past workers.

REFERENCES:

1. [OPNAVINST 5100.23](#) (current series), Chapter 17;
2. [OPNAVINST 5100.19](#) (current series), Chapter B1;
3. [Occupational Medicine Field Operations Manual, current edition](#)

REVIEWED: SEPTMEBER 2010

BENZENE

117

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #	
benzene	CY1400000	71-43-2	Annual
	Program Frequency		
	EXAM ELEMENT	BASE	PERI TERM
Medical history: Have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc.)	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Bleeding abnormalities	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Kidney disease	Yes	Annual	Yes
Current pregnancy (females only)	Yes	Annual	Yes
Work history of:			
Exposure to benzene	Yes	Annual	Yes
Exposure to chemotherapeutic/antineoplastic agents	Yes	Annual	Yes
Exposure to ionizing radiation	Yes	Annual	Yes
Exposure to carcinogens	Yes	Annual	Yes
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Annual	Yes
Exposure to marrow toxins	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			

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EXAM ELEMENT	BASE	PERI	TERM
Hematology:			
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	Annual	Yes
Differential white blood cell count	Yes	Annual	Yes
Platelet count	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Complete physical examination	Yes	No	No
Special attention in examination to:			
Central nervous system	Yes	Annual	Yes
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	Yes
Abdomen	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) known human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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

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

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 \geq 30 days/yr

REFERENCE:

1. [29 CFR 1910.1028](#) and [1926.1128](#);

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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: APRIL 2011

BENZIDINE

118

STRESSOR(S) IN THIS PROGRAM:		NIOSH #	CAS #	
benzidine		DC9625000	92-87-5	
Program Frequency			Annual	
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: Have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes	
Has anything about your health status changed since your last examination	Yes	Annual	Yes	
Have any medications changed since your last examination	Yes	Annual	Yes	
Major illness or injury	Yes	Annual	Yes	
Hospitalization or surgery	Yes	Annual	Yes	
Cancer	Yes	Annual	Yes	
Back injury	Yes	Annual	Yes	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes	
Have you ever smoked	Yes	Annual	Yes	
Do you currently smoke (packs/day)	Yes	Annual	Yes	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes	
Current medication use (prescription or OTC)	Yes	Annual	Yes	
Medication allergies	Yes	Annual	Yes	
Any reproductive health concerns	Yes	Annual	Yes	
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes	
Decreased immunity	Yes	Annual	Yes	
Kidney disease	Yes	Annual	Yes	
Problems with urination/blood in urine	Yes	Annual	Yes	
Current pregnancy (females only)	Yes	Annual	Yes	
Impotence or sexual dysfunction	Yes	Annual	Yes	
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes	
Work history of:				
Exposure to chemotherapeutic/antineoplastic agents	Yes	Annual	Yes	
Exposure to carcinogens	Yes	Annual	Yes	
Comments on medical history:	Yes	Annual	Yes	
Laboratory:				
Urinalysis:				
Routine:				
Urinalysis with microscopic	Yes	Annual	Yes	
Cytology:				
Urine cytology	Yes	Annual	Yes	
Comments on laboratory results:	Yes	Annual	Yes	

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EXAM ELEMENT	BASE	PERI	TERM
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Genitourinary tract	Yes	Annual	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) known human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

REFERENCES:

1. OSHA STANDARD [29 CFR 1910.1003](#)
2. OSHA STANDARD [29 CFR 1926.1103](#)

REVIEWED: APRIL 2011

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
Medical history: Have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Coughing up blood (hemoptysis)	Yes	Annual	Yes
Shortness of breath	Yes	Annual	Yes
Cough (dry or productive)	Yes	Annual	Yes
Pneumonia	Yes	Annual	Yes
Work history of:			
Exposure to skin irritants	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Laboratory:			
Radiology:			
Chest x-ray (PA)	Yes	Annual	Yes
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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.

REFERENCES:

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

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
Medical history:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	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 (___ packs/day)	Yes	No	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	No	No
Current medication use (prescription or OTC)	Yes	No	No
Medication allergies	Yes	No	No
Any reproductive health concerns	Yes	No	No
Recent tattoos	Yes	No	No
Have you ever been evaluated for latex allergy	Yes	No	No
Work history of:			
Exposure to potentially infectious body fluids	Yes	No	No
Comments on medical history:	Yes	No	No
Physical examination:			
Vital signs	Yes	No	No
Other appropriate examination (specify)	Yes	No	No
Comments on physical examination:	Yes	No	No
Qualifications:			
Is hepatitis B vaccine series complete or prior infection documented?	Yes	No	No
Special notations:			
Assess the examinee's knowledge of universal blood/body fluid precautions	Yes	No	No
Physician's/provider's written opinion required	Yes	No	No
Is surveillance/PPE consistent with exposures	Yes	No	No
Are any abnormalities related to exposures/occupations	Yes	No	No
Recommendations:	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 \(http://www.nccc.ucsf.edu\)](http://www.nccc.ucsf.edu), telephone 888-448-4911.

REFERENCES:

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. [NIOSH Home Workplace Safety & Health Topics Bloodborne Infectious Diseases HIV/AIDS, Hepatitis B Virus, and Hepatitis C](#)
7. [Needle-stick Guideline: eMedicine Emergency Medicine](#)
8. [Bloodborne Pathogen Exposure Control NMCPHC-TM-OEM 6260.7](#)

REVISED: APRIL 2011

BORON TRIFLUORIDE

122

STRESSOR(S) IN THIS PROGRAM:

boron trifluoride

NIOSH #
ED2275000

CAS #
7637-07-2

Program Frequency

3 yrs

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	3 yrs	Yes
Has anything about your health status changed since your last examination	Yes	3 yrs	Yes
Have any medications changed since your last examination	Yes	3 yrs	Yes
Major illness or injury	Yes	3 yrs	Yes
Hospitalization or surgery	Yes	3 yrs	Yes
Cancer	Yes	3 yrs	Yes
Back injury	Yes	3 yrs	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	3 yrs	Yes
Have you ever smoked	Yes	3 yrs	Yes
Do you currently smoke (packs/day)	Yes	3 yrs	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	3 yrs	Yes
Current medication use (prescription or OTC)	Yes	3 yrs	Yes
Medication allergies	Yes	3 yrs	Yes
Any reproductive health concerns	Yes	3 yrs	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	3 yrs	Yes
Lung or respiratory disease (COPD, bronchitis, pneumonitis)	Yes	3 yrs	Yes
Work history of:			
Exposure to skin irritants	Yes	3 yrs	Yes
Comments on medical history:	Yes	3 yrs	Yes
Laboratory:			
Radiology:			
Chest x-ray (PA)	Yes	No	Yes
Spirometry:			
Spirometry (FEV1, FVC, FEV1/FVC)	Yes	No	Yes
Comments on laboratory results:	Yes	No	Yes
Physical examination:			
Vital signs	Yes	3 yrs	Yes
Special attention in examination to:			
Eyes	Yes	3 yrs	Yes
Mucous membranes	Yes	3 yrs	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Respiratory system	Yes	3 yrs	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	3 yrs	Yes
Other appropriate examination (specify)	Yes	3 yrs	Yes
Comments on physical examination:	Yes	3 yrs	Yes
Is surveillance/PPE consistent with exposures	Yes	3 yrs	Yes
Are any abnormalities related to exposures/occupations	Yes	3 yrs	Yes
Recommendations:	Yes	3 yrs	Yes

PROGRAM DESCRIPTION:

PROVIDER COMMENTS:

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

REFERENCES:

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 yrs

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	3 yrs	Yes
Has anything about your health status changed since your last examination	Yes	3 yrs	Yes
Have any medications changed since your last examination	Yes	3 yrs	Yes
Major illness or injury	Yes	3 yrs	Yes
Hospitalization or surgery	Yes	3 yrs	Yes
Cancer	Yes	3 yrs	Yes
Back injury	Yes	3 yrs	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	3 yrs	Yes
Have you ever smoked	Yes	3 yrs	Yes
Do you currently smoke (packs/day)	Yes	3 yrs	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	3 yrs	Yes
Current medication use (prescription or OTC)	Yes	3 yrs	Yes
Medication allergies	Yes	3 yrs	Yes
Any reproductive health concerns	Yes	3 yrs	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	3 yrs	Yes
Allergies (asthma, hay fever, eczema)	Yes	3 yrs	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	3 yrs	Yes
Liver disease	Yes	3 yrs	Yes
Kidney disease	Yes	3 yrs	Yes
Current pregnancy (self or spouse)	Yes	3 yrs	Yes
Decreased immunity	Yes	3 yrs	Yes
Infertility or miscarriage (self or spouse)	Yes	3 yrs	Yes
Work history of:		3 yrs	
Exposure to benzene	Yes	3 yrs	Yes
Exposure to chemotherapeutic/antineoplastic agents	Yes	3 yrs	Yes
Exposure to ionizing radiation	Yes	3 yrs	Yes
Exposure to carcinogens	Yes	3 yrs	Yes
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	3 yrs	Yes
Comments on medical history:	Yes	3 yrs	Yes
Laboratory:			

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EXAM ELEMENT	BASE	PERI	TERM
Hematology:			
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	3 yrs	Yes
Differential white blood cell count	Yes	3 yrs	Yes
Platelet count	Yes	3 yrs	Yes
Comments on laboratory results:	Yes	3 yrs	Yes
Physical examination:			
Vital signs	Yes	3 yrs	Yes
Special attention in examination to:			
CNS	Yes	3 yrs	Yes
Eyes	Yes	3 yrs	Yes
Respiratory	Yes	3 yrs	Yes
Abdomen	Yes	3 yrs	Yes
Liver	Yes	3 yrs	Yes
Spleen	Yes	3 yrs	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	3 yrs	Yes
Immunocompetence (lymphatic system)	Yes	3 yrs	Yes
Other appropriate examination (specify)	Yes	3 yrs	Yes
Comments on physical examination:	Yes	3 yrs	Yes
Special notations:			
Substance(s) known human carcinogen	Yes	3 yrs	Yes
Physician's/provider's written opinion required	Yes	3 yrs	Yes
Is surveillance/PPE consistent with exposures	Yes	3 yrs	Yes
Are any abnormalities related to exposures/occupations	Yes	3 yrs	Yes
Recommendations:	Yes	3 yrs	Yes

PROGRAM DESCRIPTION:

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: \geq 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.

REFERENCES:

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1. [29 CFR 1910.1051](#) 1,3 Butadiene
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
Medical history: have you ever had:	Yes	**	Yes
Personal history of:	Yes	**	Yes
Is your work exposure history current (OPNAV 5100/15)	Yes	**	Yes
Has anything about your health status changed since your last examination	Yes	**	Yes
Have any medications changed since your last examination	Yes	**	Yes
Major illness or injury	Yes	**	Yes
Hospitalization or surgery	Yes	**	Yes
Cancer	Yes	**	Yes
Back injury	Yes	**	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	**	Yes
Have you ever smoked	Yes	**	Yes
Do you currently smoke (packs/day)	Yes	**	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	**	Yes
Current medication use (prescription or OTC)	Yes	**	Yes
Medication allergies	Yes	**	Yes
Any reproductive health concerns	Yes	**	Yes
Abnormal pregnancy outcome during present employment	Yes	**	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	**	Yes
Lung/resp disease (ex: COPD, bronchitis, emphysema, asthma, pneumonitis)	Yes	**	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	**	Yes
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart	Yes	**	Yes

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EXAM ELEMENT	BASE	PERI	TERM
problem			
Repeated episodes of loss of or near loss of consciousness	Yes	**	Yes
Coughing up blood (hemoptysis)	Yes	**	Yes
Shortness of breath	Yes	**	Yes
Cough (dry or productive)	Yes	**	Yes
Liver disease	Yes	**	Yes
Diabetes	Yes	**	Yes
Injury with heavy bleeding in last year	Yes	**	Yes
Thyroid disease (heat or cold intolerance)	Yes	**	Yes
Blood in stool	Yes	**	Yes
Seizures or fits	Yes	**	Yes
Kidney disease	Yes	**	Yes
Kidney stones	Yes	**	Yes
Problems with urination/blood in urine	Yes	**	Yes
Prostate gland problems	Yes	**	Yes
Protein or sugar in urine	Yes	**	Yes
Current pregnancy (self or spouse)	Yes	**	Yes
Impotence or sexual dysfunction	Yes	**	Yes
Bone problems (broken bones)	Yes	**	Yes
Musculoskeletal problems	Yes	**	Yes
Work history of:		**	
Exposure to cadmium (past, present & future)	Yes	**	Yes
Comments on medical history:	Yes	**	Yes
Laboratory:			
Serum chemistry:			
BUN and creatinine	Yes	**	Yes
Cadmium in blood (CdB)	Yes	**	Yes
Liver profile to include:			
AST , ALT, Total Bilirubin, alkaline phosphatase	Yes	**	Yes
Urinalysis:			
Routine:		**	Yes
Urinalysis without microscopic	Yes	**	Yes
Urine chemistry:			
cadmium in urine (CDU)	Yes	**	Yes
Beta-2-microglobulin (β_2 -m) in urine	Yes	**	Yes
Radiology:			
Chest x-ray (PA)	Yes	**	Yes
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	**	Yes
Other tests deemed appropriate by the physician	Yes	**	Yes
Comments on laboratory results:	Yes	**	Yes
Physical examination:			

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EXAM ELEMENT	BASE	PERI	TERM
Vital signs	Yes	**	Yes
Special attention in examination to:		**	
Kidneys	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
Other appropriate examination (specify)	Yes	**	Yes
Comments on physical examination:	Yes	**	Yes
Special notations:		**	
Substance(s) suspected human carcinogen	Yes	**	Yes
Physician's/provider's written opinion required	Yes	**	Yes
Is surveillance/PPE consistent with exposures	Yes	**	Yes
Are any abnormalities related to exposures/occupations	Yes	**	Yes
Recommendations:	Yes	**	Yes

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 below 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.

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		
β 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

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Cd_{urine} = urine Cd, units in micrograms per gram (µg/g) of creatinine.

β₂_{urine} = urine beta-2 microglobulin, units in µg/g of creatinine

Cd_{blood} = blood Cd, units in µg/liter of whole blood.

Required Actions	Monitoring Result Category			
	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.

PROGRAM DESCRIPTION:

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:

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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..

REFERENCES:

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

REVISED: AUGUST 2011

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	**	Yes
Has anything about your health status changed since your last examination	Yes	**	Yes
Have any medications changed since your last examination	Yes	**	Yes
Major illness or injury	Yes	**	Yes
Hospitalization or surgery	Yes	**	Yes
Cancer	Yes	**	Yes
Back injury	Yes	**	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	**	Yes
Have you ever smoked	Yes	**	Yes
Do you currently smoke (packs/day)	Yes	**	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	**	Yes
Current medication use (prescription or OTC)	Yes	**	Yes
Any reproductive health concerns	Yes	**	Yes
Abnormal pregnancy outcome during present employment	Yes	**	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	**	Yes
Lung/respiratory disease (ex: COPD, bronchitis, emphysema, asthma, pneumonitis)	Yes	**	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	**	Yes
Chest pain, angina, heart attack irregular heart beat (arrhythmia), palpitation, or other heart	Yes	**	Yes

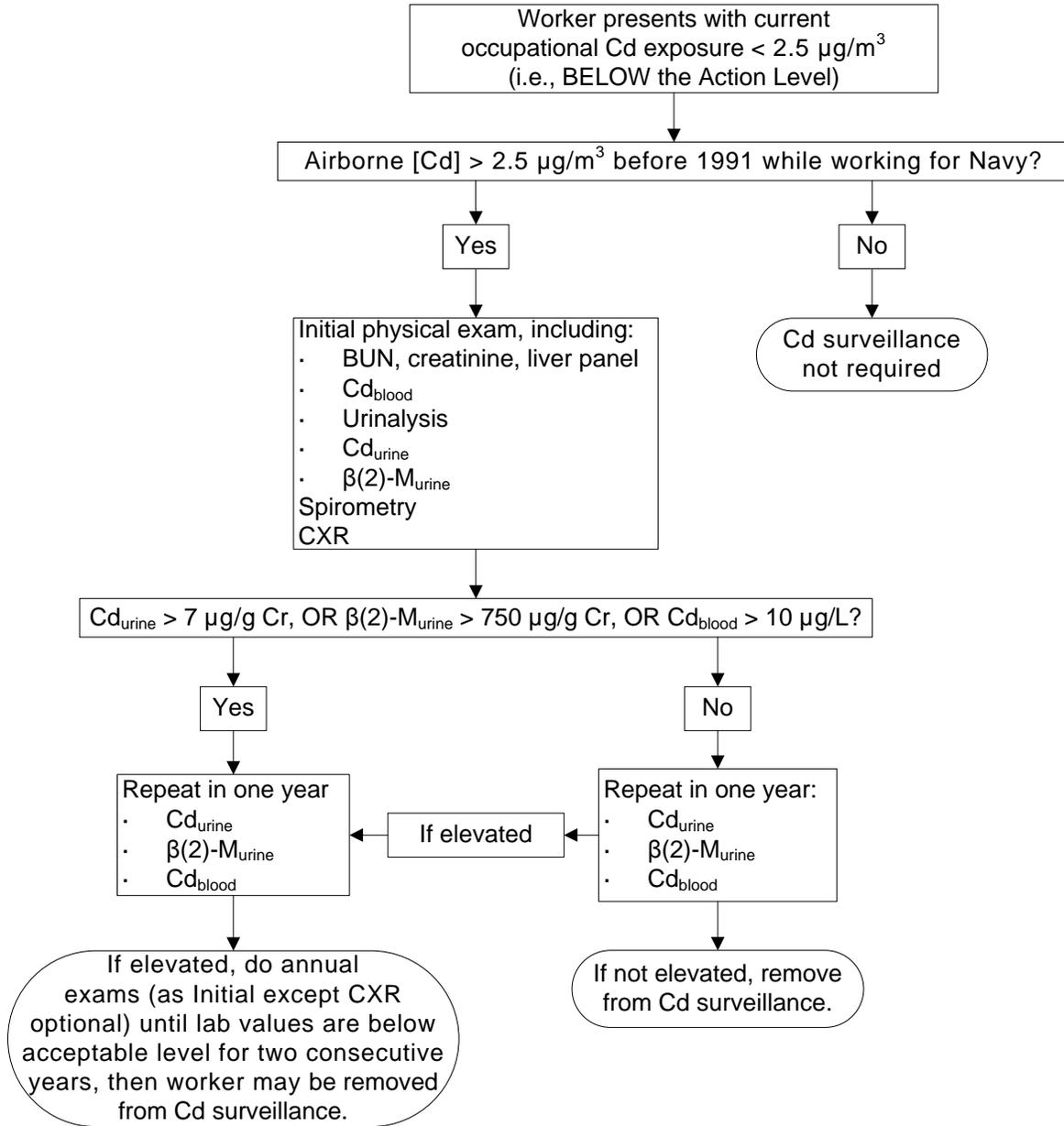
NMCPHC-TM OM 6260

EXAM ELEMENT	BASE	PERI	TERM
problem			
Repeated episodes of loss of or near loss of consciousness	Yes	**	Yes
Coughing up blood (hemoptysis)	Yes	**	Yes
Shortness of breath	Yes	**	Yes
Cough (dry or productive)	Yes	**	Yes
Liver disease	Yes	**	Yes
Diabetes	Yes	**	Yes
Injury with heavy bleeding in last year	Yes	**	Yes
Thyroid disease (heat or cold intolerance)	Yes	**	Yes
Blood in stool	Yes	**	Yes
Seizures or fits	Yes	**	Yes
Kidney disease	Yes	**	Yes
Kidney stones	Yes	**	Yes
Problems with urination/blood in urine	Yes	**	Yes
Prostate gland problems	Yes	**	Yes
Protein or sugar in urine	Yes	**	Yes
Current pregnancy (self or spouse)	Yes	**	Yes
Impotence or sexual dysfunction	Yes	**	Yes
Bone problems (broken bones)	Yes	**	Yes
Musculoskeletal problems	Yes	**	Yes
Work history of:			Yes
Exposure to cadmium	Yes	**	Yes
Comments on medical history:	Yes	**	Yes
Laboratory:			
Serum chemistry:			
BUN and creatinine	Yes	**	Yes
Cadmium in blood (CdB)	Yes	**	Yes
Liver profile to include:			
AST , ALT, Total Bilirubin, alkaline phosphatase	Yes	**	Yes
Urinalysis:			
Routine:			
Urinalysis without microscopic	Yes	**	Yes
Cadmium in urine (CdU)	Yes	**	Yes
Beta-2-microglobulin (β_2 -m) in urine	Yes	**	Yes
Radiology:			
Chest x-ray (PA)	Yes	**	Yes
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	**	Yes
Other tests deemed appropriate by the physician	Yes	**	Yes
Comments on laboratory results:	Yes	**	Yes
Physical examination:			
Vital signs	Yes	**	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Special attention in examination to:			
Respiratory system	Yes	**	Yes
Prostate palpation or other at-least-as-effective diagnostic test(s) for males over 40 years old	Yes	**	Yes
Other appropriate examination (specify)	Yes	**	Yes
Comments on physical examination:	Yes	**	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	**	Yes
Physician's/provider's written opinion required	Yes	**	Yes
Is surveillance/PPE consistent with exposures	Yes	**	Yes
Are any abnormalities related to exposures/occupations	Yes	**	Yes
Recommendations:	Yes	**	Yes

PROGRAM DESCRIPTION:



** See above 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(I)(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

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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(I)(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.

REFERENCES:

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](#)

REVISED: AUGUST 2011

CARBON BLACK

125

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #	
carbon black	FF5800000	1333-86-4	
	Program Frequency	Annual	
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Shortness of breath	Yes	Annual	No
Cough (dry or productive)	Yes	Annual	No
Work history of:			
Exposure to dusts (coal, blast, Grit, sand, nuisance)	Yes	Annual	No
Exposure to skin irritants	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No
Exposure to carcinogens	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Radiology:			
Chest x-ray (PA)	Yes	No	No
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No

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EXAM ELEMENT	BASE	PERI	TERM
Comments on laboratory results:	Yes	No	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

PROVIDER COMMENTS:

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

REFERENCES:

[NIOSH Occupational Safety and Health Guideline for Carbon Black](#)

REVISED: AUGUST 2008

CARBON DISULFIDE

126

STRESSOR(S) IN THIS PROGRAM:

Carbon disulfide

NIOSH #
FF6650000

CAS #
75-15-0
Annual

Program Frequency

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Use of nitrate medication (nitroglycerine)	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Nausea or vomiting	Yes	Annual	No
Tremors	Yes	Annual	No
Change or loss of vision in either eye	Yes	Annual	No
Eye irritation	Yes	Annual	No
Glaucoma	Yes	Annual	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	No
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	No
Infertility or miscarriage (self or spouse)	Yes	Annual	No
Epilepsy (seizure disorder)	Yes	Annual	No
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	No
Mental/emotional illness	Yes	Annual	No
Depression, diff concentrating, excessive anxiety	Yes	Annual	No
Personality change	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Comments on medical history:	Yes	Annual	No
Laboratory:			
Liver profile to include:			
AST , ALT, Total Bilirubin, alkaline phosphatase	Yes	Annual	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Cardiology:			
Electrocardiogram	Yes	Annual	No
Optometry:			
Vision screen (visual acuity)	Yes	Annual	No
Visual fields	Yes	Annual	No
Comments on laboratory results:			
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Cardiovascular system	Yes	Annual	No
Eyes	Yes	Annual	No
Kidney	Yes	Annual	No
Liver	Yes	Annual	No
Skin	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

REFERENCES:

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](#)

REVIEWED: NOVEMBER 2009

CARBON MONOXIDE

STRESSOR(S) IN THIS PROGRAM:		NIOSH #	CAS #	
Carbon monoxide		FG3500000	630-08-0	
Program Frequency			Annual	
EXAM ELEMENT	BASE	PERI	TERM	
Medical history:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No	
Has anything about your health status changed since your last examination	Yes	Annual	No	
Have any medications changed since your last examination	Yes	Annual	No	
Have you ever had personal history of:				
Major illness or injury	Yes	Annual	No	
Hospitalization or surgery	Yes	Annual	No	
Cancer	Yes	Annual	No	
Back injury	Yes	Annual	No	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No	
Have you ever smoked	Yes	Annual	No	
Do you currently smoke (packs/day)	Yes	Annual	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No	
Current medication use (prescription or OTC)	Yes	Annual	No	
Medication allergies	Yes	Annual	No	
Any reproductive health concerns	Yes	Annual	No	
Blood diseases (anemia, abnormal bleeding or clotting)	Yes	Annual	No	
Use of nitrate medication (nitroglycerine)	Yes	Annual	No	
Do you have current, recent or frequent symptoms of:				
Headache, dizziness, light-headedness, weakness	Yes	Annual	No	
Depression, difficulty concentrating, excessive anxiety	Yes	Annual	No	
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	No	
Change or loss of vision in either eye	Yes	Annual	No	
Loss or abrupt change in hearing	Yes	Annual	No	
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	No	
Shortness of breath	Yes	Annual	No	
Heart palpitations	Yes	Annual	No	
Epilepsy (seizure disorder)	Yes	Annual	No	
Problems with balance and coordination	Yes	Annual	No	
Muscle cramping	Yes	Annual	No	
Comments on medical history:	Yes	Annual	No	

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EXAM ELEMENT	BASE	PERI	TERM
Laboratory:			
Hematology:			
Complete blood count without differential	Yes	Annual	No
Other testing			
Cardiology:			
Electrocardiogram	Yes	No	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Cardiovascular system	Yes	Annual	No
Respiratory system	Yes	Annual	No
Eyes (fundoscopic exam)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/pep consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	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) IDLH 1200 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.

REFERENCES:

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

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PROGRAM REVIEWED: FEBRUARY 2010

CARBON TETRACHLORIDE

128

STRESSOR(S) IN THIS PROGRAM:

carbon tetrachloride

NIOSH #
FG4900000

CAS #
56-23-5
3 yrs

Program Frequency

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	3 yrs	Yes
Has anything about your health status changed since your last examination	Yes	3 yrs	Yes
Have any medications changed since your last examination	Yes	3 yrs	Yes
Major illness or injury	Yes	3 yrs	Yes
Hospitalization or surgery	Yes	3 yrs	Yes
Cancer	Yes	3 yrs	Yes
Back injury	Yes	3 yrs	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	3 yrs	Yes
Have you ever smoked	Yes	3 yrs	Yes
Do you currently smoke (packs/day)	Yes	3 yrs	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	3 yrs	Yes
Current medication use (prescription or OTC)	Yes	3 yrs	Yes
Medication allergies	Yes	3 yrs	Yes
Any reproductive health concerns	Yes	3 yrs	Yes
Allergies (asthma, hay fever, eczema)	Yes	3 yrs	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	3 yrs	Yes
Hepatitis or jaundice	Yes	3 yrs	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	3 yrs	Yes
Use of barbiturates	Yes	3 yrs	Yes
Headache, dizziness, light-headedness, weakness	Yes	3 yrs	Yes
Nausea or vomiting	Yes	3 yrs	Yes
Eye irritation	Yes	3 yrs	Yes
Liver disease	Yes	3 yrs	Yes
Kidney disease	Yes	3 yrs	Yes
Work history of:			
Exposure to skin irritants	Yes	3 yrs	Yes
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	3 yrs	Yes
Comments on medical history:	Yes	3 yrs	Yes
Laboratory:			
Serum chemistry:			
Liver profile to include:			

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EXAM ELEMENT	BASE	PERI	TERM
AST, ALT, total Bilirubin, alkaline phos.	Yes	3 yrs	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	3 yrs	Yes
Comments on laboratory results:	Yes	3 yrs	Yes
Physical examination:			
Vital signs	Yes	3 yrs	Yes
Special attention in examination to:			
Central nervous system	Yes	3 yrs	Yes
Peripheral nervous system (strength, sensation, DTR)	Yes	3 yrs	Yes
Eyes	Yes	3 yrs	Yes
Liver	Yes	3 yrs	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	3 yrs	Yes
Other appropriate examination (specify)	Yes	3 yrs	Yes
Comments on physical examination:	Yes	3 yrs	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	3 yrs	Yes
Is surveillance/PPE consistent with exposures	Yes	3 yrs	Yes
Are any abnormalities related to exposures/occupations	Yes	3 yrs	Yes
Recommendations:	Yes	3 yrs	Yes

PROGRAM DESCRIPTION:

REFERENCES:

[NIOSH Occupational Safety and Health Guideline for Carbon Tetrachloride](#)

REVISED: January 2010

CHLOROFORM

130

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #	
chloroform	FS9100000	67-66-3	
	Program Frequency	Annual	
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Hepatitis or jaundice	Yes	Annual	Yes
Treatment with steroids or cytotoxic (drugs)	Yes	Annual	Yes
Use of barbiturates	Yes	Annual	Yes
Headache, dizziness, light-headedness, weakness	Yes	Annual	Yes
Nausea or vomiting	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Kidney disease	Yes	Annual	Yes
Problems with numbness, tingling, weakness	Yes	Annual	Yes
In hands or feet			
Migraine headache	Yes	Annual	Yes
Work history of:			
Exposure to skin irritants	Yes	Annual	Yes
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , ALT, total bilirubin, alkaline phosphatase	Yes	Annual	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Cardiology:			
Electrocardiogram	Yes	No	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Central nervous system	Yes	Annual	Yes
Cardiovascular system	Yes	Annual	Yes
Abdomen	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

REFERENCES:

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

REVIEWED: APRIL 2011

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Coughing up blood (hemoptysis)	Yes	Annual	Yes
Cough (dry or productive)	Yes	Annual	Yes
Current pregnancy (females only)	Yes	Annual	Yes
Impotence or sexual dysfunction	Yes	Annual	Yes
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Immunocompetence (lymphatic system)	Yes	Annual	Yes
Other appropriate examination (specify):	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) known human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

REFERENCES:

1. [OSHA Standard 29 CFR 1910.1003](#)
2. OSHA Standard [29 CFR 1926.1103](#)
3. [NIOSH Pocket Guidance for bis-Chloromethyl ether](#)

REVIEWED: APRIL 2011

BETA-CHLOROPRENE

132

STRESSOR(S) IN THIS PROGRAM:

beta-chloroprene

NIOSH #
E19625000

CAS #
126-99-8
3 years

Program Frequency

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	3 yrs	Yes
Has anything about your health status changed since your last examination	Yes	3 yrs	Yes
Have any medications changed since your last examination	Yes	3 yrs	Yes
Major illness or injury	Yes	3 yrs	Yes
Hospitalization or surgery	Yes	3 yrs	Yes
Cancer	Yes	3 yrs	Yes
Back injury	Yes	3 yrs	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	3 yrs	Yes
Have you ever smoked	Yes	3 yrs	Yes
Do you currently smoke (packs/day)	Yes	3 yrs	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	3 yrs	Yes
Current medication use (prescription or OTC)	Yes	3 yrs	Yes
Medication allergies	Yes	3 yrs	Yes
Any reproductive health concerns	Yes	3 yrs	Yes
Allergies (asthma, hay fever, eczema)	Yes	3 yrs	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	3 yrs	Yes
Hepatitis or jaundice	Yes	3 yrs	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	3 yrs	Yes
Eye irritation	Yes	3 yrs	Yes
Liver disease	Yes	3 yrs	Yes
Kidney disease	Yes	3 yrs	Yes
Current pregnancy (females only)	Yes	3 yrs	Yes
Infertility or miscarriage (self or spouse)	Yes	3 yrs	Yes
Problems with numbness, tingling, weakness	Yes	3 yrs	Yes
In hands or feet		3 yrs	
Migraine headache	Yes	3 yrs	Yes
Depression, diff concentrating, excessive anxiety	Yes	3 yrs	Yes
Work history of:		3 yrs	
Exposure to skin irritants	Yes	3 yrs	Yes
Exposure to respiratory irritants	Yes	3 yrs	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Comments on medical history:	Yes	3 yrs	Yes
Physical examination:			
Vital signs	Yes	3 yrs	Yes
Special attention in examination to:			
Central nervous system	Yes	3 yrs	Yes
Cardiovascular system	Yes	3 yrs	Yes
Liver	Yes	3 yrs	Yes
Respiratory system	Yes	3 yrs	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	3 yrs	Yes
Other appropriate examination (specify)	Yes	3 yrs	Yes
Comments on physical examination:	Yes	3 yrs	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	3 yrs	Yes
Substance(s) suspected human mutagenic/fetotoxic effects.	Yes	3 yrs	Yes
Is surveillance/PPE consistent with exposures	Yes	3 yrs	Yes
Are any abnormalities related to exposures/occupations	Yes	3 yrs	Yes
Recommendations:	Yes	3 yrs	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.

REFERENCES:

1. [NIOSH Pocket Guide to Chemical Hazards beta-Chloroprene](#)
2. [OSHA Safety and Health Guideline for beta-Chloroprene, 2007](#)

REVIEWED: APRIL 2011

CHROMIC ACID/CHROMIUM (VI)

133

STRESSOR(S) IN THIS PROGRAM:

	NIOSH #	CAS #
chromic acid	GB2450000	7738-94-
chromic acid, zinc salt	GB3290000	13530-65-9
dichromic acid, disodium salt	HX7700000	10588-01-9
chromium (vi) water soluble	GB4200000	7440-47-3
chromium (vi) water insoluble	GB4200000	7440-47-3
chromic acid, lead (+2) salt (1:1)	GB2975000	7758-97-6
chromic acid, di-t-butylester	GB2900000	1189-85-1
chromic acid, disodium salt	GB2955000	7775-11-3
chromic acid, dipotassium salt	GB2940000	7789-00-6
chromium phosphate	GB6840000	7789-04-
chromium carbonyl	GB5075000	13007-92-6
chromic acid, zinc hydroxide hydrate (1:2, 2:1)	GB3260000	15930-94-6
chromium (vi) oxide (1:3)	GB6650000	1333-82-0
chromic acid, strontium salt (1:1)	GB3240000	7789-06-2
chromic acid, calcium salt (1:1)	GB2750000	13765-19-0
barium chromate (vi)	CQ8760000	10294-40-3
c.i. pigment yellow	GB3300000	37300-23-5
chromium chromate	GB2850000	24613-89-6

See [Chemical Stressors List](#) for additional compounds

	Program Frequency		Annual
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC))	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Perforation of nasal septum	Yes	Annual	Yes
Coughing up blood (hemoptysis)	Yes	Annual	Yes
Shortness of breath	Yes	Annual	Yes
Cough (dry or productive)	Yes	Annual	Yes
Kidney disease	Yes	Annual	Yes
Work history of:			
Exposure to dusts (coal, blast, grit, sand, nuisance)	Yes	Annual	Yes
Exposure to chromium or chromic acid	Yes	Annual	Yes
Exposure to skin irritants	Yes	Annual	Yes
Exposure to carcinogens	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Hematology:			
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	Annual	Yes
Differential white blood cell count	Yes	Annual	Yes
Serum chemistry:			
Liver profile to include:			
AST, ALT, Total Bilirubin, alkaline phosphatase	Yes	Annual	Yes
BUN and creatinine	Yes	Annual	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Radiology:			
Chest x-ray (PA)	Yes	Annual	Yes
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Mucous membranes	Yes	Annual	Yes
Nasal mucosa (septal perforation)	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

PROVIDER COMMENTS:

REFERENCES:

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC))	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Treatment with steroids or cancer(cytotoxic) drugs	Yes	Annual	Yes
Coughing up blood (hemoptysis)	Yes	Annual	Yes
Shortness of breath	Yes	Annual	Yes
Cough (dry or productive)	Yes	Annual	Yes
Pneumonia	Yes	Annual	Yes
Problems with urination/blood in urine	Yes	Annual	Yes
Work history of:			
Exposure to skin irritants	Yes	Annual	Yes
Exposure to respiratory irritants	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Exposure to carcinogens	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Urinalysis:			
Routine			
Urinalysis with microscopic	Yes	Annual	Yes
Hematology:			
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	Annual	Yes
Differential white blood cell count	Yes	Annual	Yes
Radiology:			
Chest x-ray (PA)	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Weight	Yes	Annual	Yes
Special attention in examination to:			
Mucous membranes	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) known human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

REFERENCES:

1. [29 CFR 1910.1002](#)—Coal tar pitch volatiles; interpretation of term.
2. [29 CFR 1910.1029](#)
3. 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.
4. [NIOSH Occupational Health Guideline for Coal Tar Pitch Volatiles](#)

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5. 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.
6. Journal of Occupational Medicine 1990 (32): Entire Issue.

REVIEWED: JANUARY 2011

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Shortness of breath	Yes	Annual	No
Cough (dry or productive)	Yes	Annual	No
Work history of:			
Exposure to skin irritants			
Comments on medical history:	Yes	Annual	No
Laboratory:			
Radiology:			
Chest x-ray (PA)	Yes	Annual	No
Spirometry:			

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EXAM ELEMENT	BASE	PERI	TERM
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Cardiovascular system	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Annual	No
Other appropriate examination (specify):	Yes	Annual	No
Comments on physical examination	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

REFERENCES:

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 Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Cobalt, 1981](#)

REVISED: DECEMBER 2009

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Hepatitis or jaundice	Yes	Annual	No
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Nausea or vomiting	Yes	Annual	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	No
Coughing up blood (hemoptysis)	Yes	Annual	No
Shortness of breath	Yes	Annual	No
Cough (dry or productive)	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Liver disease	Yes	Annual	No
Kidney disease	Yes	Annual	No
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	No
Work history of:			
Exposure to skin irritants	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	No	No
BUN and creatinine	Yes	Annual	No
AST	*	Annual	No
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	No
Radiology:			
Chest x-ray (PA)	Yes	No	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Liver	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

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

PROGRAM DESCRIPTION:

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

REFERENCES:

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](#)

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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:

1,2-dibromo-3-chloropropane

NIOSH #
TX8750000

CAS #
96-12-8
Annual

Program Frequency

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Lung/resp disease	Yes	Annual	Yes
Mucosal irritation	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Kidney disease	Yes	Annual	Yes
Impotence or sexual dysfunction	Yes	Annual	Yes
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes
Problems with balance and coordination	Yes	Annual	Yes
Depression, difficulty concentrating, excessive anxiety	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Serum chemistry:			
Serum total estrogen (female)	Yes	Annual	Yes
Serum follicle stimulating hormone (FSH)	Yes	Annual	Yes
Serum luteinizing hormone (LH)	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Additional lab tests:			
Sperm count (male)	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:	Yes	Annual	Yes
CNS	Yes	Annual	Yes
HEENT	Yes	Annual	Yes
Mucous membranes	Yes	Annual	Yes
Respiratory	Yes	Annual	Yes
GU (including testicle size)	Yes	Annual	Yes
Body habitus	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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) 29 CFR.

REFERENCES:

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	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes	
Has anything about your health status changed since your last examination	Yes	Annual	Yes	
Have any medications changed since your last examination	Yes	Annual	Yes	
Major illness or injury	Yes	Annual	Yes	
Hospitalization or surgery	Yes	Annual	Yes	
Cancer	Yes	Annual	Yes	
Back injury	Yes	Annual	Yes	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes	
Have you ever smoked	Yes	Annual	Yes	
Do you currently smoke (packs/day)	Yes	Annual	Yes	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes	
Current medication use (prescription or OTC)	Yes	Annual	Yes	
Medication allergies	Yes	Annual	Yes	
Any reproductive health concerns	Yes	Annual	Yes	
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes	
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes	
Problems with urination/blood in urine	Yes	Annual	Yes	
Current pregnancy (self or spouse)	Yes	Annual	Yes	
Impotence or sexual dysfunction	Yes	Annual	Yes	
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes	
Comments on medical history:	Yes	Annual	Yes	
Laboratory:				
Urinalysis:				
Routine:				
Urinalysis with microscopic	Yes	Annual	Yes	
Comments on laboratory results:	Yes	Annual	Yes	
Physical examination:				
Vital signs	Yes	Annual	Yes	
Special attention in examination to:				
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Annual	Yes	

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EXAM ELEMENT	BASE	PERI	TERM
Genitourinary tract	Yes	Annual	Yes
Immunocompetence (lymphatic system)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

REFERENCES:

1. OSHA STANDARD [29 CFR 1910.1003](#)
2. [29 CFR 1926.1103](#)
3. [HAZ-MAP at National Library of Medicine](#)
4. [ATDSR ToxFAQs -3,3'-Dichlorobenzidine, June 1999](#)

REVIEWED: MAY 2011

4-DIMETHYLAMINOAZOBENZENE

139

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #	
4-dimethylaminoazobenzene	BX7350000	60-11-7	
	Program Frequency	Annual	
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Problems with urination/blood in urine	Yes	Annual	Yes
Current pregnancy (self or spouse)	Yes	Annual	Yes
Impotence or sexual dysfunction	Yes	Annual	Yes
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Immunocompetence (lymphatic system)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

REFERENCES:

1. OSHA STANDARD [29 CFR 1910.1003](#)
2. [29 CFR 1926.1103](#)
3. [HAZ-MAP at National Library of Medicine](#)

REVIEWED: 04/2011

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
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No	
Has anything about your health status changed since your last examination	Yes	Annual	Yes	
Have any medications changed since your last examination	Yes	Annual	Yes	
Major illness or injury	Yes	Annual	No	
Hospitalization or surgery	Yes	Annual	No	
Cancer	Yes	Annual	No	
Back injury	Yes	Annual	No	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No	
Have you ever smoked	Yes	Annual	No	
Do you currently smoke (packs/day)	Yes	Annual	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No	
Current medication use (prescription or OTC)	Yes	Annual	No	
Medication allergies	Yes	Annual	No	
Any reproductive health concerns	Yes	Annual	No	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No	
Lung or resp disease (COPD, bronchitis, pneumonitis)	Yes	Annual	No	
Use of nitrate medication (nitroglycerine)	Yes	Annual	No	
Weight loss	Yes	Annual	No	
Glaucoma	Yes	Annual	No	
Liver disease	Yes	Annual	No	
Kidney disease	Yes	Annual	No	
Thyroid disease (heat or cold intolerance)	Yes	Annual	No	
Depression, difficulty concentrating, excessive anxiety	Yes	Annual	No	
Work history of:				
Exposure to dusts (coal, blast grit, sand, nuisance)	Yes	Annual	No	
Exposure to skin irritants	Yes	Annual	No	
Exposure to respiratory irritants	Yes	Annual	No	
Comments on medical history:	Yes	Annual	No	
Laboratory:				
Urinalysis:				

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EXAM ELEMENT	BASE	PERI	TERM
Routine:			
Urinalysis with microscopic	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Cardiovascular system	Yes	Annual	No
Eyes	Yes	Annual	No
Abdomen	Yes	Annual	No
Liver	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Thyroid	Yes	Annual	No
Metabolic disturbance (fever, tachycardia)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

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.

REFERENCES:

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: DECEMBER 2010

DIOXANE

141

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #	
dioxane	JG8225000	123-91-1	
Program Frequency		Annual	
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)			
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Hepatitis or jaundice	Yes	Annual	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Coughing up blood (hemoptysis)	Yes	Annual	No
Shortness of breath	Yes	Annual	No
Liver disease	Yes	Annual	No
Kidney disease	Yes	Annual	No
Work history of:			
Exposure to respiratory irritants	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	Annual	No
BUN and creatinine	Yes	Annual	No
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Liver	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Nasal mucosa	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

PROVIDER COMMENTS: Nares exam is recommended in NIOSH standard.

REFERENCES:

1. [NIOSH Criteria for a Recommended Standard. Occupational Exposure to Dioxane,](#)
2. [HAZ-MAP at National Library of Medicine](#)

REVIEWED: APRIL 2011

EPICHLOROHYDRIN

142

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #	
epichlorohydrin	TX4900000	106-89-8	
	Program Frequency	Annual	
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Hepatitis or jaundice	Yes	Annual	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Kidney disease	Yes	Annual	Yes
Impotence or sexual dysfunction	Yes	Annual	Yes
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes
Work history of:			
Exposure to skin irritants	Yes	Annual	Yes
Exposure to respiratory irritants	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	No	Yes
BUN and creatinine	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
AST	*	Annual	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Radiology:			
Chest x-ray (PA)	Yes	No	Yes
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Eyes	Yes	Annual	Yes
Kidneys	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Mucous membranes	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

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

PROGRAM DESCRIPTION:

REFERENCES:

1. [Occupational exposure to Epichlorohydrin, DHHS Pub. No. 76-206](#)
2. [NIOSH Current Intelligence Bulletin #30: Epichlorohydrin](#)
3. [HAZ-MAP Epichlorohydrin](#)

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Kidney disease	Yes	Annual	No
Current pregnancy (self or spouse)	Yes	Annual	No
Infertility or miscarriage (self or spouse)	Yes	Annual	No
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	No
Depression, diff concentrating, excessive anxiety	Yes	Annual	No
Work history of:			
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Serum chemistry:			
Liver profile to include:			

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EXAM ELEMENT	BASE	PERI	TERM
AST , Total Bilirubin, alkaline phosphatase	Yes	Annual	Yes
BUN and creatinine	Yes	Annual	Yes
Hematology:			
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Genitourinary tract	Yes	Annual	No
Testes (male)	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Special notations:			
Substance(s) known mutagenic or fetotoxic effects	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

REFERENCES:

1. The Glycol Ethers, with Particular Reference to 2-Methoxyethanol and 2-Ethoxyethanol: Evidence of Adverse Reproductive Effects, NIOSH [Current Intelligence Bulletin 39](http://www.cdc.gov/niosh/83112_39.html) (http://www.cdc.gov/niosh/83112_39.html), (NIOSH) Pub. No. 83-112.
2. [HAZ-MAP 2-Ethoxyethanol](http://hazmap.nlm.nih.gov/cgi-bin/hazmap_link?tbl=TblAgents&id=131) (http://hazmap.nlm.nih.gov/cgi-bin/hazmap_link?tbl=TblAgents&id=131)
3. [HAZ-MAP 2-Methoxyethanol](http://hazmap.nlm.nih.gov/cgi-bin/hazmap_link?tbl=TblAgents&id=133) (http://hazmap.nlm.nih.gov/cgi-bin/hazmap_link?tbl=TblAgents&id=133)
4. [HAZ-MAP Glycol Ethers](http://hazmap.nlm.nih.gov/cgi-bin/hazmap_link?tbl=TblAgents&id=688) (http://hazmap.nlm.nih.gov/cgi-bin/hazmap_link?tbl=TblAgents&id=688)

REVIEWED: JUNE 2008

ETHYLENE DIBROMIDE

145

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

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Hepatitis or jaundice	Yes	Annual	Yes
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Eye irritation	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Kidney disease	Yes	Annual	Yes
Impotence or sexual dysfunction	Yes	Annual	Yes
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes
Work history of:			
Exposure to skin irritants	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Exposure to respiratory irritants	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	Annual	Yes
BUN and creatinine	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Central nervous system	Yes	Annual	Yes
Cardiovascular system	Yes	Annual	Yes
Eyes	Yes	Annual	Yes
Kidney	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Substance(s) known mutagenic or fetotoxic effects	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

REFERENCES:

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Hepatitis or jaundice	Yes	Annual	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Treatment with steroids, immunosuppressive or cancer (cytotoxic) drugs	Yes	Annual	Yes
Weight loss	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Kidney disease	Yes	Annual	Yes
Work history of:			
Exposure to skin irritants	Yes	Annual	Yes
Exposure to respiratory irritants	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Hematology:			

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EXAM ELEMENT	BASE	PERI	TERM
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	Annual	Yes
Differential white blood cell count	Yes	Annual	Yes
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	No	Yes
BUN and creatinine	Yes	Annual	Yes
AST	*	Annual	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Radiology:			
Chest x-ray (PA)	Yes	No	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Eyes	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

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

PROGRAM DESCRIPTION:

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

REFERENCES:

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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

REVIEWED: FEBRUARY 2011

ETHYLENE OXIDE

148

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

EXAM ELEMENT	BASE	PERI	TERM
Medical history:			
Personal history:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Have you ever had, or do you now have:			
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked?	Yes	Annual	Yes
Do you currently smoke? (___ packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Hepatitis or jaundice	Yes	Annual	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis, cough (dry or productive), chest pain, shortness of breath)	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Headache, dizziness, light-headedness, weakness	Yes	Annual	Yes
Eye irritation or blurred vision	Yes	Annual	Yes
Infertility (difficulty becoming pregnant or impregnating) or miscarriage (self or spouse)	Yes	Annual	Yes
Problems with balance, numbness, and tingling in hands or feet, loss of coordination, tremor (shakiness), loss of sensation	Yes	Annual	Yes

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Work history of:				
Exposure to chemotherapeutic/antineoplastic agents	Yes	Annual	Yes	Yes
Exposure to anesthetic gases	Yes	Annual	Yes	Yes
Exposure to skin irritants	Yes	Annual	Yes	Yes
Laboratory:				
Hematology:				
Complete blood count (HGB, HCT, WBC, RBC) with differential	Yes	Annual	Yes	Yes
Physical examination:				
Vital Signs	Yes	Annual	Yes	Yes
Special attention in examination to:				
Central nervous system	Yes	Annual	Yes	Yes
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	Yes	Yes
Eyes	Yes	Annual	Yes	Yes
Respiratory system	Yes	Annual	Yes	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes	Yes
Other appropriate examination (specify)	Yes	Annual	Yes	Yes
Comments on physical examination:	Yes	Annual	Yes	Yes
Special notations:				
Substance(s) suspected human carcinogen	Yes	Annual	Yes	Yes
Substance(s) suspected human mutagenic/fetotoxic effects	Yes	Annual	Yes	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes	Yes
Recommendations:	Yes	Annual	Yes	Yes

PROGRAM DESCRIPTION:

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 Physician's/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.

REFERENCES:

1. [29 CFR 1910.1047](#).

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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](#)

REVISED: MARCH 2011

ETHYLENEIMINE

149

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

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Eye irritation or blurred vision	Yes	Annual	Yes
Current pregnancy (females only)	Yes	Annual	Yes
Work history of:			
Exposure to skin irritants	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	No	Yes
AST	*	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Radiology:			
Chest x-ray (PA)	Yes	No	Yes
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Eyes	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Kidneys	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Immunocompetence (lymphatic system)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures listed on OPNAV 5100/15?	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

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

PROGRAM DESCRIPTION:

REFERENCES:

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

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](#) for additional compounds

EXAM ELEMENT	BASE	PERI	TERM
Program Frequency		Annual	
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or problems with circulation	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Hepatitis or jaundice	Yes	Annual	No
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Eye irritation	Yes	Annual	No
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Annual	No
Kidney disease	Yes	Annual	No
Muscle or joint problems	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Work history of:			
Exposure to hydrogen fluoride or inorganic fluorides	Yes	Annual	No
Exposure to skin irritants	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Urinalysis:			
Routine:			
Urine fluoride - post shift	Yes	***	No
Radiology:			
Chest x-ray (PA)	Yes	No	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Eyes	Yes	Annual	No
Teeth (acid erosion)	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

***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.

PROGRAM DESCRIPTION:

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

REFERENCES:

1. Federal Register volume 66, Number 172, September 5, 2001

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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](#)

REVIEWED: FEBRUARY 2011

FORMALDEHYDE

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STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #
formaldehyde	LP8925000	50-00-0
Program Frequency		Annual (see provider comments)

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Recurrent skin rash	Yes	Annual	Yes
Hepatitis or jaundice	Yes	Annual	Yes
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Headache, dizziness, light-headedness, weakness	Yes	Annual	Yes
Contact lens use	Yes	Annual	Yes
Eye irritation	Yes	Annual	Yes
Swelling in legs or feet (not caused by walking)	Yes	Annual	Yes
Coughing up blood (hemoptysis)	Yes	Annual	Yes
Shortness of breath	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Cough (dry or productive)	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	Yes
Depression, difficulty concentrating, excessive anxiety	Yes	Annual	Yes
Work history of:			
Prior respirator use	Yes	Annual	Yes
If yes, any problems that interfered with use	Yes	Annual	Yes
Exposure to formaldehyde	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Radiology:			
Chest x-ray (PA) (frequency determined by Examining physician)	Yes	No	Yes
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Eyes	Yes	Annual	Yes
Mucous membranes	Yes	Annual	Yes
Nasal mucosa (septal perforation)	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required			
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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.

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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. (<http://www.OSHA.gov/SLTC/formaldehyde/standards.html>).

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 in Chapter 10 of the Medical Matrix.

REFERENCES:

1. [29 CFR 1910.1048 Safety and Health Topics Formaldehyde](#)
2. 29 CFR 1226.1148
3. [Haz Map](#)
4. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
5. [ATSDR Toxicological Profile for Formaldehyde](#)

REVIEWED: FEBRUARY 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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or) OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Eye irritation	Yes	Annual	No
Infertility or miscarriage (self or spouse)	Yes	Annual	No
Work history of:			
Exposure to skin irritants	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			

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EXAM ELEMENT	BASE	PERI	TERM
Spirometry:			
Spirometry (FEV1, FVC, FEV1/FVC)	Yes	No	No
Comments on laboratory results:	Yes	No	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Eyes, nose and throat	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

REFERENCES:

1. NIOSH Pocket Guide to Chemical Hazards Glycidol, September 2005
<http://www.cdc.gov/niosh/npg/npgd0303.html>
2. OSHA Chemical Sampling Information Allyl glycidyl ether
http://www.osha.gov/dts/chemicalsampling/data/CH_217800.html
3. Current Intelligence Bulletin-Glycidyl Ethers October 1978
http://www.cdc.gov/niosh/79104_29.html
4. NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Glycidyl Ethers, 1978
<http://www.cdc.gov/niosh/78-166.html>
5. American Thoracic Society
<http://www.thoracic.org/favicon.ico>

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
Medical history: Have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks (beer, wine, liquor)per week	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Hepatitis or jaundice	Yes	Annual	Yes
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Headache, dizziness, light-headedness, weakness	Yes	Annual	Yes
Eye irritation	Yes	Annual	Yes
Kidney disease	Yes	Annual	Yes
Problems with numbness, tingling, weakness In hands or feet	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Thyroid disease (heat or cold intolerance)	Yes	Annual	Yes
Work history of:			
Exposure to chemotherapeutic/antineoplastic agents	Yes	Annual	Yes
Exposure to skin irritants	Yes	Annual	Yes
Exposure to respiratory irritants	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Hematology:			
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	Annual	Yes
Serum chemistry:			
Liver profile to include:			
AST, Total Bilirubin, Alk. Phos	Yes	No	Yes
AST	*	Annual	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Radiology:			
Chest x-ray (PA)	Yes	No	Yes
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Central nervous system	Yes	Annual	Yes
Eyes	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Thyroid	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

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

PROGRAM DESCRIPTION:

PROVIDER COMMENTS:

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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).

REFERENCES:

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](#)

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
Medical history: Have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week? (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Nausea or vomiting	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Tremors	Yes	Annual	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	No
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	No
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Annual	No
Problems with numbness, tingling, weakness in feet or hands	Yes	Annual	No
Thyroid disease (heat or cold intolerance)	Yes	Annual	No
Work history of:			
Exposure to skin irritants	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Radiology:			
Chest x-ray (PA)	Yes	No	No
Comments on laboratory results:	Yes	No	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Cardiovascular system	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Annual	No
Thyroid	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures listed on OPNAV 5100/15?	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

REFERENCES:

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](#)

HYDROGEN SULFIDE

158

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

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Weight loss	Yes	Annual	No
Tremors	Yes	Annual	No
Eye irritation	Yes	Annual	No
Epilepsy (seizure disorder)	Yes	Annual	No
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	No
Mental/emotional illness	Yes	Annual	No
Depression, diff concentrating, excessive anxiety	Yes	Annual	No
Personality change	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Radiology:			
Chest x-ray (PA)	Yes	No	No
Comments on laboratory results:	Yes	No	No
Physical examination:			

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EXAM ELEMENT	BASE	PERI	TERM
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Eyes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

PROVIDER NOTE:

Medical clearance for respirator may be required

REFERENCES:

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Eye irritation	Yes	Annual	No
Work history of:			
Exposure to skin irritants	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Optometry:			
Vision screen (visual acuity)	Yes	Annual	No
Slit lamp exam	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Eyes (conjunctiva, sclera, lens, retina)	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No

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Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

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.

REFERENCES:

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](#)

REVISED: 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-naphthylene 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

EXAM ELEMENT	Program Frequency	BASE	PERI	TERM
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Annual	Yes	Annual	No
Has anything about your health status changed since your last examination	Annual	Yes	Annual	Yes
Have any medications changed since your last examination	Annual	Yes	Annual	Yes
Major illness or injury	Annual	Yes	Annual	No
Hospitalization or surgery	Annual	Yes	Annual	No
Cancer	Annual	Yes	Annual	No
Back injury	Annual	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Annual	Yes	Annual	No
Have you ever smoked	Annual	Yes	Annual	No
Do you currently smoke (packs/day)	Annual	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Annual	Yes	Annual	No
Current medication use (prescription or OTC)	Annual	Yes	Annual	No
Medication allergies	Annual	Yes	Annual	No
Any reproductive health concerns	Annual	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Annual	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Annual	Yes	Annual	No
Recurrent skin rash	Annual	Yes	Annual	No
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)	Annual	Yes	Annual	No
Wheezing	Annual	Yes	Annual	No
Shortness of breath	Annual	Yes	Annual	No
Cough (dry or productive)	Annual	Yes	Annual	No
Change or loss of vision in either eye	Annual	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Eye irritation	Yes	Annual	No
Problems with balance and coordination	Yes	Annual	No
Work history of:			
Exposure to skin irritants	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No
Exposure to isocyanate foam or paint	Yes	Annual	No
Sensitization to isocyanates (TDI, MDI)	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Radiology:			
Chest x-ray (PA)	Yes	No	No
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

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.

REFERENCES

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](#)

REVISED: AUGUST 2010

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	Semi-annual for biologic monitoring	

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Semi-A	Yes
Has anything about your health status changed since your last examination	Yes	***	Yes
Have any medications changed since your last examination	Yes	***	Yes
Major illness or injury	Yes	***	Yes
Hospitalization or surgery	Yes	***	Yes
Cancer	Yes	***	Yes
Back injury	Yes	***	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	***	Yes
Have you ever smoked	Yes	***	Yes
Do you currently smoke (packs/day)	Yes	***	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	***	Yes
Difficulty breathing while being fitted for or using a respirator	Yes	***	Yes
Current medication use (prescription or over the counter)	Yes	***	Yes
Medication allergies	Yes	***	Yes
Any reproductive health concerns	Yes	***	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	***	Yes
Headache, dizziness, light-headedness, weakness	Yes	***	Yes
Weight loss	Yes	***	Yes
Change or loss of vision in either eye	Yes	***	Yes
Change or loss of hearing	Yes	***	Yes
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problems	Yes	***	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Insomnia, or sleep disorder, breathing pauses while sleeping, sleep apnea, loud snoring, daytime sleepiness	Yes	***	Yes
Unexplained fatigue	Yes	***	Yes
Chronic abdominal pain, vomiting, loss of appetite or other GI symptoms	Yes	***	Yes
Kidney disease	Yes	***	Yes
Muscle or joint problems (rheumatism or arthritis)	Yes	***	Yes
Current pregnancy (self or spouse)	Yes	***	Yes
Impotence or sexual dysfunction	Yes	***	Yes
Infertility or miscarriage (self or spouse)	Yes	***	Yes
Problems with numbness, tingling, weakness	Yes	***	Yes
Depression, difficulty concentrating, excessive anxiety	Yes	***	Yes
Numbness, tingling, or weakness in hands or feet	Yes	***	Yes
Personality change	Yes	***	Yes
Comments on medical history:	Yes	***	Yes
Laboratory:			
Hematology:			
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	***	Yes
RBC morphology	Yes	***	Yes
Serum chemistry:			
BUN and creatinine	Yes	***	Yes
Blood lead and zinc protoporphyrin (ZPP)	Yes	Semi-A	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	***	Yes
Comments on laboratory results	Yes	Semi-A	Yes
Other Tests:			
Spirometry Exam as determined by examiner	Yes	***	Yes
Physical examination:			
Vital signs	Yes	***	Yes
Complete review of systems	Yes	***	Yes
Special attention in examination to:			
Head, eyes, ears, nose and throat	Yes	***	Yes
Visual disturbances	Yes	***	Yes
Central nervous system	Yes	***	Yes
Peripheral nervous system (strength, sensation, DTR)	Yes	***	Yes
Cardiovascular system	Yes	***	Yes
Gums (e.g. lead lines?)	Yes	***	Yes
Abdomen	Yes	***	Yes
Other appropriate examination (specify)	Yes	***	Yes
Comments on physical examination:	Yes	***	Yes
Special notations:			

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EXAM ELEMENT	BASE	PERI	TERM
Physician's/provider's written opinion required	Yes	***	Yes
Is surveillance/PPE consistent with exposures	Yes	Semi-A	Yes
Are any abnormalities related to exposures/occupations	Yes	***	Yes
Recommendations:	Yes	***	Yes

***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.

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](#).

PROVIDERS 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.

REFERENCES:

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.

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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](#)

REVISED: NOVEMBER 2010

MANGANESE OXIDE FUMES

210

STRESSOR(S) IN THIS PROGRAM:

manganese (and compounds)

NIOSH #
OO9275000

CAS #
7439-96-5
Annual

Program Frequency

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Annual	No
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Tremors	Yes	Annual	No
Cough (dry or productive)	Yes	Annual	No
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	No
Mental/emotional illness	Yes	Annual	No
Depression, diff concentrating, excessive anxiety	Yes	Annual	No
Personality change	Yes	Annual	No
Work history of:			
Exposure to dusts (coal, blast, grit, sand, nuisance)	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Radiology:			
Chest x-ray (PA)	Yes	No	No

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EXAM ELEMENT	BASE	PERI	TERM
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Comments on laboratory results:	Yes	No	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Respiratory system	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

REFERENCES:

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. [ATSDR Public Health Statement for Manganese September 2008](#)

REVISED: AUGUST 2010

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Headache, dizziness, light-headedness, weakness	Yes	Annual	Yes
Weight loss	Yes	Annual	Yes
Tremors	Yes	Annual	Yes
Tooth or gum disease	Yes	Annual	Yes
Kidney disease	Yes	Annual	Yes
Problems with balance and coordination	Yes	Annual	Yes
Problems with numbness, tingling, weakness, In hands or feet	Yes	Annual	Yes
Depression, difficulty concentrating, excessive anxiety	Yes	Annual	Yes
Personality change	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Comments on medical history:			
Laboratory:			
Hematology:			
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	Annual	Yes
Differential white blood cell count	Yes	Annual	Yes
Serum chemistry:			
BUN and creatinine	Yes	Annual	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Urine chemistry:			
Urine mercury	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Central nervous system	Yes	Annual	Yes
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Kidneys	Yes	Annual	Yes
Eyes	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:			
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

PROVIDER COMMENTS:

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

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

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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/m³ or higher. There is no evidence of effects at concentrations below 0.01 mg/m³.

REFERENCES:

1. [NIOSH Occupational Health Guideline for Inorganic Mercury, DHHS Pub. No. 73-11024](#)
2. [OSHA](#)
3. [Haz-Map: Mercury](#)

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Tremors	Yes	Annual	No
Change or loss of vision in either eye	Yes	Annual	No
Eye irritation	Yes	Annual	No
Epilepsy (seizure disorder)	Yes	Annual	No
Neurologic disorder, gait change, paresthesia, Coordination loss	Yes	Annual	No
Mental/emotional illness	Yes	Annual	No
Personality change	Yes	Annual	No
Problems with balance and coordination	Yes	Annual	No
Problems with numbness, tingling, weakness in Hands or feet	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Radiology:			
Chest x-ray (PA)	Yes	No	No

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EXAM ELEMENT	BASE	PERI	TERM
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Optometry:			
Vision screen (visual acuity)	Yes	Yes	No
Comments on laboratory results:			
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify):	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

PROVIDER COMMENTS: Although X-ray is only done for baseline exam (per NIOSH reference above), changes in PFTs should prompt further evaluation, including X-ray.

REFERENCES:

1. NIOSH [Current Intelligence Bulletin 43 Monohalomethanes](#), U.S. Department Of Health And Human Services, Sept.1978.
2. Gunther FA, Gunther JD. Residue Reviews. New York, NY: Springer-Verlag; 1983: vol.88:102-150.
3. Cralley LJ, Cralley LV. Patty's Industrial Hygiene And Toxicology 3rd Ed. New York, NY: John Wiley & Sons, Inc. 1981: vol.2B:3442-3444, 3472-3478.
4. [Reigart JR, and Roberts JR. Recognition and Management of Pesticide Poisonings, Fifth Edition. United States Environmental Protection Agency. 1999:132-133
http://epa.gov/oppfead1/safety/healthcare/handbook/handbook.htm.](#)

REVISED: OCTOBER 2008

METHYL CHLOROMETHYL ETHER

166

STRESSOR(S) IN THIS PROGRAM:

chloromethyl methyl ether

NIOSH #
KN6650000

CAS #
107-30-2
Annual

Program Frequency

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Treatment with steroids or chemotherapy/cytotoxic drugs	Yes	Annual	Yes
Decreased immunity	Yes	Annual	Yes
Shortness of breath	Yes	Annual	Yes
Cough (dry or productive)	Yes	Annual	Yes
Current pregnancy (self or spouse)	Yes	Annual	Yes
Impotence or sexual dysfunction	Yes	Annual	Yes
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Special attention in examination to:			
Respiratory system	Yes	Annual	Yes
Lymphatic system	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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.

REFERENCES:

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) (MBOCA, MOCA®)

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/150)	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Current pregnancy (self or spouse)	Yes	Annual	Yes
Impotence or sexual dysfunction	Yes	Annual	Yes
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes
Work history of:			
Exposure to carcinogens	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Hematology:			
Complete blood count	Yes	Annual	Yes
Serum chemistry:			
Liver profile to include:			
AST , TOTAL BILIRUBIN, ALKALINE PHOSPHATATE	Yes	No	Yes
AST	*	Annual	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Comments on laboratory results:	Yes	Annual	Yes
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Skin	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Kidney	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Hematopoietic system (bruising, petechiae, pallor)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

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

PROGRAM DESCRIPTION:

REFERENCES:

[OSHA Health Guideline revised 26 April 1999.](#)

[NIOSH:](#) International Safety Chemical Card

REVIEWED: APRIL 2011

METHYLENE CHLORIDE (DICHLOROMETHANE)

168

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #
methylene chloride	PA8050000	75-09-2
Program Frequency		Annual

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Use of nitrate medication (nitroglycerine)	Yes	Annual	Yes
Headache, dizziness, light-headedness, weakness	Yes	Annual	Yes
Eye irritation	Yes	Annual	Yes
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	Yes
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Shortness of breath	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	Yes
Work history of:			
Exposure to skin irritants	Yes	Annual	Yes
Exposure to respiratory irritants	Yes	Annual	Yes
Exposure to carcinogens	Yes	Annual	Yes
Exposure to methylene chloride, dichloromethane, methylene dichloride	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Hematology:			
Complete blood count	Yes	***	Yes
Serum chemistry:			
Liver profile to include:			
AST, ALT, total bilirubin, alk. Phos	Yes	***	Yes
Electrocardiogram	Yes	No	No
Comments on laboratory results:	Yes	***	Yes
Physical examination:			
Vital signs	Yes	***	Yes
Special attention in examination to:			
Central nervous system	Yes	***	Yes
Cardiovascular system	Yes	***	Yes
Eyes	Yes	***	Yes
Liver	Yes	***	Yes
Respiratory system	Yes	***	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	***	Yes
Other appropriate examination (specify)	Yes	***	Yes
Comments on physical examination:	Yes	***	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	***	Yes
Physician's/provider's written opinion required	Yes	***	Yes
Is surveillance/PPE consistent with exposures	Yes	***	Yes
Are any abnormalities related to exposures/occupations	Yes	***	Yes
Recommendations:	Yes	***	Yes

***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	FREQUENCY
< 45 yrs	3 years

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AGE	FREQUENCY
≥ 45 yrs	Annual

PROGRAM DESCRIPTION:

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.

REFERENCES:

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:

4,4'-diaminodiphenylmethane

NIOSH #
BY5425000

CAS #
101-77-9
Annual

Program Frequency

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Hepatitis or jaundice	Yes	Annual	Yes
Past work exposure to MDA or other toxic substances	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Use of barbiturates	Yes	Annual	Yes
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Kidney disease	Yes	Annual	Yes
Problems with urination/blood in urine	Yes	Annual	Yes
Current pregnancy (self or spouse)	Yes	Annual	Yes
Impotence or sexual dysfunction	Yes	Annual	Yes
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes
Work history of:			

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EXAM ELEMENT	BASE	PERI	TERM
Exposure to chemotherapeutic/antineoplastic agents	Yes	Annual	Yes
Exposure to carcinogens	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase, ALT	Yes	Annual	Yes
BUN and creatinine	Yes	Annual	Yes
Urinalysis:			
Routine:			
Urinalysis without microscopic	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
HEENT	Yes	Annual	Yes
Eyes	Yes	Annual	Yes
Cardiovascular system	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Abdomen	Yes	Annual	Yes
Genitourinary tract	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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).

REFERENCES:

1. OSHA STANDARD [29 CFR 1910.1050](#)

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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

ALPHA-NAPHTHYLAMINE

170

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

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Decreased immunity	Yes	Annual	Yes
Headache, dizziness, light-headedness, weakness	Yes	Annual	Yes
Shortness of breath	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Current pregnancy (females only)	Yes	Annual	Yes
Impotence or sexual dysfunction	Yes	Annual	Yes
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Special attention in examination to:			
Immunocompetence (lymphatic system)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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.

REFERENCES:

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

BETA-NAPHTHYLAMINE

171

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

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic drugs)	Yes	Annual	Yes
Decreased immunity	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Current pregnancy (females only)	Yes	Annual	Yes
Impotence or sexual dysfunction	Yes	Annual	Yes
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Immunocompetence (lymphatic system)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) known human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

PROVIDERS 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.

REFERENCES:

1. OSHA STANDARD [29 CFR 1910.1003](#)
2. [29 CFR 1910.1009 beta-Naphthylamine.](#)
3. [29 CFR 1926.1109 beta-Naphthylamine.](#)

REVIEWED: APRIL 2011

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EXAM ELEMENT	BASE	PERI	TERM
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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.

REFERENCES:

1. [NIOSH-OSHA, Occupational Health 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

EXAM ELEMENT	Program Frequency	BASE	PERI	TERM
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)		Yes	Annual	Yes
Has anything about your health status changed since your last examination		Yes	Annual	Yes
Have any medications changed since your last examination		Yes	Annual	Yes
Major illness or injury		Yes	Annual	Yes
Hospitalization or surgery		Yes	Annual	Yes
Cancer		Yes	Annual	Yes
Back injury		Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)		Yes	Annual	Yes
Have you ever smoked		Yes	Annual	Yes
Do you currently smoke (packs/day)		Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems		Yes	Annual	Yes
Current medication use (prescription or OTC)		Yes	Annual	Yes
Medication allergies		Yes	Annual	Yes
Any reproductive health concerns		Yes	Annual	Yes
Allergies (asthma, hay fever, eczema)		Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality		Yes	Annual	Yes
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)		Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs)		Yes	Annual	Yes
Work history of:				
Exposure to skin irritants		Yes	Annual	Yes
Exposure to respiratory irritants		Yes	Annual	Yes
Comments on medical history:		Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Laboratory:			
Radiology:			
Chest x-ray (PA)	Yes	No	Yes
Spirometry:			
(FVC, FEV1, FEV1/FVC)	Yes	No	Yes
Comments on laboratory results:	Yes	No	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Nasal mucosa (septal perforation)	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

REFERENCES:

1. [NIOSH-OSHA, Occupational Health 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 Annual
Program Frequency			
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Frequent, unusual or severe headaches	Yes	Annual	Yes
Difficulty breathing	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Problems with urination (blood in urine)	Yes	Annual	Yes
Current pregnancy (self or spouse)	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Liver profile to include:			
AST, total bilirubin, alk phos, ALT	Yes	Annual	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			

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EXAM ELEMENT	BASE	PERI	TERM
Immunocompetence (lymphatic system)	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) known human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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.

REFERENCES:

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Eye irritation	Yes	Annual	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	No
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	No
Work history of:			
Exposure to skin irritants	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Radiology:			

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EXAM ELEMENT	BASE	PERI	TERM
Chest x-ray (PA)	Yes	No	No
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Cardiovascular system	Yes	Annual	No
Eyes	Yes	Annual	No
Teeth (acid erosion)	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

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. Medical clearance for a respirator may be required
4. This Program requires a pre-placement and annual (or periodic) examination, but do not specially require a termination examination.

REFERENCES:

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Use of nitrate medication (nitroglycerine)	Yes	Annual	No
Use of medication to treat erectile dysfunction (ED)	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	No
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	No
Cardiovascular or circulatory condition or disease	Yes	Annual	No
Shortness of breath	Yes	Annual	No
Migraine headache	Yes	Annual	No
Vibration white finger disease	Yes	Annual	No
Work history:			
Exposure to other explosives or propellants	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Cardiology:			
Electrocardiogram	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Cardiovascular system	Yes	Annual	No
Peripheral vascular system (Reynaud's)	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

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.

REFERENCES:

1. [NIOSH Occupational Safety and Health Guideline for Nitroglycerine and Ethylene Glycol Dinitrate](#)
2. [HAZMAP: Nitroglycerine](#)

REVIEWED: APRIL 2011

2-NITROPROPANE

211

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #	
2-nitropropane	T25250000	79-46-9	
	Program Frequency	Annual	
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Hepatitis or jaundice	Yes	Annual	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Cough (dry or productive)	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Work history of:			
Exposure to respiratory irritants	Yes	Annual	Yes
Exposure to carcinogens	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	Yes	Yes
Urinalysis without microscopic	Yes	Yes	Yes
Radiology:			
Chest x-ray (PA)	Yes	Yes	Yes
Spirometry:			
Spirometry (FEV1, FVC, FEV1/FVC)	Yes	Yes	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Vision screen (visual acuity)	Yes	Yes	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
CNS	Yes	Annual	Yes
Eyes	Yes	Annual	Yes
Kidney/renal system	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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.

REFERENCES:

[NIOSH Occupational Safety and Health Guideline for 2-Nitropropane Potential Human Carcinogen](#)

REVISED: AUGUST 2010

N-NITROSODIMETHYLAMINE

177

STRESSOR(S) IN THIS PROGRAM:

n-nitrosodimethylamine

NIOSH #
IQ0525000

CAS #
62-75-9
Annual

Program Frequency

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Problems with urination/blood in urine	Yes	Annual	Yes
Current pregnancy (self or spouse)	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	Yes	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Special attention in examination to:			
Kidney/renal system	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Immunocompetence (lymphatic system)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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.

REFERENCES:

1. [29 CFR 1910.1003](#)
2. 29 CFR 1926.1103

REVIEWED: AUGUST 2010

ORGANOTIN COMPOUNDS

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STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #
tin (organic compounds)		
tributyltin oxide	JN8750000	56-35-9
methyl tin mercaptide		
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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Lung or resp disease (COPD, bronchitis, pneumonitis)	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Nausea or vomiting	Yes	Annual	No
Change or loss of vision in either eye	Yes	Annual	No
Eye irritation	Yes	Annual	No
Liver disease	Yes	Annual	No
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	No
Work history of:			
Exposure to skin irritants	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Comments on medical history:	Yes	Annual	No
Laboratory:			
Hematology:			
CBC	Yes	Yes	No
Differential WBC count	Yes	Yes	No
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	Yes	No
Urinalysis without microscopic	Yes	Yes	No
Spirometry:			
Spirometry (FEV1, FVC, FEV1/FVC)	Yes	No	No
Optometry:			
Vision screen (visual acuity)	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Eyes	Yes	Annual	No
Liver	Yes	Annual	No
Kidney	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

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.

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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.

REFERENCES:

[NIOSH Criteria Documents: Criteria for a Recommended Standard: Occupational Exposure to Organotin Compounds, DHHS Pub. No. 77-115.](#)

REVISED: AUGUST 2010

OTTO FUEL II AND 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

EXAM ELEMENT	Program Frequency	BASE	PERI	TERM
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)		Yes	Annual	No
Has anything about your health status changed since your last examination		Yes	Annual	No
Have any medications changed since your last examination		Yes	Annual	No
Major illness or injury		Yes	Annual	No
Hospitalization or surgery		Yes	Annual	No
Cancer		Yes	Annual	No
Back injury		Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)		Yes	Annual	No
Have you ever smoked		Yes	Annual	No
Do you currently smoke (packs/day)		Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems		Yes	Annual	No
Current medication use (prescription or OTC)		Yes	Annual	No
Medication allergies		Yes	Annual	No
Any reproductive health concerns		Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality		Yes	Annual	No
Use of nitrate medication (nitroglycerine)		Yes	Annual	No
Use of medication to treat erectile dysfunction (ED)		Yes	Annual	No
Headache, dizziness, light-headedness, weakness		Yes	Annual	No
Change or loss of vision in either eye		Yes	Annual	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem		Yes	Annual	No
Repeated episodes of loss of or near loss of consciousness		Yes	Annual	No
Migraine headache		Yes	Annual	No
Comments on medical history:		Yes	Annual	No
Laboratory:				
Hematology:				

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EXAM ELEMENT	BASE	PERI	TERM
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	Annual	No
Serum chemistry:			
BUN and creatinine	Yes	Annual	No
Urinalysis without microscopic	Yes	Annual	No
Cardiology:			
Electrocardiogram	Yes	Annual	No
Optometry:			
Vision screen (visual acuity)	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Cardiovascular system	Yes	Annual	No
Eyes	Yes	Annual	No
Liver	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

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

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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.

REFERENCES:

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.

REVISED: AUGUST 2010

POLYCHLORINATED BIPHENYLS (PCB)

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Hepatitis or jaundice	Yes	Annual	No
Liver disease	Yes	Annual	No
Work history of:			
Exposure to skin irritants	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	Annual	No
GGT	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			

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EXAM ELEMENT	BASE	PERI	TERM
Vital signs	Yes	Annual	No
Special attention in examination to:			
Liver	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	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'S 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.

REFERENCES:

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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. NAVENVIRHLTHCEN letter 6263.1 Ser 09nd/11643m 30 Nov 89, Advisory on Polychlorinated Biphenyls (PCBs).

REVISED: AUGUST 2010

BETA-PROPIOLACTONE

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STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #	
beta-propiolactone	RQ7350000	57-57-8	
	Program Frequency	Annual	
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Decreased immunity	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Current pregnancy (females only)	Yes	Annual	Yes
Work history of:			
Exposure to carcinogens	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory			
AST, total bili, alk phos, ALT	Yes	Annual	Yes
Urinalysis	Yes	Annual	Yes
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Special attention in examination to:			
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Eyes	Yes	Annual	Yes
Kidney/renal system	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Immunocompetence (lymphatic system)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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 employee may need counseling.

REFERENCES:

1. [29 CFR 1910.1003](#)
2. [29 CFR 1926.1103](#)

REVIEWED: AUGUST 2010

SILICA (CRYSTALLINE)

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Autoimmune disease or condition	Yes	Annual	No
Lung or respiratory disease (COPD, bronchitis, pneumonitis)	Yes	Annual	No
Tuberculosis	Yes	Annual	No
Shortness of breath	Yes	Annual	No
Cough (dry or productive)	Yes	Annual	No
Kidney disease	Yes	Annual	No
Work history of:			
Exposure to dusts (coal, blast, grit, sand, nuisance)	Yes	Annual	No
Exposure to asbestos	Yes	Annual	No
Exposure to silica or sand	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Urinalysis	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Additional lab tests:			
Tuberculosis screen	Yes	Annual	No
Radiology:			
Chest x-ray (PA)	Yes	Trienn	No
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Eyes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Special notations:			
Substance known human carcinogen	Yes	Annual	No
Counseling regarding combined effects of smoking and respirable crystalline silica (RCS) exposure	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Has patient completed an updated OSHA respiratory questionnaire	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

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 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.

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

REFERENCES:

NIOSH Criteria for a Recommended Standard. [Occupational Exposure to Crystalline Silica](#),
DHHS Pub. No. 75-120, 1974

REVISED: AUGUST 2010

STYRENE

STRESSOR(S) IN THIS PROGRAM:		NIOSH #	CAS #	
styrene		WL3675000	100-42-5	
Program Frequency			Annual	
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No	
Has anything about your health status changed since your last examination	Yes	Annual	No	
Have any medications changed since your last examination	Yes	Annual	No	
Major illness or injury	Yes	Annual	No	
Hospitalization or surgery	Yes	Annual	No	
Cancer	Yes	Annual	No	
Back injury	Yes	Annual	No	
Do you drink 6 or more (beer, wine, liquor)drinks per week	Yes	Annual	No	
Have you ever smoked	Yes	Annual	No	
Do you currently smoke (packs/day)	Yes	Annual	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No	
Current medication use (prescription or OTC)	Yes	Annual	No	
Medication allergies	Yes	Annual	No	
Any reproductive health concerns	Yes	Annual	No	
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Annual	No	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No	
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No	
Headache, dizziness, light-headedness, weakness	Yes	Annual	No	
Eye irritation	Yes	Annual	No	
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	No	
Depression, diff concentrating, excessive anxiety	Yes	Annual	No	
Personality change	Yes	Annual	No	
Work history of:				
Exposure to skin irritants	Yes	Annual	No	
Exposure to respiratory irritants	Yes	Annual	No	
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	Annual	No	
Comments on medical history:	Yes	Annual	No	
Laboratory:				

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EXAM ELEMENT	BASE	PERI	TERM
Spirometry:			
Spirometry (FEV1, FVC, FEV1/FVC)	Yes	No	No
Comments on laboratory results:	Yes	No	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Eyes	Yes	Annual	No
Liver	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

REFERENCES:

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

REVISED: AUGUST 2010

SULFUR DIOXIDE

190

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #	
sulfur dioxide	WS4550000	7446-09-5	
	Program Frequency	Annual	
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more (beer, wine, liquor)drinks per week	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)			
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Yes	Annual	No
Lung or respiratory disease (COPD, bronchitis, pneumonitis)	Yes	Annual	No
Eye irritation	Yes	Annual	No
Tooth or gum disease	Yes	Annual	No
Work history of:			
Exposure to respiratory irritants	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Radiology:			
Chest x-ray (PA)	Yes	No	No
Spirometry:			
Spirometry (FEV1, FVC, FEV1/FVC)	Yes	No	No
Comments on laboratory results:	Yes	No	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Eyes	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Teeth (acid erosion)	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

REFERENCES:

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](#)

REVISED: AUGUST 2010

ORTHO-TOLIDINE

214

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #		
o-tolidine	DD1225000	119-93-7		
	Program Frequency	Annual		
	EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes	
Has anything about your health status changed since your last examination	Yes	Annual	Yes	
Have any medications changed since your last examination	Yes	Annual	Yes	
Major illness or injury	Yes	Annual	Yes	
Hospitalization or surgery	Yes	Annual	Yes	
Cancer	Yes	Annual	Yes	
Back injury	Yes	Annual	Yes	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes	
Have you ever smoked	Yes	Annual	Yes	
Do you currently smoke (packs/day)	Yes	Annual	Yes	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes	
Current medication use (prescription or OTC)	Yes	Annual	Yes	
Medication allergies	Yes	Annual	Yes	
Any reproductive health concerns	Yes	Annual	Yes	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes	
Kidney disease	Yes	Annual	Yes	
Problems with urination/blood in urine	Yes	Annual	Yes	
Work history of:				
Exposure to chemotherapeutic/antineoplastic agents	Yes	Annual	Yes	
Exposure to skin irritants	Yes	Annual	Yes	
Exposure to carcinogens	Yes	Annual	Yes	
Comments on medical history:	Yes	Annual	Yes	
Laboratory:				
Urinalysis:				
Routine:				
Urinalysis with microscopic	Yes	Annual	Yes	
Comments on laboratory results:	Yes	Annual	Yes	
Physical examination:				
Vital signs	Yes	Annual	Yes	
Special attention in examination to:				
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes	

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EXAM ELEMENT	BASE	PERI	TERM
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

REFERENCES:

[NIOSH Pocket Guide to Chemical Hazards o-Tolidine, September 2005](#)

REVISED: AUGUST 2010

ORTHO-TOLUIDINE

STRESSOR(S) IN THIS PROGRAM:		NIOSH #	CAS #	
o-toluidine		XU2975000	95-53-4	
Program Frequency			Annual	
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes	
Has anything about your health status changed since your last examination	Yes	Annual	Yes	
Have any medications changed since your last examination	Yes	Annual	Yes	
Major illness or injury	Yes	Annual	Yes	
Hospitalization or surgery	Yes	Annual	Yes	
Cancer	Yes	Annual	Yes	
Back injury	Yes	Annual	Yes	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes	
Have you ever smoked	Yes	Annual	Yes	
Do you currently smoke (packs/day)	Yes	Annual	Yes	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes	
Current medication use (prescription or OTC)	Yes	Annual	Yes	
Medication allergies	Yes	Annual	Yes	
Any reproductive health concerns	Yes	Annual	Yes	
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes	
Liver disease	Yes	Annual	Yes	
Kidney disease	Yes	Annual	Yes	
Problems with urination/blood in urine	Yes	Annual	Yes	
Work history of:				
Exposure to chemotherapeutic/antineoplastic agents	Yes	Annual	Yes	
Exposure to skin irritants	Yes	Annual	Yes	
Exposure to carcinogens	Yes	Annual	Yes	
Comments on medical history:	Yes	Annual	Yes	
Laboratory:				
Serum chemistry:				
Liver profile to include:				
AST , total bilirubin, alkaline phosphatase	Yes	Annual	Yes	
Urinalysis:				
Routine:				
Urinalysis with microscopic	Yes	Annual	Yes	

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EXAM ELEMENT	BASE	PERI	TERM
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Liver	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

REFERENCES:

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](#)

REVISED: APRIL 2008

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	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No	
Has anything about your health status changed since your last examination	Yes	Annual	No	
Have any medications changed since your last examination	Yes	Annual	No	
Major illness or injury	Yes	Annual	No	
Hospitalization or surgery	Yes	Annual	No	
Cancer	Yes	Annual	No	
Back injury	Yes	Annual	No	
Do you drink 6 or more (beer, wine, liquor) drinks per week	Yes	Annual	No	
Have you ever smoked	Yes	Annual	No	
Do you currently smoke (packs/day)	Yes	Annual	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No	
Current medication use (prescription or OTC)	Yes	Annual	No	
Medication allergies	Yes	Annual	No	
Any reproductive health concerns	Yes	Annual	No	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No	
Headache, dizziness, light-headedness, weakness	Yes	Annual	No	
Nausea or vomiting	Yes	Annual	No	
Weight loss	Yes	Annual	No	
Tremors	Yes	Annual	No	
Liver disease	Yes	Annual	No	
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	No	
Depression, difficulty concentrating, excessive anxiety	Yes	Annual	No	
Work history of:				
Exposure to respiratory irritants	Yes	Annual	No	
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	Annual	No	
Comments on medical history:	Yes	Annual	No	
Laboratory:				
Serum chemistry:				
Liver profile to include:				

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EXAM ELEMENT	BASE	PERI	TERM
AST , Total Bilirubin, alkaline phosphatase	Yes	No	No
AST	*	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Liver	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc.)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

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

PROGRAM DESCRIPTION:

REFERENCES:

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)

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #		
perchloroethylene	KX3850000	127-18-4		
	Program Frequency	Annual		
	EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No	
Has anything about your health status changed since your last examination	Yes	Annual	No	
Have any medications changed since your last examination	Yes	Annual	No	
Major illness or injury	Yes	Annual	No	
Hospitalization or surgery	Yes	Annual	No	
Cancer	Yes	Annual	No	
Back injury	Yes	Annual	No	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No	
Have you ever smoked	Yes	Annual	No	
Do you currently smoke (packs/day)	Yes	Annual	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No	
Current medication use (prescription or OTC)	Yes	Annual	No	
Medication allergies	Yes	Annual	No	
Any reproductive health concerns	Yes	Annual	No	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No	
Hepatitis or jaundice	Yes	Annual	No	
Headache, dizziness, light-headedness, weakness	Yes	Annual	No	
Nausea or vomiting	Yes	Annual	No	
Tremors	Yes	Annual	No	
Change or loss of vision in either eye	Yes	Annual	No	
Eye irritation	Yes	Annual	No	
Liver disease	Yes	Annual	No	
Infertility or miscarriage (self or spouse)	Yes	Annual	No	
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	No	
Depression, difficulty concentrating, excessive Anxiety	Yes	Annual	No	
Work history of:				
Exposure to skin irritants	Yes	Annual	No	
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	Annual	No	
Comments on medical history:	Yes	Annual	No	

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EXAM ELEMENT	BASE	PERI	TERM
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	No	No
BUN and creatinine	Yes	Annual	No
AST	*	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Eyes	Yes	Annual	No
Liver	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

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

PROGRAM DESCRIPTION:

REFERENCES:

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.

REVISED: AUGUST 2010

TETRYL

209

STRESSOR(S) IN THIS PROGRAM:		NIOSH #	CAS #	
tetryl		BY6300000	479-45-8	
	Program Frequency		Annual	
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No	
Has anything about your health status changed since your last examination	Yes	Annual	No	
Have any medications changed since your last examination	Yes	Annual	No	
Major illness or injury	Yes	Annual	No	
Hospitalization or surgery	Yes	Annual	No	
Cancer	Yes	Annual	No	
Back injury	Yes	Annual	No	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No	
Have you ever smoked	Yes	Annual	No	
Do you currently smoke (packs/day)	Yes	Annual	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No	
Current medication use (prescription or OTC)	Yes	Annual	No	
Medication allergies	Yes	Annual	No	
Any reproductive health concerns	Yes	Annual	No	
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Annual	No	
Allergies (asthma, hay fever, eczema)	Yes	Annual	No	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No	
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No	
Eye irritation	Yes	Annual	No	
Liver disease	Yes	Annual	No	
Work history of:				
Exposure to skin irritants	Yes	Annual	No	
Exposure to respiratory irritants	Yes	Annual	No	
Comments on medical history:	Yes	Annual	No	
Laboratory:				
Hematology:				
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	Annual	No	
Serum chemistry:				

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EXAM ELEMENT	BASE	PERI	TERM
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	No	No
AST	*	Annual	No
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Eyes	Yes	Annual	No
Liver	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

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

PROGRAM DESCRIPTION:

REFERENCES:

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: AUGUST 2010

TOLUENE

STRESSOR(S) IN THIS PROGRAM:		NIOSH #	CAS #	
toluene		XS5250000	108-88-3	
	Program Frequency		Annual	
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No	
Has anything about your health status changed since your last examination	Yes	Annual	No	
Have any medications changed since your last examination	Yes	Annual	No	
Major illness or injury	Yes	Annual	No	
Hospitalization or surgery	Yes	Annual	No	
Cancer	Yes	Annual	No	
Back injury	Yes	Annual	No	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No	
Have you ever smoked	Yes	Annual	No	
Do you currently smoke (packs/day)	Yes	Annual	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No	
Current medication use (prescription or OTC)	Yes	Annual	No	
Medication allergies	Yes	Annual	No	
Any reproductive health concerns	Yes	Annual	No	
Allergies (asthma, hay fever, eczema)	Yes	Annual	No	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No	
Headache, dizziness, light-headedness, weakness	Yes	Annual	No	
Nausea or vomiting	Yes	Annual	No	
Eye irritation	Yes	Annual	No	
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	No	
Migraine headache	Yes	Annual	No	
Depression, diff concentrating, excessive anxiety	Yes	Annual	No	
Work history of:				
Exposure to skin irritants	Yes	Annual	No	
Exposure to respiratory irritants	Yes	Annual	No	
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	Annual	No	
Comments on medical history:	Yes	Annual	No	
Physical examination:				
Vital signs	Yes	Annual	No	
Special attention in examination to:				

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EXAM ELEMENT	BASE	PERI	TERM
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Eyes	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

REFERENCES:

1. [NIOSH Pocket Guide to Chemical Hazards Toluene September 2005](#)
2. [OSHA Safety and Health Guideline for Toluene](#)
3. [ATSDR ToxFAQs—Toluene, February 2001](#)
4. [NIOSH Criteria Documents, Criteria for a Recommended Standard: Occupational Exposure to Toluene, 1973](#)
5. [EPA Air Toxics Hazard Summary: Toluene, January 2000](#)

REVISED: AUGUST 2010

1,1,1-TRICHLOROETHANE (METHYL CHLOROFORM)

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

Program Frequency

Annual

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Hepatitis or jaundice	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Eye irritation	Yes	Annual	No
Chest pain, angina, heart attack, irregular heart beat, (arrhythmia), palpitation, or other heart problem	Yes	Annual	No
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	No
Liver disease	Yes	Annual	No
Problems with balance, coordination, numbness,			
Tingling, weakness	Yes	Annual	No
Depression, diff concentrating, excessive anxiety	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Work history of:			
Exposure to skin irritants	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST, Total Bilirubin, alkaline phosphatase	Yes	No	No
AST	*	Annual	No
Urinalysis			
Routine:			
Urinalysis with microscopic	Yes	No	No
Cardiology:			
Electrocardiogram	Yes	No	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Cardiovascular system	Yes	Annual	No
Eyes	Yes	Annual	No
Liver	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

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

PROGRAM DESCRIPTION:

REFERENCES:

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](#)

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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

STRESSOR(S) IN THIS PROGRAM:		NIOSH #	CAS #	
trichloroethylene		KX4550000	79-01-6	
Program Frequency			Annual	
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes	
Has anything about your health status changed since your last examination	Yes	Annual	Yes	
Have any medications changed since your last examination	Yes	Annual	Yes	
Major illness or injury	Yes	Annual	Yes	
Hospitalization or surgery	Yes	Annual	Yes	
Cancer	Yes	Annual	Yes	
Back injury	Yes	Annual	Yes	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes	
Have you ever smoked	Yes	Annual	Yes	
Do you currently smoke (packs/day)	Yes	Annual	Yes	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes	
Current medication use (prescription or OTC)	Yes	Annual	Yes	
Medication allergies	Yes	Annual	Yes	
Any reproductive health concerns	Yes	Annual	Yes	
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes	
Hepatitis or jaundice	Yes	Annual	Yes	
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes	
Headache, dizziness, light-headedness, weakness	Yes	Annual	Yes	
Nausea or vomiting	Yes	Annual	Yes	
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	Yes	
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	Yes	
Liver disease	Yes	Annual	Yes	
Kidney disease	Yes	Annual	Yes	
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	Yes	
Work history of:				
Exposure to skin irritants	Yes	Annual	Yes	

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EXAM ELEMENT	BASE	PERI	TERM
Exposure to respiratory irritants	Yes	Annual	Yes
Exposure to carcinogens	Yes	Annual	Yes
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	No	Yes
AST	*	Annual	Yes
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	Yes
Cardiology:			
Electrocardiogram	Yes	No	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Central nervous system	Yes	Annual	Yes
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	Yes
Cardiovascular system	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

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

PROGRAM DESCRIPTION:

REFERENCES:

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](#)

REVISED: AUGUST 2010

VINYL CHLORIDE ANY EXPOSURE (CHLOROETHENE)

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #	
vinyl chloride	KU9625000	75-01-4	
Program Frequency		Annual	
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Yes	Annual	Yes
Have any medications changed since your last examination	Yes	Annual	Yes
Major illness or injury	Yes	Annual	Yes
Hospitalization or surgery	Yes	Annual	Yes
Cancer	Yes	Annual	Yes
Back injury	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	Yes
Have you ever smoked	Yes	Annual	Yes
Do you currently smoke (packs/day)	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes
Current medication use (prescription or OTC)	Yes	Annual	Yes
Medication allergies	Yes	Annual	Yes
Any reproductive health concerns	Yes	Annual	Yes
Blood transfusions	Yes	Annual	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes
Peripheral vascular disease	Yes	Annual	Yes
Hepatitis or jaundice	Yes	Annual	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Annual	Yes
Headache, dizziness, light-headedness, weakness	Yes	Annual	Yes
Weight loss	Yes	Annual	Yes
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Annual	Yes
Liver disease	Yes	Annual	Yes
Kidney disease	Yes	Annual	Yes
Work history of:			
10 or more years since first exposure to vinyl Chloride	Yes	Annual	Yes
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	Annual	Yes
BUN and creatinine	Yes	Annual	Yes
GGT	Yes	Annual	Yes
Radiology:			
Chest x-ray (PA)	Yes	No	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Central nervous system	Yes	Annual	Yes
Peripheral vascular system (Reynaud's)	Yes	Annual	Yes
Abdomen	Yes	Annual	Yes
Liver	Yes	Annual	Yes
Spleen	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) known human carcinogen	Yes	Annual	Yes
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	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.

REFERENCES:

1. [29 CFR 1910.1017](#).
2. [29 CFR 1926.1117](#) (OSHA construction standard for vinyl chloride exposure).

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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)

STRESSOR(S) IN THIS PROGRAM:	NIOSH #	CAS #	
vinyl chloride	KU9625000	75-01-4	
Program Frequency		Semi-Annual	
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Semi-A	Yes
Has anything about your health status changed since your last examination	Yes	Semi-A	Yes
Have any medications changed since your last examination	Yes	Semi-A	Yes
Major illness or injury	Yes	Semi-A	Yes
Hospitalization or surgery	Yes	Semi-A	Yes
Cancer	Yes	Semi-A	Yes
Back injury	Yes	Semi-A	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Semi-A	Yes
Have you ever smoked	Yes	Semi-A	Yes
Do you currently smoke (packs/day)	Yes	Semi-A	Yes
Heart disease, high blood pressure, stroke or circulation problems	Yes	Semi-A	Yes
Current medication use (prescription or OTC)	Yes	Semi-A	Yes
Medication allergies	Yes	Semi-A	Yes
Any reproductive health concerns	Yes	Semi-A	Yes
Blood transfusions	Yes	Semi-A	Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Semi-A	Yes
Peripheral vascular disease	Yes	Semi-A	Yes
Hepatitis or jaundice	Yes	Semi-A	Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Semi-A	Yes
Treatment with steroids or cancer (cytotoxic) drugs	Yes	Semi-A	Yes
Headache, dizziness, light-headedness, weakness	Yes	Semi-A	Yes
Weight loss	Yes	Semi-A	Yes
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Semi-A	Yes
Liver disease	Yes	Semi-A	Yes
Kidney disease	Yes	Semi-A	Yes
Work history of:			
10 or more years since first exposure to vinyl Chloride	Yes	Semi-A	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	Semi-A	Yes
Comments on medical history:	Yes	Semi-A	Yes
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	Semi-A	Yes
BUN and creatinine	Yes	Semi-A	Yes
GGT	Yes	Semi-A	Yes
Radiology:			
Chest x-ray (PA)	Yes	No	Yes
Comments on laboratory results:	Yes	Semi-A	Yes
Physical examination:			
Vital signs	Yes	Semi-A	Yes
Special attention in examination to:			
Central nervous system	Yes	Semi-A	Yes
Peripheral vascular system (Reynaud's)	Yes	Semi-A	Yes
Abdomen	Yes	Semi-A	Yes
Liver	Yes	Semi-A	Yes
Spleen	Yes	Semi-A	Yes
Respiratory system	Yes	Semi-A	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Semi-A	Yes
Other appropriate examination (specify)	Yes	Semi-A	Yes
Comments on physical examination:	Yes	Semi-A	Yes
Special notations:			
Substance(s) known human carcinogen	Yes	Semi-A	Yes
Physician's/provider's written opinion required	Yes	Semi-A	Yes
Is surveillance/PPE consistent with exposures	Yes	Semi-A	Yes
Are any abnormalities related to exposures/occupations	Yes	Semi-A	Yes
Recommendations:	Yes	Semi-A	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.

REFERENCES:

1. [29 CFR 1910.1017.](#)

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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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Hepatitis or jaundice	Yes	Annual	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Nausea or vomiting	Yes	Annual	No
Liver disease	Yes	Annual	No
Kidney disease	Yes	Annual	No
Problems with numbness, tingling, weakness	Yes	Annual	No
In hands or feet			
Migraine headache	Yes	Annual	No
Depression, diff concentrating, excessive anxiety	Yes	Annual	No
Work history of:			
Exposure to skin irritants	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	Annual	No
Comments on medical history:	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	No	No
AST	*	Annual	No
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Eyes	Yes	Annual	No
Liver	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

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

PROGRAM DESCRIPTION:

REFERENCES:

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.

REVISED: AUGUST 2010

Chapter 5:

C5. Physical Stressors

C5.1. 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.

C5.2. Physical Stressors

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

C5.3. Significant Changes

Program 506- Radiation-Laser (Class III and IV)

STRESSOR(S) IN THIS PROGRAM:

Cold

EXAM ELEMENT	Program Frequency		TERM
	BASE	PERI	
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Bienn	No
Has anything about your health status changed since your last examination	Yes	Bienn	No
Have any medications changed since your last examination	Yes	Bienn	No
Major illness or injury	Yes	Bienn	No
Hospitalization or surgery	Yes	Bienn	No
Cancer	Yes	Bienn	No
Back injury	Yes	Bienn	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Bienn	No
Have you ever smoked	Yes	Bienn	No
Do you currently smoke (packs/day)	Yes	Bienn	No
Do you use smokeless tobacco	Yes	Bienn	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Bienn	No
Current medication use (prescription or OTC)	Yes	Bienn	No
Medication allergies	Yes	Bienn	No
Any reproductive health concerns	Yes	Bienn	No
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Bienn	No
Allergies (asthma, hay fever, eczema)	Yes	Bienn	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Bienn	No
Peripheral vascular disease	Yes	Bienn	No
Lung/resp disease (ex: COPD, bronchitis, pneumonitis)	Yes	Bienn	No
Cold injury (frostbite, chill, trench ft, hypothermia)	Yes	Bienn	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Bienn	No
Repeated episodes of loss of or near loss of consciousness	Yes	Bienn	No
Thyroid disease (heat or cold intolerance)	Yes	Bienn	No
Diabetes or other endocrine gland disorder	Yes	Bienn	No
Mental/emotional illness	Yes	Bienn	No
Comments on medical history:	Yes	Bienn	No

EXAM ELEMENT	BASE	PERI	TERM
Cardiology:			
Electrocardiogram	***	***	No
Comments on laboratory results:	Yes	Bienn	No
Physical examination:			
Vital signs	Yes	Bienn	No
Special attention in examination to:			
Cardiovascular system	Yes	Bienn	No
Peripheral vascular system (Reynaud's)	Yes	Bienn	No
Respiratory system	Yes	Bienn	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Bienn	No
Thyroid	Yes	Bienn	No
Other appropriate examination (specify)	Yes	Bienn	No
Comments on physical examination:	Yes	Bienn	No
Is surveillance/PPE consistent with exposures	Yes	Bienn	No
Are any abnormalities related to exposures/occupations	Yes	Bienn	No
Recommendations:	Yes	Bienn	No

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

PROGRAM DESCRIPTION:

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.

REFERENCES:

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](#)

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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	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No	
Has anything about your health status changed since your last examination	Yes	Annual	No	
Have any medications changed since your last examination	Yes	Annual	No	
Major illness or injury	Yes	Annual	No	
Hospitalization or surgery	Yes	Annual	No	
Cancer	Yes	Annual	No	
Back injury	Yes	Annual	No	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No	
Have you ever smoked	Yes	Annual	No	
Do you currently smoke (packs/day)	Yes	Annual	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No	
Current medication use (prescription or OTC)	Yes	Annual	No	
Medication allergies	Yes	Annual	No	
Any reproductive health concerns	Yes	Annual	No	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No	
Heat injury (cramps, exhaustion, stroke)	Yes	Annual	No	
Exposure (acclimatization) to heat	Yes	Annual	No	
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	No	
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	No	
Kidney disease	Yes	Annual	No	
Current pregnancy (females only)	Yes	Annual	No	
Infertility or miscarriage (self or spouse)	Yes	Annual	No	
Thyroid disease (heat or cold intolerance)	Yes	Annual	No	
Diabetes or other endocrine gland disorder	Yes	Annual	No	
Mental/emotional illness	Yes	Annual	No	
Work history of:				
Exposure to skin irritants	Yes	Annual	No	
Comments on medical history:	Yes	Annual	No	
Laboratory:				

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EXAM ELEMENT	BASE	PERI	TERM
Urinalysis:			
Routine:			
Urinalysis without microscopic	Yes	Annual	No
Cardiology:			
Electrocardiogram	***	***	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Required when positive history questions are obtained	Yes	Annual	No
Special attention in examination to:			
Cardiovascular system	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Skin, with regard to malignant & pre-malignant conditions	Yes	Annual	No
Thyroid	Yes	Annual	No
Obesity	Yes	Annual	No
Overall physical fitness	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

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

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 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.

REFERENCES:

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.

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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](#)
8. [Army Heat Injury Prevention Policy, 2007-2009](#)

REVISED: OCTOBER 2009

NOISE

503

STRESSOR(S) IN THIS PROGRAM:		NIOSH #	CAS #	
Noise	Program Frequency		Annual	
	EXAM ELEMENT	BASE	PERI	TERM
	Medical history: have you ever had:			
	Personal history of:			
	Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes
	Has anything about your health status changed since your last examination	Yes	Annual	Yes
	Have any medications changed since your last examination	Yes	Annual	Yes
	Ringing in the ear (tinnitus)	Yes	Annual	Yes
	Ruptured ear drum	Yes	Annual	Yes
	Loss or change in hearing	Yes	Annual	Yes
	Problem hearing conversations/people	Yes	Annual	Yes
	Recreational/non-occupational exposure to loud noise	Yes	Annual	Yes
	Work history of:			
	Exposure to excessive noise	Yes	Annual	Yes
	Comments on medical history:	Yes	Annual	Yes
	Laboratory:			
	Audiology:			
	Audiogram	Yes	Annual	Yes
	Comments on laboratory results:	Yes	Annual	Yes
	Hearing conservation:			
	Has baseline been reestablished due to PTS?	Yes	Annual	Yes
	High frequency average exceeds 45 db bilaterally?	Yes	Annual	Yes
	Ear plugs fitted and issued?	Yes	Annual	Yes
	Refer to audiologist or physician?	Yes	Annual	Yes
	Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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)

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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.

REFERENCES:

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

REVISED: August 2010

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

STRESSOR(S) IN THIS PROGRAM:

noise

Program Frequency	Based on results of annual monitoring		
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:		***	
Is your work exposure history current (OPNAV 5100/15)		***	
Has anything about your health status changed since your last examination		***	
Have any medications changed since your last examination		***	
Ringing in the ear (tinnitus)		***	
Ruptured ear drum		***	
Loss or change in hearing		***	
Problem hearing conversations/people		***	
Comments on medical history:		***	
Laboratory:			
Audiology:			
Audiogram - follow-up (DD 2216)		***	
Comments on laboratory results:		***	
Physical examination:			
Ears (tympanic membranes)		***	
Other appropriate examination (specify)		***	
Comments on physical examination:		***	
Hearing conservation:			
Has baseline been reestablished due to PTS?		***	
High frequency average exceeds 45 db bilaterally?		***	
Ear plugs fitted and issued?		***	
Refer to audiologist or physician?		***	
Special notations:			
Written notification of permanent threshold shift required		***	
Recommendations:		***	

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

PROGRAM DESCRIPTION:

PROVIDER COMMENTS:

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

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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..

REFERENCES:

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. [NMCPHC Tech Manual 6260.51.99-2 \(Sep 08\)](#)
6. DODI 6055.05, Table C2.T15, Noise

REVISED: MARCH 2006

STRESSOR(S) IN THIS PROGRAM:

Ionizing Radiation

Program Frequency	Up to age 50	Every five years
	50-59	Every two years
	60	Annually

PROGRAM DESCRIPTION:

This program is included solely to provide guidance on scheduling frequency and references. Tests and forms required are promulgated in the Radiation Health Protection Manual, NAVMED P-5055.

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 RMEs and is independent of other examination forms (i.e., DD Form 2807-1, Report of Medical History and DD form 2808, Report of Medical Exam). The medical examination will place particular emphasis on determining the existence of cancer. All RMEs shall normally be performed by physicians, nurse practitioners or physician assistants who have received BUMED-approved radiation health training. Examinations performed by a physician assistant or nurse practitioner must be signed by a physician reviewer trained per above. The reviewing physician’s signature also satisfies the counter-signature requirement.

REFERENCES:

1. [NAVMED P-5055](#).
2. [NAVMED P-117](#), Chapter 15-104.

REVISED: FEBRUARY 2011

STRESSOR(S) IN THIS PROGRAM:

laser

EXAM ELEMENT	Program Frequency		Baseline and termination		
	BASE	PERI	TERM		
Medical history: have you ever had:					
Personal history of:					
Is your work exposure history current (OPNAV 5100/15)	Yes	No	Yes		
Has anything about your health status changed since your last examination	Yes	No	Yes		
Have any medications changed since your last examination	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 (packs/day)	Yes	No	Yes		
Heart disease, high blood pressure, stroke or circulation problems	Yes	No	Yes		
Current medication use (prescription or OTC)	Yes	No	Yes		
Medication allergies	Yes	No	Yes		
Any reproductive health concerns	Yes	No	Yes		
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation 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	Yes	No	Yes		
Eye injury	Yes	No	Yes		
Glaucoma	Yes	No	Yes		
Work history of:		No			
Exposure to non-ionizing radiation (laser, IR, MW, UV)	Yes	No	Yes		
Eye injury	Yes	No	Yes		
Comments on medical history:	Yes	No	Yes		
Laboratory:					

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EXAM ELEMENT	BASE	PERI	TERM
Optometry:			
Date of most recent refraction - when applicable	Yes	No	Yes
Current refraction prescription - when applicable	Yes	No	Yes
Vision screen (visual acuity)	Yes	No	Yes
External ocular and fundus examination	Yes	No	Yes
Color vision	Yes	No	Yes
Amsler grid	Yes	No	Yes
Comments on laboratory results:	Yes	No	Yes
Physical examination:			
Vital signs	Yes	No	Yes
Special attention in examination to:			
Eyes	Yes	No	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	No	Yes
Other appropriate examination (specify)	Yes	No	Yes
Comments on physical examination:	Yes	No	Yes
Is surveillance/PPE consistent with exposures	Yes	No	Yes
Are any abnormalities related to exposures/occupations	Yes	No	Yes
Recommendations:	Yes	No	Yes

PROGRAM DESCRIPTION:

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.

Incidental personnel must have documented in their medical record a visual acuity examination. Incidental personnel are described as those personnel whose work makes it possible, but unlikely, that they will be exposed to sufficient laser energy to damage their eyes.

Preplacement and termination laser examinations may include the following tests as deemed necessary by the medical examiner.

1. Dilated, direct view ophthalmoscopic examinations of the retina and slit lamp examinations of the cornea and lens to describe any pathology or deviation from the normal. Refer any retinal lesions to an ophthalmologist or optometrist for evaluation and photographic documentation.
2. Skin examination if the worker has a history of photosensitivity or works with UV lasers.

REFERENCES:

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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).

REVISED: FEBRUARY 2011

VIBRATION, HAND-ARM

STRESSOR(S) IN THIS PROGRAM:

hand-arm (segmental) vibration

	Program Frequency	Annual		
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No	
Has anything about your health status changed since your last examination	Yes	Annual	No	
Have any medications changed since your last examination	Yes	Annual	No	
Major illness or injury	Yes	Annual	No	
Hospitalization or surgery	Yes	Annual	No	
Cancer	Yes	Annual	No	
Back injury	Yes	Annual	No	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No	
Have you ever smoked	Yes	Annual	No	
Do you currently smoke (packs/day)	Yes	Annual	No	
Do you use smokeless tobacco	Yes	Annual	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No	
Current medication use (prescription or OTC)	Yes	Annual	No	
Medication allergies	Yes	Annual	No	
Any reproductive health concerns	Yes	Annual	No	
Peripheral vascular disease	Yes	Annual	No	
Cold injury (frostbite, chill, trench ft, hypothermia)	Yes	Annual	No	
Neuro disorder, gait change, paresthesia, coord loss	Yes	Annual	No	
Diabetes or other endocrine gland disorder	Yes	Annual	No	
Vibration white finger disease	Yes	Annual	No	
Work history of:				
Exposure to vibration (segmental or whole body)	Yes	Annual	No	
Comments on medical history:	Yes	Annual	No	
Physical examination:				
Vital signs	Yes	Annual	No	
Special attention in examination to:				
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No	
Back & musculoskeletal system	Yes	Annual	No	
Peripheral vascular system (Reynaud's)	Yes	Annual	No	
Eyes	Yes	Annual	No	
Other appropriate examination (specify)	Yes	Annual	No	
Comments on physical examination:	Yes	Annual	No	

EXAM ELEMENT	BASE	PERI	TERM
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

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 very 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: NIOSH Criteria for a Recommended Standard. Occupational Exposure to Hand-Arm Vibration, National Institute for Occupational Safety and Health, Sept 1989.

REFERENCES:

1. [Criteria for a recommended standard: Occupational Exposure to Hand-Arm Vibration, NIOSH Sept 1989,](#)

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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 & Pelmeur, 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.
6. [Hand Arm Vibration Threshold Limits, DoD Ergonomics Working Group News, Issue 55, August 2006.](#)

REVISED: MARCH 2011

WHOLE BODY VIBRATION

STRESSOR(S) IN THIS PROGRAM:

whole body vibration

	Program Frequency	Annual	
EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Peripheral vascular disease	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Nausea or vomiting	Yes	Annual	No
Change or loss of vision in either eye	Yes	Annual	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	No
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	No
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Annual	No
Kidney disease	Yes	Annual	No
Problems with urination/blood in urine	Yes	Annual	No
Current pregnancy (self or spouse)	Yes	Annual	No
Infertility or miscarriage (self or spouse)	Yes	Annual	No
Abnormal pregnancy outcome during present employment	Yes	Annual	No
Vibration white finger disease	Yes	Annual	No
Work history of:			

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EXAM ELEMENT	BASE	PERI	TERM
Exposure to vibration (segmental or whole body)	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	No
Comments on laboratory results	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Back & musculoskeletal system	Yes	Annual	No
Cardiovascular system	Yes	Annual	No
Peripheral vascular system (Reynaud's)	Yes	Annual	No
Varicose veins of lower extremities	Yes	Annual	No
Eyes	Yes	Annual	No
Abdomen	Yes	Annual	No
Genitourinary tract	Yes	Annual	No
Hemorrhoids	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

REFERENCES:

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](#).

REVISED: OCTOBER 2006

Chapter 6:

C6. Mixed Exposures

C6.1. 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 mixed 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.

C7. 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	

C8. Significant Changes

Program 110- Hazardous Drugs

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

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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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Peripheral vascular disease	Yes	Annual	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis, asbestosis, silicosis, pneumothorax/collapsed lung)	Yes	Annual	No
Contact lens use	Yes	Annual	No
Eye irritation or blurred vision	Yes	Annual	No
Eye injury	Yes	Annual	No
Tooth or gum disease	Yes	Annual	No
Cough (dry or productive)	Yes	Annual	No
Work history of:			
Exposure to hydrogen fluoride or inorganic fluorides	Yes	Annual	No
Eye injury	Yes	Annual	No
Exposure to skin irritants	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Peripheral vascular system (Reynaud's)	Yes	Annual	No
Eyes	Yes	Annual	No
Gums (e.g. lead lines?)	Yes	Annual	No
Teeth (acid erosion)	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

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

REFERENCES:

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 2010

ANESTHETIC GASES

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

EXAM ELEMENT	Program Frequency	BASE	PERI	TERM
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Annual	Yes	Annual	Yes
Has anything about your health status changed since your last examination	Annual	Yes	Annual	Yes
Have any medications changed since your last examination	Annual	Yes	Annual	Yes
Major illness or injury	Annual	Yes	Annual	Yes
Hospitalization or surgery	Annual	Yes	Annual	Yes
Cancer	Annual	Yes	Annual	Yes
Back injury	Annual	Yes	Annual	Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Annual	Yes	Annual	Yes
Have you ever smoked	Annual	Yes	Annual	Yes
Do you currently smoke (packs/day)	Annual	Yes	Annual	Yes
Heart disease, high blood pressure, stroke or circulation problems	Annual	Yes	Annual	Yes
Current medication use (prescription or OTC)	Annual	Yes	Annual	Yes
Medication allergies	Annual	Yes	Annual	Yes
Any reproductive health concerns	Annual	Yes	Annual	Yes
Hepatitis or jaundice	Annual	Yes	Annual	Yes
Treatment with steroids, immunosuppressive or cancer (cytotoxic) drugs	Annual	Yes	Annual	Yes
Headache, dizziness, light-headedness, weakness	Annual	Yes	Annual	Yes
Liver disease	Annual	Yes	Annual	Yes
Kidney disease	Annual	Yes	Annual	Yes
Current pregnancy (females only)	Annual	Yes	Annual	Yes
Impotence or sexual dysfunction	Annual	Yes	Annual	Yes
Infertility or miscarriage (self or spouse)	Annual	Yes	Annual	Yes
Epilepsy (seizure disorder)	Annual	Yes	Annual	Yes
Problems with numbness, tingling, weakness, in hands or feet	Annual	Yes	Annual	Yes
Migraine headache	Annual	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Mental/emotional illness	Yes	Annual	Yes
Depression, difficulty concentrating, excessive anxiety	Yes	Annual	Yes
Personality change	Yes	Annual	Yes
Work history of:			
Exposure to chemotherapeutic agents	Yes	Annual	Yes
Exposure to anesthetic gases	Yes	Annual	Yes
Exposure to ethylene oxide	Yes	Annual	Yes
Exposure to carcinogens	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Physical examination:			
Required when positive history questions are obtained:			
Vital signs	Yes	***	Yes
Special attention in examination to:			
Central nervous system	Yes	***	Yes
Peripheral nervous system (strength, sensation, DTR)	Yes	***	Yes
Genitourinary tract	Yes	***	Yes
Testes (male)	Yes	***	Yes
Liver	Yes	***	Yes
Mucous membranes	Yes	***	Yes
Other appropriate examination (specify)	Yes	***	Yes
Comments on physical examination:	Yes	***	Yes
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	Yes
Substance(s) suspected human mutagenic/fetotoxic effects	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

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

PROGRAM DESCRIPTION:

REFERENCES:

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](#)

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6. [Waste anesthetic gases, National Library of Medicine](#)
7. [OSHA Anesthetic Gases: Guidelines for Workplace Exposures](#)

REVIEWED: MAY 2011

ANIMAL ASSOCIATED DISEASE

STRESSOR(S) IN THIS PROGRAM:

animal associated disease

EXAM ELEMENT	Program Frequency		BASE	PERI	TERM
	Annual				
Medical history: have you ever had:					
Personal history of:					
Is your work exposure history current (OPNAV 5100/15)	Yes		Yes	***	No
Has anything about your health status changed since your last examination	Yes		Yes	***	No
Have any medications changed since your last examination	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	Yes		Yes	***	No
Have you ever smoked	Yes		Yes	***	No
Do you currently smoke (packs/day)	Yes		Yes	***	No
Heart disease, high blood pressure, stroke or circulation problems	Yes		Yes	***	No
Current medication use (prescription or OTC)	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, abnormal pigmentation or other skin abnormality	Yes		Yes	***	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes		Yes	***	No
Current pregnancy (self or spouse)	Yes		Yes	***	No
Comments on medical history:	Yes		Yes	***	No
Laboratory:					
Additional lab tests:					
Tuberculosis screen	Yes		Yes	***	No
Comments on laboratory results:	Yes		Yes	***	No
Physical examination:					
Vital signs	Yes		Yes	***	No
Other appropriate examination (specify)	Yes		Yes	***	No
Comments on physical examination:	Yes		Yes	***	No
Qualifications:					
Current immunizations	Yes		Yes	***	No
Is surveillance/PPE consistent with exposures	Yes		Yes	***	No
Are any abnormalities related to exposures/occupations	Yes		Yes	***	No

	EXAM ELEMENT	BASE	PERI	TERM
Recommendations:		Yes	***	No

PROGRAM DESCRIPTION:

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.

Test	RISK CATEGORY		
	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.)

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- (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) Rubella 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.

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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

REFERENCES:

1. Garibaldi R, Janis B, Occupational Infections in Rom, William N, Environmental and Occupational Medicine, 2nd ed, Little Brown, 1992.
2. Rival 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: FEBRUARY 2011

HAZARDOUS DRUGS

STRESSOR(S) IN THIS PROGRAM:

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

	Program Frequency			
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				Annual
Personal history of				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes	
Has anything about your health status changed since your last examination	Yes	Annual	Yes	
Have any medications changed since your last examination	Yes	Annual	Yes	
Major illness or injury	Yes	Annual	Yes	
Hospitalization or surgery	Yes	Annual	Yes	
Cancer	Yes	Annual	Yes	
Back injury	Yes	Annual	Yes	
Do you drink 6 or more drinks per week (beer, wine, liquor)?	Yes	Annual	Yes	
Have you ever smoked?	Yes	Annual	Yes	
Do you currently smoke? (___ cigarettes or packs/day)	Yes	Annual	Yes	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes	
Current medication use (prescription or OTC)	Yes	Annual	Yes	
Medication allergies	Yes	Annual	Yes	
Hair Loss	Yes	Annual	Yes	
Treatment with steroids, immunosuppressive or cancer (cytotoxic) drugs	Yes	Annual	Yes	
Radiation therapy or radioactive drugs (nuclear pharmaceuticals)				
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	Yes	
Blood disorder (anemia, abnormal bleeding or clotting, etc.)				
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	Yes	
Skin rash				
Liver disease	Yes	Annual	Yes	
Reproductive health concerns	Yes	Annual	Yes	
Current pregnancy (self or spouse)	Yes	Annual	Yes	
Infertility or miscarriage (self or spouse)	Yes	Annual	Yes	

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EXAM ELEMENT	BASE	PERI	TERM
For female staff member: Are you breastfeeding	Yes	Annual	Yes
Work history of:			
Exposure to chemotherapeutic/antineoplastic agents	Yes	Annual	Yes
Exposure to ionizing radiation	Yes	Annual	Yes
Exposure to skin irritants	Yes	Annual	Yes
Exposure to carcinogens	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory:			
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	Annual	Yes
Reticulocyte count			
Differential white blood cell count	Yes	Annual	Yes
Liver function tests (ALT, AST, GGTP, LDH, alkaline phosphatase, albumin, prothrombin time)	Yes	Annual	Yes
BUN, creatinine	Yes	Annual	Yes
Urinalysis without microscopic	Yes	Annual	Yes
Additional lab tests:			
Pregnancy testing or laboratory testing of fertility if requested by employee and deemed appropriate by the physician	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Cardiopulmonary system	Yes	Annual	Yes
Eyes	Yes		Yes
Liver	Yes	Annual	Yes
Mucous membranes	Yes	Annual	Yes
Skin (rash, erosion, ulcer, pigment changes, alopecia, eczema, malignant & pre-malignant conditions, etc)	Yes	Annual	Yes
Immunocompetence (lymphatic system, spleen)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Substance(s) known human carcinogen	Yes	Annual	Yes
Substance(s) known mutagenic or fetotoxic effects	Yes	Annual	Yes
Is surveillance/personal protective equipment consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

PROGRAM DESCRIPTION:

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, depending on the actual tasks performed and potential exposure.

Pregnant or breastfeeding workers should be managed per Reference 1.

REFERENCES:

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](#)

REVISED: MARCH 2011

HERBICIDES

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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	BASE	PERI	TERM
Annual			
EXAM ELEMENT			
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Radiology:			
Chest x-ray (PA)	Yes	Yes	No
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Yes	No
Comments on laboratory results	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Eyes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Other appropriate examination (specify):	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

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.

REFERENCES:

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. and Laws, E. R., Jr., Eds. Academic Press, New York, NY, 1991.10-88

REVISED: OCTOBER 2009

MANMADE MINERAL FIBERS

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
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor) (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/ day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality			
Lung or resp disease (COPD, bronchitis, pneumonitis)	Yes	Annual	No
Shortness of breath	Yes	Annual	No
Cough (dry or productive)	Yes	Annual	No
Work history of:			
Exposure to dusts (coal, blast, grit, sand, nuisance)	Yes	Annual	No
Exposure to asbestos	Yes	Annual	No
Exposure to silica or sand	Yes	Annual	No
Exposure to skin irritants	Yes	Annual	No
Exposure to respiratory irritants	Yes	Annual	No
Comments on medical history:	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Laboratory:			
Radiology:			
Chest x-ray (PA)	Yes	5 yrs	
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Special notations:			
Substance(s) suspected human carcinogen	Yes	Annual	No
Is surveillance/PPE consistent with exposures listed on OPNAV 5100/15?	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

REFERENCES:

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.

REVISED: AUGUST 2008

METAL FUMES

STRESSOR(S) IN THIS PROGRAM:

metal fumes

EXAM ELEMENT	Program Frequency		BASE	PERI	TERM
		Annual			
Medical history: have you ever had:					
Personal history of:					
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	Yes	Annual	No
Major illness or injury	Yes	Annual	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	Yes	Annual	No
Cancer	Yes	Annual	Yes	Annual	No
Back injury	Yes	Annual	Yes	Annual	No
Do you drink 6 or more drinks per week	Yes	Annual	Yes	Annual	No
Have you ever smoked	Yes	Annual	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	Yes	Annual	No
Medication allergies	Yes	Annual	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Yes	Annual	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	Yes	Annual	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	Yes	Annual	No
Change or loss of vision in either eye	Yes	Annual	Yes	Annual	No
Cataracts	Yes	Annual	Yes	Annual	No
Eye irritation	Yes	Annual	Yes	Annual	No
Eye injury	Yes	Annual	Yes	Annual	No
Perforation of nasal septum	Yes	Annual	Yes	Annual	No
Shortness of breath	Yes	Annual	Yes	Annual	No
Cough (dry or productive)	Yes	Annual	Yes	Annual	No
Kidney disease	Yes	Annual	Yes	Annual	No
Work history of:					
Exposure to lead	Yes	Annual	Yes	Annual	No
Exposure to chromium or chromic acid	Yes	Annual	Yes	Annual	No
Eye injury	Yes	Annual	Yes	Annual	No
Exposure to skin irritants	Yes	Annual	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Exposure to respiratory irritants	Yes	Annual	No
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Serum chemistry:			
BUN and creatinine	Yes	Annual	No
AST	Yes	Annual	No
Urinalysis:			
Routine:			
Urinalysis without microscopic	Yes	Annual	No
Radiology:			
Chest x-ray (PA)	Yes	No	No
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Eyes	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	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.

REFERENCES:

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.](#)

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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.

REVISED: MARCH 2011

METALWORKING FLUIDS

STRESSOR(S) IN THIS PROGRAM:

metalworking fluids

	Program Frequency	Annual		
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No	
Has anything about your health status changed since your last examination	Yes	Annual	No	
Have any medications changed since your last examination	Yes	Annual	No	
Major illness or injury	Yes	Annual	No	
Hospitalization or surgery	Yes	Annual	No	
Cancer	Yes	Annual	No	
Back injury	Yes	Annual	No	
Do you drink 6 or more drinks per week	Yes	Annual	No	
Have you ever smoked	Yes	Annual	No	
Do you currently smoke (packs/day)	Yes	Annual	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No	
Current medication use (prescription or OTC)	Yes	Annual	No	
Medication allergies	Yes	Annual	No	
Any reproductive health concerns	Yes	Annual	No	
Allergies (asthma, hay fever, eczema)	Yes	Annual	No	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No	
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No	
Shortness of breath	Yes	Annual	No	
Cough (dry or productive)	Yes	Annual	No	
Pneumonia	Yes	Annual	No	
Headache, dizziness, light-headedness, weakness	Yes	Annual	No	
Eye irritation	Yes	Annual	No	
Eye injury	Yes	Annual	No	
Work history of:				
Eye injury	Yes	Annual	No	
Exposure to skin irritants	Yes	Annual	No	
Exposure to respiratory irritants	Yes	Annual	No	
Exposure to solvents (MEK, PERC, TCE, toluene, etc.)	Yes	Annual	No	
Comments on medical history:	Yes	Annual	No	
Laboratory:				

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EXAM ELEMENT	BASE	PERI	TERM
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	No
Radiology:			
Chest x-ray (PA)	Yes	No	No
Spirometry:			
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Eyes	Yes	Annual	No
Mucous membranes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	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 above the recommendations for the general population may not be warranted (Agalliu, 664-71).

REFERENCES:

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 #
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
See Chemical Stressors List for additional compounds		
Program Frequency		Annual

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Hepatitis or jaundice	Yes	Annual	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Contact lens use	Yes	Annual	No
Eye irritation	Yes	Annual	No
Eye injury	Yes	Annual	No
Liver disease	Yes	Annual	No
Kidney disease	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	No
Depression, diff concentrating, excessive anxiety	Yes	Annual	No
Personality change	Yes	Annual	No
Work history of:			
Eye injury	Yes	Annual	No
Exposure to skin irritants	Yes	Annual	No
Exposure to solvents (MEK, PERC, TCE, toluene...)	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Serum chemistry:			
Liver profile to include:			
AST , Total Bilirubin, alkaline phosphatase	Yes	No	No
BUN and creatinine	Yes	Annual	No
AST	*	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Eyes	Yes	Annual	No
Liver	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

*AST for baseline is included in baseline liver profile. Only AST is required on annual basis.
 When industrial hygiene data document exposure to specific stressors, i.e., lead or chromium, individuals should be entered on the appropriate programs for specific stressors.

PROGRAM DESCRIPTION:

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.)

REFERENCES:

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1. [NIOSH Current Intelligence Bulletin 48: Organic Solvent Neurotoxicity. U.S. Department of Health and Human Services; 1987. DHHS \(NIOSH\) Publication No. 87-104. http://www.cdc.gov/niosh/87104_48.html.](http://www.cdc.gov/niosh/87104_48.html)
2. NOTE: References for specific solvents are listed in the appropriate programs.

REVISED: NOVEMBER 2008

ORGANOPHOSPHATE/CARBAMATE COMPOUNDS

(ACETYLCHOLINESTERASE INHIBITORS)

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 program description

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Lung or resp disease (COPD, bronchitis, pneumonitis)	Yes	Annual	No
Use of anticholinergic drugs (Donnatal)	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Nausea or vomiting	Yes	Annual	No
Problems with numbness, tingling, weakness	Yes	Annual	No
In hands or feet			
Migraine headache	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Work history of:			

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EXAM ELEMENT	BASE	PERI	TERM
Do you handle organophosphate or carbamate pesticides	Yes	Annual	No
Laboratory:			
Serum chemistry:			
RBC cholinesterase	Yes	*Quarterly	No
Plasma (or serum) cholinesterase	Yes	*Quarterly	No
Comments on laboratory results:	Yes	*Quarterly	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	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.

* Per Reference 3, cholinesterase levels should be obtained before starting pesticide work/spraying (baseline). A first, in-season, follow-up test should be done at 45-60 days, and quarterly thereafter if spraying continues.

PROVIDER COMMENTS:

Concerns with any ORGANOPHOSPHATE/CARBAMATE COMPOUNDS should be addressed with the local Industrial Hygienist for specific compound information and requirements.

Serum (or plasma) and red blood cell (RBC) cholinesterase baseline levels should be done at preplacement or before exposure. This baseline value should be the average of two or more tests 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. Guidance on interpretation is contained in references (1) and (4).

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NIOSH recommendations are different from the DoD instruction. NIOSH recommends that cholinesterase levels should be tested in those exposed to organophosphates/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.

REFERENCES:

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 6250.4B, PEST MANAGEMENT PROGRAMS 1998](#)
3. DODI 6055.05-M, C4.6. CHOLINESTERASE
4. [NIOSH Occupational Health Guideline for Parathion](#)

REVISED: JANUARY 2010

WOOD DUST

STRESSOR(S) IN THIS PROGRAM:

softwood dusts
hardwood dusts

EXAM ELEMENT	Program Frequency		TERM
	BASE	PERI	
Medical history: have you ever had:		Annual	
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Allergies (asthma, hay fever, eczema)	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	No
Rhinitis	Yes	Annual	No
Nose bleeds	Yes	Annual	No
Shortness of breath	Yes	Annual	No
Cough (dry or productive)	Yes	Annual	No
Work history of:			
Prior respirator use	Yes	Annual	No
Exposure to dusts (coal, blast, grit, sand, nuisance)	Yes	Annual	No
Exposure to skin irritants	Yes	Annual	No
Exp to respiratory irritants	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Laboratory:			
Spirometry:			

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EXAM ELEMENT	BASE	PERI	TERM
Spirometry (FVC, FEV1, FEV1/FVC)	Yes	No	No
Comments on laboratory results:	Yes	No	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Nasal mucosa	Yes	Annual	No
Respiratory system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

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.

REFERENCES

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

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Chapter 7:

C9. Specialty Examinations

C9.1. 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.

C9.2. 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
Foodservice Personnel	Submarine Duty
Forklift Operator	Wastewater/Sewage Worker
Freon Workers (haloalkane)	Weight Handling Equipment Managers
Hazardous Waste Workers and Emergency Responders	Welders/Brazers/Non-destructive Inspection Techs

C9.3. Significant Revisions

- Program 705- Divers/Hyperbaric Worker
- Program 721- Explosive Handler
- Program 720- Explosive Vehicle Operator
- Program 707- Firefighter (Comprehensive)
- Program 722- Firefighter (Annual), deleted
- Program 710- Forklift Operator
- Program 711- Hazardous Waste Worker & Emergency Responders
- Program 719- Healthcare Workers
- Program 706- Motor Vehicle Operator (Other than DOT)
- Program 798- Overseas Civilian Deployment, added
- Program 714- Police/Security Guard
- Program 716- Respirator User Certification
- Program 708- Welders/Brazers/Non-Destructive Inspection Techs, added

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Program 704- Weight Handling Equipment (Management of)

Program Frequency**By Age**

All Naval aviation personnel (officer and enlisted) will undergo a complete aviation medical examination (NAVMED 6120/2 as appropriate) within 30 days of their birthday at ages 21, 24, 27, 30, 33, 36, 39 and annually thereafter.

Air Force aviation personnel will undergo an aviation medical examination according to [AFI 48-101](#) that is available at [Air Force E-Publishing - Home](#). The aviation medical exams listed as Aerospace Medicine.

PRORAM DESCRIPTION:

This program is designed solely to provide guidance in scheduling frequency and references.

Medical examination is recorded on NAVMED 6130/2 (as appropriate). Detailed guidance is contained in [Manual of the Medical Department, NAVMED P-117, Chapter 15, Article 15-65.](#)

PROVIDER COMMENTS:

This exam can only be performed by flight surgeons and BUMED-23 approved medical officers via special credentialing.

Physical exams and standards for aviation physicals are updated annually and available on the Internet at the NOMI home page: [NOMI Library](#)

<http://www.med.navy.mil/sites/navmedmpte/nomi/Pages/NOMILibrary.aspx>

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.

REFERENCES:

1. BUMEDNOTE 5410 of 14 Oct 99.
2. [Manual of the Medical Department, NAVMED P-117, Chapter 15, Article 15-65.](#)

REVIEWED: NOVEMBER 2010

BARBER AND BEAUTY SHOP EMPLOYEES

EXAM ELEMENT	Program Frequency	Preplacement
Medical history: have you ever had:		
Personal history of:		
Major illness or injury		Yes
Hospitalization or surgery		Yes
Cancer		Yes
Back injury		Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)		Yes
Have you ever smoked		Yes
Do you currently smoke (packs/day)		Yes
Heart disease, high blood pressure, stroke or circulation problems		Yes
Current medication use (prescription or OTC)		Yes
Medication allergies		Yes
Any reproductive health concerns		Yes
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality		Yes
Hepatitis or jaundice		Yes
Tuberculosis		Yes
Infectious disease		Yes
Chronic abdominal pain, vomiting, other GI symptoms		Yes
Comments on medical history:		Yes
Physical examination:		
Vital signs		Yes
Special attention in examination to:		
Skin (rash, erosion, ulcer, pigment, eczema, etc)		Yes
Comments on physical examination:		Yes
Assessment:		Yes
Recommendations:		Yes

PROGRAM DESCRIPTION:

Certifications performed IAW: 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 prior to initial assignment. Unless necessary for local reasons, there is no requirement for periodic examinations. This screening examination may be performed by non-physician personnel. Abnormal responses or findings must be further evaluated by a provider.

REFERENCES:

1. [Manual of Naval Preventive Medicine NAVMED P-5010, Chapter 2.](#)

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2. [COMNAVSURFORINST 6000.1, Section 4 Habitability](#)

REVISED: FEBRUARY 2011

EXAM ELEMENT	Program Frequency		Annual	
	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Major illness or injury	Yes	Annual	No	
Hospitalization or surgery	Yes	Annual	No	
Cancer	Yes	Annual	No	
Back injury	Yes	Annual	No	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No	
Have you ever smoked	Yes	Annual	No	
Do you currently smoke (packs/day)	Yes	Annual	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No	
Current medication use (prescription or OTC)	Yes	Annual	No	
Medication allergies	Yes	Annual	No	
Any reproductive health concerns	Yes	Annual	No	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No	
Hepatitis or jaundice	Yes	Annual	No	
Tuberculosis	Yes	Annual	No	
Infectious disease	Yes	Annual	No	
History of chicken pox	Yes	Annual	No	
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Annual	No	
Mental/emotional illness	Yes	Annual	No	
Depression, difficulty concentrating, excessive anxiety	Yes	Annual	No	
Treatment for drug or alcohol use	Yes	Annual	No	
Comments on medical history:	Yes	Annual	No	
Laboratory:				
Additional lab tests:				
Tuberculosis screen	Yes	Annual	No	
Comments on laboratory results:	Yes	Annual	No	
Physical examination:				
Vital signs	Yes	Annual	No	
Lungs	Yes	Annual	No	
Exposed skin (head, neck, upper extremities)	Yes	Annual	No	
Hair (head lice or nits)	Yes	Annual	No	
Feet (tinea pedis)	Yes	Annual	No	
Other appropriate examination (specify)	Yes	Annual	No	
Comments on physical examination:	Yes	Annual	No	

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EXAM ELEMENT	BASE	PERI	TERM
Qualifications:			
Current immunizations	Yes	Annual	No
Measles/mumps/rubella immune status	Yes	Annual	No
Varicella immune status	Yes	Annual	No
Hepatitis A immune status	Yes	Annual	No
Seasonal Influenza Vaccination	Yes	Annual	No
Assessment:	Yes	Annual	No
Recommendations:	Yes	Annual	No

PROGRAM DESCRIPTION:

The purpose of the exam is to identify potentially communicable conditions. Scope of the exam would depend on results of the 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 to chickenpox (varicella), measles, mumps, rubella is required, and hepatitis A. 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.

REFERENCES:

1. [OPNAVINST 1700.9 \(current edition\), Child and Youth Programs, July 2008](#)
2. [BUMEDINST 6230.15, Immunizations and Chemoprophylaxis, current, 2006](#)
3. [CDC Recommended Adult Immunization Schedule-United States, 2011](#)
5. [Targeted Tuberculin Testing and Interpreting Tuberculin Skin Test Results](#)
6. [CDC Epidemiology & Risk Factors: Head Lice](#)
6. CDC: [State TB Control Offices](#)

REVIESED: MARCH 2011

	Program Frequency
Diver Candidates	Diving Medical Exam (DME) upon initial application for diving duty.
All Designated Divers	Anniversary periodic DME every 5 years up to age 50, then every 2 years up to age 60, then every year.

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.

Isoniazid (INH) is not disqualifying for diving duty after it has been taken for 8 weeks.

The following special studies are required to be listed in the section on required studies on the DD 2807 and 2808 for both diving duty and for special warfare/special operations:

- A. Chest X-ray (PA & lateral)
- B. Electrocardiogram
- C. Audiogram
- D. Dental Class (must be Class 1 or 2)
- E. Visual acuity uncorrected cannot exceed 20/200 only for NSW/SO.
- F. Color vision is waiverable only for diving duty
- G. CBC
- H. UA

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- I. Fasting glucose
- J. Fasting lipid panel
- K. Hepatitis C screening
- L. Neuro exam

Class 1 CSA use of drugs for religious sacraments is disqualifying for submarine, nuclear field, diving, Naval Special Warfare, EOD, Special Operations duty.

Special duty periodic physical exams for diving, submarine, nuclear field, special warfare/special operations may be performed by Navy Independent Duty Corpsmen, physician assistants, nurse practitioners, or physicians. All Special Duty periodic physical exams for diving, submarine, special warfare/special operations will be reviewed and approved by an Undersea Medical Officer. Nuclear field duty physical exams will be reviewed and approved by either an Undersea Medical Officer or Aerospace Medicine Officer. All review signatories for undersea warfare special duty medical exams need to identify their qualification with a UMO or FS designation, i.e. (UMO), (FS).

Intraocular lens implants and depth perception deficits are no longer disqualifying for submarine, nuclear field, diving, special warfare/special operation duty.

Chronic viral illnesses, except those limited to skin, which pose a small but definable risk of contagion to crew or shipmates will be disqualifying.

Zolpidem medication used to induce sleep is not disqualifying for submarine, nuclear field, special warfare/special ops, and diving duty.

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

REFERENCES:

Advance Change Notice (ACN, sent January 23, 2008) to the Manual of the Medical Department Articles 15-102 through 15-106/P-5055/ BUMED Note 6470/13.

REVISED: AUGUST 2011

EXPLOSIVE HANDLER

Program Frequency	By Age			
Up to 60 years	Every 5 years			
Age 60 and above	Annual			
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	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 examination	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 (packs/day)	Yes	By Age	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	By Age	No	
Current medication use (prescription or OTC)	Yes	By Age	No	
Medication allergies	Yes	By Age	No	
Do you take any prescribed or unprescribed stimulants besides caffeine?	Yes	By Age	No	
Do you take any prescribed or unprescribed habit-forming drug?	Yes	By Age	No	
Use of seat belts (always, mostly, some, none)	Yes	By Age	No	
Any reproductive health concerns	Yes	By Age	No	
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	By Age	No	
Headache, dizziness, light-headedness, weakness	Yes	By Age	No	
Nervous stomach or ulcer	Yes	By Age	No	
Head injury	Yes	By Age	No	
Change or loss of vision in either eye	Yes	By Age	No	
Sleep disorder, breathing pauses while sleeping, sleep apnea, loud snoring, daytime sleepiness	Yes	By Age	No	
Loss or change in hearing	Yes	By Age	No	

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EXAM ELEMENT	BASE	PERI	TERM
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
Kidney disease	Yes	By Age	No
Epilepsy (seizure disorder)	Yes	By Age	No
Problems with balance and coordination	Yes	By Age	No
Problems with numbness, tingling, weakness in hands or feet	Yes	By Age	No
Migraine headache	Yes	By Age	No
Diabetes or other endocrine gland disorder	Yes	By Age	No
Mental/emotional illness	Yes	By Age	No
Are you seeing or being treated by a psychiatrist or psychologist	Yes	By Age	No
Depression, diff concentrating, excessive anxiety	Yes	By Age	No
Treatment for drug or alcohol use	Yes	By Age	No
Personality change	Yes	By Age	No
Have you ever been diagnosed with alcoholism?	Yes	By Age	No
Muscle or joint problems	Yes	By Age	No
Permanent defect from illness, disease or injury	Yes	By Age	No
Comments on medical history:	Yes	By Age	No
Laboratory:			
Hematology:			
Hematocrit	*	*	No
Serum chemistry			
Fasting blood glucose	*	*	No
Lipid profile	**	**	No
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Yes	No
Cardiology			
Baseline electrocardiogram	**	**	No
Audiology:			
Audiogram	Yes	By Age	No
Optometry:			
Vision screen (visual acuity)	Yes	By Age	No
Color vision	Yes	By Age	No
Visual fields	Yes	By Age	No
Tonometry over age 40 (if clinically indicated)	Yes	By Age	No
Comments on laboratory results:	Yes	By Age	No
Physical examination:			
Vital signs	Yes	By Age	No

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EXAM ELEMENT	BASE	PERI	TERM
Special attention in examination to:			
Central nervous system	Yes	By Age	No
Peripheral nervous system (strength, sensation, DTR)	Yes	By Age	No
Back & musculoskeletal system	Yes	By Age	No
Extremities	Yes	By Age	No
Cardiovascular system	Yes	By Age	No
Peripheral vascular system (Reynaud's)	Yes	By Age	No
Eyes	Yes	By Age	No
Abdomen	Yes	By Age	No
Genitourinary tract	Yes	By Age	No
Respiratory system	Yes	By Age	No
Throat	Yes	By Age	No
Ears (tympanic membranes)	Yes	By Age	No
Other appropriate examination (specify)	Yes	By Age	No
Comments on physical examination:	Yes	By Age	No
Recommendations:	Yes	By Age	No

* See provider comments

** EKG/Lipid panel should be done one time after age 40.

PROGRAM DESCRIPTION:

Medical examinations of explosive handlers are conducted to ensure those handling explosives are physically qualified. If a complete physical examination is required, then DD 2808 and DD 2807-1 should be used for documentation following the requirements of MANMED.

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

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the program and for periodic review. As always, inclusion of these lab tests is at the local provider's discretion.

Qualified handlers must have the [OPNAV 8020/2](#) (yellow) certification card filled out for them to carry, per NOSSA requirements.

REFERENCES:

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](#)

REVISED: FEBRUARY 2011

EXPLOSIVES VEHICLE OPERATORS

	Program Frequency	By Age
Civilians, up to 60 years		Every 2 years
Civilians, age 60 and above		Annual
Active duty military personnel		Every 5 years

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	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 examination	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 (packs/day)	Yes	By Age	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	By Age	No
Current medication use (prescription or OTC)	Yes	By Age	No
Medication allergies	Yes	By Age	No
Do you take any prescribed or unprescribed stimulants besides caffeine?	Yes	By Age	No
Do you take any prescribed or unprescribed habit-forming drug?	Yes	By Age	No
Use of seat belts (always, mostly, some, none)	Yes	By Age	No
Any reproductive health concerns	Yes	By Age	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	By Age	No
Headache, dizziness, light-headedness, weakness	Yes	By Age	No
Nervous stomach or ulcer	Yes	By Age	No
Head injury	Yes	By Age	No
Change or loss of vision in either eye	Yes	By Age	No
Sleep disorder, breathing pauses while sleeping, sleep apnea, loud snoring, daytime sleepiness	Yes	By Age	No
Loss or change in hearing	Yes	By Age	No

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EXAM ELEMENT	BASE	PERI	TERM
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
Kidney disease	Yes	By Age	No
Epilepsy (seizure disorder)	Yes	By Age	No
Problems with balance and coordination	Yes	By Age	No
Problems with numbness, tingling, weakness in hands or feet	Yes	By Age	No
Migraine headache	Yes	By Age	No
Diabetes or other endocrine gland disorder	Yes	By Age	No
Mental/emotional illness	Yes	By Age	No
Are you seeing or being treated by a psychiatrist or psychologist	Yes	By Age	No
Depression, diff concentrating, excessive anxiety	Yes	By Age	No
Treatment for drug or alcohol use	Yes	By Age	No
Personality change	Yes	By Age	No
Have you ever been diagnosed with alcoholism?	Yes	By Age	No
Muscle or joint problems	Yes	By Age	No
Permanent defect from illness, disease or injury	Yes	By Age	No
Comments on medical history:	Yes	By Age	No
Laboratory:			
Hematology:			
Hematocrit	*	*	No
Serum chemistry			
Fasting blood glucose	*	*	No
Lipid profile	**	**	No
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Yes	No
Cardiology			
Baseline electrocardiogram	**	**	No
Audiology:			
Audiogram	Yes	By Age	No
Optometry:			
Vision screen (visual acuity)	Yes	By Age	No
Color vision	Yes	By Age	No
Visual fields	Yes	By Age	No
Tonometry over age 40 (if clinically indicated)	Yes	By Age	No
Comments on laboratory results:	Yes	By Age	No
Physical examination:			
Vital signs	Yes	By Age	No

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EXAM ELEMENT	BASE	PERI	TERM
Special attention in examination to:			
Central nervous system	Yes	By Age	No
Peripheral nervous system (strength, sensation, DTR)	Yes	By Age	No
Back & musculoskeletal system	Yes	By Age	No
Extremities	Yes	By Age	No
Cardiovascular system	Yes	By Age	No
Peripheral vascular system (Reynaud's)	Yes	By Age	No
Eyes	Yes	By Age	No
Abdomen	Yes	By Age	No
Genitourinary tract	Yes	By Age	No
Respiratory system	Yes	By Age	No
Mouth and oropharynx	Yes	By Age	No
Ears (tympanic membranes)	Yes	By Age	No
Other appropriate examination (specify)	Yes	By Age	No
Comments on physical examination:	Yes	By Age	No
Is surveillance/PPE consistent with exposures	Yes	By Age	No
Are any abnormalities related to exposures/occupations	Yes	By Age	No
Recommendations:	Yes	By Age	No

* See Provider Comments

** EKG/Lipid panel should be done once after age 40.

PROGRAM DESCRIPTION:

The purpose of this program, as defined in NAVMED P117 Chapter 15-107, is that medical examinations of explosive and Hazardous Material Vehicle Operators are conducted to ensure employees who handle explosives or operate vehicles or machinery which transport explosive or other hazardous material are physically qualified, equal to the requirements for DOT commercial vehicle drivers.

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.

Only licensed medical providers can certify this exam.

PROVIDER COMMENTS:

Civilian personnel must meet the general standards for employment as provided by the Office of Personnel Management under reference (7), and the standards for rejection listed in reference (2). Civilian contract carriers need only be qualified per Title 49, CFR, part 391.

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Hematocrit and fasting blood glucose are not recommended as part of this exam. They were required elements in prior versions of the Matrix Manual. Medical research support for this type of screening on the exam is not strong. 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.

Qualified vehicle operators must have [OPNAV 8020/6](#) certification card filled out for them to carry, per NOSSA requirements

REFERENCES:

1. 49 CFR, part 391;
2. [Manual of the Medical Department, U.S. Navy, NAVMED P-117, Current. Chapter 15-107](#)
3. [NAVFAC P-300, Management of Civil Engineering Support Equipment, 2003](#)
4. [NAVSEA OP 5 VOLUME 1, Ammunition and Explosives Safety Ashore](#)
5. [MCO 11240.66 \(series\), Standard Licensing Procedures for Operators of Military Motor Vehicles](#)
6. [TM 11240-15/3 Motor Vehicle Licensing Official's Handbook](#)
7. [5 CFR 930.108](#), OPM Periodic Medical Examination
8. Hartenbaum, N. The DOT Medical Examination, OEM Press, Boston, MA 2010.

REVISED: MAY 2011

EXAM ELEMENT	BASE	PERI	TERM
Medical history:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	***
Has anything about your health status changed since your last examination	Yes	Annual	***
Have any medications changed since your last examination	Yes	Annual	***
Major illness or injury	Yes	Annual	***
Hospitalization or surgery	Yes	Annual	***
Cancer	Yes	Annual	***
Back injury	Yes	Annual	***
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	***
Have you ever smoked	Yes	Annual	***
Do you currently smoke (packs/day)	Yes	Annual	***
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	***
Current medication use (prescription or OTC)	Yes	Annual	***
Medication allergies	Yes	Annual	***
Use of seat belts (always, mostly, some, none)	Yes	Annual	***
Any reproductive health concerns	Yes	Annual	***
Blood diseases (anemia, abnormal bleeding or clotting, etc)	Yes	Annual	***
Allergies (asthma, hay fever, eczema)	Yes	Annual	***
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	***
Latex allergy or sensitivity	Yes	Annual	***
Cold injury (frostbite, chill, trench foot, hypothermia)	Yes	Annual	***
Heat injury (cramps, exhaustion, stroke)	Yes	Annual	***
Difficulty acclimating to heat	Yes	Annual	***
Peripheral vascular disease	Yes	Annual	***
Hepatitis or jaundice	Yes	Annual	***
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual	***
Tuberculosis	Yes	Annual	***
Head injury	Yes	Annual	***
Headache, dizziness, light-headedness, weakness	Yes	Annual	***
Inability to smell	Yes	Annual	***

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EXAM ELEMENT	BASE	PERI	TERM
Change or loss of vision in either eye	Yes	Annual	***
Use of eyeglasses	Yes	Annual	***
Use of contact lens	Yes	Annual	***
History of color blindness	Yes	Annual	***
Loss or change in hearing	Yes	Annual	***
Ringing in the ear (tinnitus)	Yes	Annual	***
Any injury to your ears (including ruptured ear drum)	Yes	Annual	***
Problem hearing conversations with people	Yes	Annual	***
Wear a hearing aid	Yes	Annual	***
Recreational/non-occupational exposure to loud noise	Yes	Annual	***
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	***
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	***
Shortness of breath	Yes	Annual	***
Sleep disorder, breathing pauses while sleeping, sleep apnea, loud snoring, daytime sleepiness	Yes	Annual	***
Frequent pain or tightness in chest	Yes	Annual	***
Wheezing	Yes	Annual	***
Chronic abdominal pain, vomiting, other GI symptoms	Yes	Annual	***
Current pregnancy (females only)	Yes	Annual	***
Infertility or miscarriage (self or spouse)	Yes	Annual	***
Epilepsy (seizure disorder)	Yes	Annual	***
Problems with balance & coordination	Yes	Annual	***
Diabetes or other endocrine gland disorder	Yes	Annual	***
Numbness, tingling, weakness in hands or feet	Yes	Annual	***
Swelling in legs or feet (not caused by walking)	Yes	Annual	***
Thyroid disease (heat or cold intolerance)	Yes	Annual	***
Mental/emotional illness	Yes	Annual	***
Depression, diff concentrating, excessive anxiety	Yes	Annual	***
Personality change	Yes	Annual	***
Muscle or joint problems	Yes	Annual	***
Work history of:			
Exposure to potentially infectious body fluids	Yes	Annual	***
Prior respirator use; any problems?	Yes	Annual	***
Exposure to skin irritants	Yes	Annual	***
Exposure to respiratory irritants	Yes	Annual	***
Exposure to carcinogens	Yes	Annual	***
Exposure to excessive noise	Yes	Annual	***
Comments on medical history:	Yes	Annual	***

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	EXAM ELEMENT	BASE	PERI	TERM
Laboratory:				
	Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC, PLT)	Yes	Annual	***
	Complete Metabolic Panel (which includes AST, ALT, Alk phos, Total Bili, total protein, albumin, GGT, BUN, creat, FBS):	Yes	Annual	***
	Lipid panel	Yes	*	No
	Urinalysis with microscopic	Yes	Annual	***
	HIV	Yes	No	No
Additional tests:				
	EKG	Yes	*	No
	Audiogram	Yes	Annual	***
	CXR – PA + Lat	Yes	**	**
	Spirometry (FVC, FEV1, FEV1/FVC)	Yes	Annual	***
	Vision screen (visual acuity)	Yes	Annual	***
	Color vision	Yes	Annual	***
	Peripheral vision	Yes	Annual	***
	Comments on laboratory results:	Yes	Annual	***
Physical examination:				
	Vital signs	Yes	Annual	***
	Central nervous system	Yes	Annual	***
	Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	***
	Back & musculoskeletal system	Yes	Annual	***
	Cardiovascular system	Yes	Annual	***
	Eyes	Yes	Annual	***
	Genitourinary tract	Yes	Annual	***
	Liver	Yes	Annual	***
	Respiratory system	Yes	Annual	***
	Ears (tympanic membranes)	Yes	Annual	***
	Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	***
	Thyroid	Yes	Annual	***
	Metabolic disturbance (fever, tachycardia)	Yes	Annual	***
	Overall physical fitness	Yes	Annual	***
	Other appropriate examination (specify)	Yes	Annual	***
	Comments on physical examination:	Yes	Annual	***
Special requirements:				
	Current immunizations:	Yes	Annual	No
	Hep B vaccine series complete or immunity documented	Yes	Annual	No
	Current Td?	Yes	Annual	No
	Annual TST	Yes	Annual	No
Special notations:				
	Physician's/provider's written opinion letters required	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Assess the examinee's knowledge of universal blood/body fluid precautions.	Yes	Annual	No
Hearing conservation:			
Has baseline been reestablished due to PTS?	Yes	Annual	No
High frequency average exceeds 45dB bilaterally?	Yes	Annual	No
Ear plugs fitted and issued?	Yes	Annual	No
Refer to audiologist or physician?	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	***
Are any abnormalities related to exposures/occupations	Yes	Annual	***
Recommendations:	Yes	Annual	***

* Lipid panel should be done every 5 years until age 40, and then annually. EKG should be done at 35 and 40, then annually after 40.

**Chest x-ray should be done at baseline and at any other time at the discretion of the provider.

***Workers who have not had an examination within 12 months should have a termination examination.

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 “Annual Health Screen” (#722) for Firefighters has been deleted.

PROVIDER COMMENTS:

Program 707 provides guidelines for preplacement and periodic medical examinations, and it now includes the required elements for the additional programs listed in the Program Description.. 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.

Reference (3) contains conditions, by categories, which are considered medically disqualifying. NOTE: The guidance in 5 CFR Part 339, “Medical Qualification Determinations”, must be consulted on all civilian employees in whom there is a question of worker fitness. 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.

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.

Hearing tests are recorded on DD Form 2215 and DD Form 2216.

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REFERENCE:

1. [DODINST 6055.05 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 Firefighters
2. [DODINST 6055.06; DoD Fire and Emergency Services \(F&ES\) Program](#)
3. NFPA Standard on Medical Requirements for Fire Fighters, (NFPA 1582), 2007 Edition.
For purchase: [NFPA 1582 2007, Comprehensive Occupational Medical Program for Fire Departments](#)
4. [Qualification Standards, Fire Protection and Prevention Series, GS-081](#)
5. [OSHA Standard 29 CFR 1910.1030, Occupational Exposure to Bloodborne Pathogens.](#)
6. [29 CFR 1910.120, Hazardous Waste Operations and Emergency Response](#)
7. [29 CFR 1910.95, Occupational Noise Exposure](#)
8. [29 CFR 1910.134, Respiratory Protection](#)
9. [5 CFR Part 339, Medical Qualification Determinations](#)
10. [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
11. [NIOSH 85-115-a, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, Chapter 5](#)
12. American National Standard for Respiratory Protection-Respirator Use, Physical Qualifications for Personnel; ANSI/AIHA Z88.6-2006
For purchase: <http://www.aiha.org/insideaiha/standards/Pages/Z88.aspx>

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EXAM ELEMENT	Program Frequency		Preplacement	
	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	No	No	
Has anything about your health status changed since your last examination	Yes	No	No	
Have any medications changes since your last examination	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 (packs/day)	Yes	No	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	No	No	
Current medication use (prescription or OTC)	Yes	No	No	
Medication allergies	Yes	No	No	
Any reproductive health concerns	Yes	No	No	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	No	No	
Hepatitis or jaundice	Yes	No	No	
Tuberculosis	Yes	No	No	
Infectious disease	Yes	No	No	
Chronic abdominal pain, vomiting, other GI symptoms	Yes	No	No	
Comments on medical history:	Yes	No	No	
Laboratory:				
Additional lab tests:				
Appropriate by the physician	Yes	No	No	
Comments on laboratory results:	Yes	No	No	
Physical examination:				
Vital signs	Yes	No	No	
Special attention in examination to:				
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	No	No	
Other appropriate examination (specify)	Yes	No	No	
Comments on physical examination:	Yes	No	No	

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	EXAM ELEMENT	BASE	PERI	TERM
Assessment:		Yes	No	No
Recommendations:		Yes	No	No

PROGRAM DESCRIPTION:

This program is required for preplacement exam. There is no requirement for a periodic examination.

Certifications performed IAW NAVMED P-5010.

The choice of additional examination elements and laboratory tests should be determined locally, based on public health regulations, if applicable. Individual considerations such as communicable disease risk in the community and medical and social history of the employee may affect the content of the exam. The focus of the exam is identification of potentially communicable conditions in order to avoid food-borne disease outbreaks.

PROVIDER COMMENTS:

Immunity to hepatitis A is required at the discretion of local authorities, per Reference (1). This requirement can be met by documentation of physician-diagnosed illness, serologic evidence of immunity, or documented immunization

REFERENCES:

1. [BUMEDINST 6230.15, Immunizations and Chemoprophylaxis, current, 2006](#)
2. [Manual of Naval Preventive Medicine NAVMED P-5010](#)

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FORKLIFT OPERATOR

Program Frequency	By Age
Up to 60 years	Every 5 years
Age 60 and above	Annual

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	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 examination	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 (packs/day)	Yes	By Age	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	By Age	No
Current medication use (prescription or OTC)	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
Loss or change 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 (seizure disorder)	Yes	By Age	No
Problems with balance and coordination	Yes	By Age	No
Problems with numbness, tingling, weakness in hands or feet	Yes	By Age	No
Diabetes or other endocrine gland disorder	Yes	By Age	No
Mental/emotional illness	Yes	By Age	No
Depression, diff concentrating, excessive anxiety	Yes	By Age	No

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EXAM ELEMENT	BASE	PERI	TERM
Personality change	Yes	By Age	No
Comments on medical history:	Yes	By Age	No
Laboratory:			
Serum chemistry:		By Age	
Baseline lipid profile	Yes	By Age	No
Additional lab tests:			
EKG/lipid profile done once past age 40?	Yes	*	No
Cardiology:			
Baseline electrocardiogram	Yes	No	No
Audiology:			
Audiogram	Yes	By Age	No
Optometry			
Vision screen (visual acuity)	Yes	By Age	No
Color vision	Yes	By Age	No
Depth perception	Yes	By Age	No
Visual fields	Yes	By Age	No
Comments on laboratory results:	Yes	By Age	No
Physical examination:			
Required when positive history questions are obtained:			
Vital signs	Yes	By Age	No
Special attention in examination to:		By Age	
Central nervous system	Yes	By Age	No
Peripheral nervous system (strength, sensation, DTR)	Yes	By Age	No
Back & musculoskeletal system	Yes	By Age	No
Cardiovascular system	Yes	By Age	No
Eyes	Yes	By Age	No
Ears (tympanic membranes)	Yes	By Age	No
Other appropriate examination (specify)	Yes	By Age	No
Comments on physical examination:	Yes	By Age	No
Is surveillance/PPE consistent with exposures	Yes	By Age	No
Are any abnormalities related to exposures/occupations	Yes	By Age	No
Recommendations:	Yes	By Age	No

*EKG/Lipid panel should be done one time after age 40.

PROGRAM DESCRIPTION:

PROVIDER COMMENTS:

Civilian workers who operate MHE for handling ammunition and explosives must be examined under Program #721, Explosive Handler.

Reference (1) Chapter 4 outlines visual and hearing requirements for MHE operation. It notes visual acuity should be correctable to 20/30 in each eye, and that an individual whose visual acuity is 20/40, or poorer will require the examiner to decide whether or not the

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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 used for CDL drivers.

REFERENCES:

1. [DOD 4145.19-R-1, Storage and Materials Handling](#)
2. NAVSUP Pub 538, Management of Materials Handling Equipment (MHE) and Shipboard Mobile Support Equipment (SMSE)
3. [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")

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FREON (HALOALKANE) WORKERS

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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-difluoroethane		75-68-3
1,2-dibromotetrafluoroethane		124-73-2
Dichlorodifluoromethane		75-71-8
Additional substances		

Program Frequency

Annual

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	Annual	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	No
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	No
Shortness of breath	Yes	Annual	No
Comments on medical history:	Yes	Annual	No
Physical examination			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Cardiovascular system	Yes	Annual	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Is surveillance/personal protective equipment consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	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).

REFERENCES:

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: http://toxnet.nlm.nih.gov](http://toxnet.nlm.nih.gov)
4. [EPA: Chemicals in the Environment: Freon-113](#)

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EXAM ELEMENT	Program Frequency	Annual		
	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual		Yes
Has anything about your health status changed since your last examination	Yes	Annual		Yes
Have any medications changed since your last examination	Yes	Annual		Yes
Major illness or injury	Yes	Annual		Yes
Hospitalization or surgery	Yes	Annual		Yes
Cancer	Yes	Annual		Yes
Back injury	Yes	Annual		Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual		Yes
Have you ever smoked	Yes	Annual		Yes
Do you currently smoke (packs/day)	Yes	Annual		Yes
Heart disease, high blood pressure, or stroke	Yes	Annual		Yes
Current medication use (prescription or over the counter)	Yes	Annual		Yes
Medication allergies	Yes	Annual		Yes
Any reproductive health concerns	Yes	Annual		Yes
Allergies (asthma, hay fever, eczema)	Yes	Annual		Yes
Skin disease	Yes	Annual		Yes
Heat injury (cramps, exhaustion, stroke)	Yes	Annual		Yes
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	Annual		Yes
Headache, dizziness, light-headedness, weakness	Yes	Annual		Yes
Cold injury(frostbite, chill, trench ft, hypothermia)	Yes	Annual		Yes
Change or loss of vision	Yes	Annual		Yes
Loss or change in hearing	Yes	Annual		Yes
Chest pain, angina, heart attack	Yes	Annual		Yes
Repeated episodes of loss of or near loss of consciousness	Yes	Annual		Yes
Shortness of breath	Yes	Annual		Yes
Current pregnancy (females only)	Yes	Annual		Yes
Epilepsy (seizure disorder)	Yes	Annual		Yes
Problems with balance and coordination	Yes	Annual		Yes
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual		Yes

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EXAM ELEMENT	BASE	PERI	TERM
Thyroid disease (heat or cold intolerance)	Yes	Annual	Yes
Mental/emotional illness	Yes	Annual	Yes
Work history of:			
Exposure to skin irritants	Yes	Annual	Yes
Exposure to respiratory irritants	Yes	Annual	Yes
Exposure to carcinogens	Yes	Annual	Yes
Do you have any symptoms which you think may be related to hazards you are exposed to at work?	Yes	Annual	Yes
Comments on medical history:	Yes	Annual	Yes
Laboratory			
Hematology:			
Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC, PLT)	Yes	Annual	Yes
Differential white blood cell count	Yes	Annual	Yes
Serum chemistry:			
Liver profile to include:			
AST , ALT, Total Bilirubin, alkaline phosphatase, total protein, albumin, GGT	Yes	Annual	Yes
BUN and creatinine	Yes	Annual	Yes
Additional lab tests:			
Urinalysis with microscopic	Yes	Annual	Yes
EKG/lipid profile done once past age 40?	Yes	**	Yes
Cardiology:			
Baseline electrocardiogram	Yes	No	No
Audiology:			
Audiogram	Yes	Annual	Yes
Radiology:			
Chest x-ray	Yes	No	Yes
Spirometry:			
Spirometry (FEV1, FVC, FEV1/FVC)	Yes	Annual	Yes
Optometry:			
Vision screen (visual acuity)	Yes	Annual	Yes
Color vision	Yes	Annual	Yes
Comments on laboratory results:	Yes	Annual	Yes
Physical examination:			
Vital signs	Yes	Annual	Yes
Special attention in examination to:			
Central nervous system	Yes	Annual	Yes
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	Yes
Back & musculoskeletal system	Yes	Annual	Yes
Cardiovascular system	Yes	Annual	Yes
Eyes	Yes	Annual	Yes
Respiratory system	Yes	Annual	Yes

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EXAM ELEMENT	BASE	PERI	TERM
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	Annual	Yes
Thyroid	Yes	Annual	Yes
Metabolic disturbance (fever, tachycardia)	Yes	Annual	Yes
Obesity	Yes	Annual	Yes
Overall physical fitness	Yes	Annual	Yes
Other appropriate examination (specify)	Yes	Annual	Yes
Comments on physical examination:	Yes	Annual	Yes
Special notations:			
Physician's/provider's written opinion required	Yes	Annual	Yes
Is surveillance/PPE consistent with exposures	Yes	Annual	Yes
Are any abnormalities related to exposures/occupations	Yes	Annual	Yes
Recommendations:	Yes	Annual	Yes

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

**EKG/Lipid panel should be done once after age 40.

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

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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).

REFERENCES:

1. 29 CFR 1910.120
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9765
2. NIOSH Pub No. 85-115, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities
<http://www.cdc.gov/niosh/pdfs/85-115-a.pdf>
3. [DoD 6055.05M, May 2, 2007, Table C2.T16, HAZWOPER](http://www.dtic.mil/whs/directives/corres/pdf/605505mp.pdf)
<http://www.dtic.mil/whs/directives/corres/pdf/605505mp.pdf>

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EXAM ELEMENT	Program Frequency		Baseline
	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	No	**
Has anything about your health status changed since your last examination	Yes	No	**
Have any medications changed since your last examination	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 (packs/day)	Yes	No	**
Heart disease, high blood pressure, stroke or circulation problems	Yes	No	**
Current medication use (prescription or OTC)	Yes	No	**
Medication allergies	Yes	No	**
Any reproductive health concerns	Yes	No	**
Allergies (asthma, hay fever, eczema)	Yes	No	**
Have you ever been evaluated for latex allergy	Yes	No	**
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	No	**
Recurrent skin rash	Yes	No	**
Tuberculosis	Yes	No	**
Hepatitis or jaundice	Yes	No	**
History of chicken pox	Yes	No	**
Current pregnancy (self or spouse)	Yes	No	**
Infertility or miscarriage (self or spouse)	Yes	No	**
Adverse reaction to eating any vegetable or fruit	Yes	No	**
Adverse reaction to any rubber/latex containing product	Yes	No	**
Multiple operations or chronic medical instrumentation	Yes	No	**
Unexplained hives or symptoms of shock	Yes	No	**
Itchy eyes, runny nose, respiratory symptoms when using latex gloves	Yes	No	**

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EXAM ELEMENT	BASE	PERI	TERM
Work history of:			
Exposure to chemotherapeutic/antineoplastic agents	Yes	No	**
Exposure to aerosolized antibiotics/antivirals	Yes	No	**
Exposure to anesthetic gases	Yes	No	**
Exposure to ethylene oxide	Yes	No	**
Exposure to ionizing radiation	Yes	No	**
Exposure to non-ionizing radiation (laser, infra-red, microwave – except ovens, ultraviolet)	Yes	No	**
Exposure to potentially infectious body fluids	Yes	No	**
Exposure to formaldehyde	Yes	No	**
Regular contact with latex gloves or other rubber products	Yes	No	**
Comments on medical history:	Yes	No	**
Laboratory:			
Additional lab tests:			
Tuberculosis screen	Yes	***	No
Physical examination:			
Vital signs	Yes	No	**
Other appropriate examination (specify)	Yes	No	**
Comments on physical examination:	Yes	No	**
Qualifications:			
Current immunizations	Yes	*	**
Measles/mumps/rubella immune status	Yes	No	**
Varicella immune status	Yes	No	**
Is hepatitis B vaccine series complete or prior infection documented?	Yes	No	**
Tetanus/Tdap	Yes	No	**
Seasonal influenza immunization	Yes	Yes	**
Is surveillance/PPE consistent with exposures	Yes	No	**
Are any abnormalities related to exposures/occupations	Yes	No	**
Recommendations:	Yes	No	**

* TST requirements and/or immunizations review drive the need to bring HCW to the clinic. Otherwise, there is no requirement for periodic evaluation.

** A termination examination provides an opportunity to review the medical record and document any medical conditions and concerns.

*** The periodicity of TB screening must be established locally. See Provider Notes.

PROGRAM DESCRIPTION:

This program provides for a baseline review of immunization status and history.

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A screening form for latex allergy is available in the Navy and Marine Corps Public Health Center's [Occupational Medicine Field Operations Manual](#).

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). Per reference 8, personal history of varicella disease is acceptable as evidence of immunity only if serologic screening is not feasible.
- 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 required.

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 (f) of BUMEDINST 6224.8A follows the 2005 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. It falls to the clinics in these states to make sure that the contract provisions of these workers are in

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compliance with the state law and that the workers are up to date with the screening and/or testing.

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.

REFERENCES:

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, supported by the Healthcare Infection Control Practices Advisory Committee (HICPAC), for Use of Tdap Among Health-Care Personnel; MMWR: December 15, 2006 / 55(RR17);1-33.
8. [BUMEDINST 6230.15 \(series\), Immunizations and Chemoprophylaxis](#)
9. [DODI 6055.05-M](#), Table C2.T14, Bloodborne Pathogens

REVISED: MARCH 2011

MOTOR VEHICLE OPERATORS (DOT)

706

OCCUPATION(S) IN THIS PROGRAM:

DOT vehicle operators

Program Frequency

2 years

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	2 yrs	No
Has anything about your health status changed since your last examination	Yes	2 yrs	No
Have any medications changed since your last examination	Yes	2 yrs	No
Major illness or injury	Yes	2 yrs	No
Hospitalization or surgery	Yes	2 yrs	No
Cancer	Yes	2 yrs	No
Back injury	Yes	2 yrs	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	2 yrs	No
Have you ever smoked	Yes	2 yrs	No
Do you currently smoke (packs/day)	Yes	2 yrs	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	2 yrs	No
Current medication use (prescription or OTC)	Yes	2 yrs	No
Do you take any prescribed or unprescribed stimulants besides caffeine?	Yes	2 yrs	No
Do you take any prescribed or unprescribed habit-forming drug?	Yes	2 yrs	No
Medication allergies	Yes	2 yrs	No
Any reproductive health concerns	Yes	2 yrs	No
Use of seat belts (always, mostly, some, none)	Yes	2 yrs	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonia)	Yes	2 yrs	No
Headache, dizziness, light-headedness, weakness	Yes	2 yrs	No
Nervous stomach or ulcer	Yes	2 yrs	No
Head injury	Yes	2 yrs	No
Sleep disorder, breathing pauses while sleeping, sleep apnea, loud snoring, daytime sleepiness	Yes	2 yrs	No
Change or loss of vision in either eye	Yes	2 yrs	No
Loss or change in hearing	Yes	2 yrs	No
Chest pain, angina, heart attack, congestive heart failure irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	2 yrs	No

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EXAM ELEMENT	BASE	PERI	TERM
Repeated episodes of fainting, loss of or near loss of consciousness	Yes	2 yrs	No
Kidney disease	Yes	2 yrs	No
Epilepsy (seizure disorder)	Yes	2 yrs	No
Problems with balance and coordination	Yes	2 yrs	No
Problems with numbness, tingling, weakness in hands or feet	Yes	2 yrs	No
Migraine headache	Yes	2 yrs	No
Diabetes or other endocrine disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	2 yrs	No
Mental/emotional illness	Yes	2 yrs	No
Are you seeing or being treated by a psychiatrist, psychologist or counselor	Yes	2 yrs	No
Depression, diff concentrating, excessive anxiety	Yes	2 yrs	No
Treatment for drug or alcohol use	Yes	2 yrs	No
Have you ever been diagnosed with alcoholism?	Yes	2 yrs	No
Personality change	Yes	2 yrs	No
Muscle or joint problems, rheumatism, or arthritis	Yes	2 yrs	No
Permanent defect from illness, disease or injury	Yes	2 yrs	No
Comments on medical history:	Yes	2 yrs	No
Laboratory:			
Serum chemistry:			
Baseline lipid profile	Yes	No	No
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	2 yrs	No
Additional lab tests:			
Lipid profile done one time after age 40?	No	*	No
Cardiology:			
Electrocardiogram (baseline one time after age 40)	Yes	*	No
Audiology:			
Audiogram	Yes	2 yrs	No
Optometry:			
Vision screen (visual acuity)	Yes	2 yrs	No
Color vision	Yes	2 yrs	No
Visual fields	Yes	2 yrs	No
Comments on laboratory results:	Yes	2 yrs	No
Physical examination:			
Vital signs	Yes	2 yrs	No
Central nervous system	Yes	2 yrs	No
Peripheral nervous system (strength, sensation, DTR)	Yes	2 yrs	No
Back & musculoskeletal system	Yes	2 yrs	No
Extremities	Yes	2 yrs	No
Cardiovascular system	Yes	2 yrs	No
Peripheral vascular system (Reynaud's)	Yes	2 yrs	No

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EXAM ELEMENT	BASE	PERI	TERM
Eyes	Yes	2 yrs	No
Abdomen	Yes	2 yrs	No
Genitourinary tract	Yes	2 yrs	No
Respiratory system	Yes	2 yrs	No
Mouth and oropharynx	Yes	2 yrs	No
Ears (tympanic membranes)	Yes	2 yrs	No
Other appropriate examination (specify)	Yes	2 yrs	No
Comments on physical examination:	Yes	2 yrs	No
Recommendations:	Yes	2 yrs	No

*EKG/Lipid panel should be done one time after age 40.

PROGRAM DESCRIPTION:

Physical qualifications are contained in Federal Motor Carrier Safety (FMCS) Regulations, U. S. Department of Transportation, Federal Highway Administration, 49 CFR 391.41-49.

A handbook containing the regulations can be ordered from: American Trucking Association
2200 Mill road, Alexandria, VA. 22314-4677, 1-800-ATA-LINE.

49 CFR standards apply to and are required for all personnel (civilian and active duty) to receive a Certification of Medical Examination to operate over the road or CDL endorsement required vehicles.

Active duty military personnel are exempt from the standards laid down for commercial drivers' licenses outlined in 49 CFR 383.3(c). However, if the military member is being examined with the intent of issuing a medical clearance for a valid commercial driver's license that would be recognized by the State and the DOT, then the physical qualifications and the periodicity of the exam apply.

Explosive Vehicle Operators (civilian and active duty) are examined with these same standards under program 720.

PROVIDER COMMENTS:

Neither the physical exam form nor the FMCSA driver's certificate must be used exactly as published. Forms and certificates used must be "substantially in accordance" with the published versions. However, the published form is available at the [FMCSA website](#).

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MEDICAL EXAMINER'S CERTIFICATE		
I certify that I have examined _____ in accordance with the Federal Motor Carrier Safety Regulations (49 CFR 391.41-391.49) and with knowledge of the driving duties, I find this person is qualified; and, if applicable, only when:		
<input type="checkbox"/> wearing corrective lenses	<input type="checkbox"/> driving within an exempt intracity zone (49 CFR 391.62)	
<input type="checkbox"/> wearing hearing aid	<input type="checkbox"/> accompanied by a Skill Performance Evaluation Certificate (SPE)	
<input type="checkbox"/> accompanied by a _____ waiver/exemption	<input type="checkbox"/> Qualified by operation of 49 CFR 391.64	
The information I have provided regarding this physical examination is true and complete. A complete examination form with any attachment embodies my findings completely and correctly, and is on file in my office.		
SIGNATURE OF MEDICAL EXAMINER	TELEPHONE	DATE
MEDICAL EXAMINER'S NAME (PRINT)	<input type="checkbox"/> MD <input type="checkbox"/> DO <input type="checkbox"/> Chiropractor	<input type="checkbox"/> Advanced Practice Nurse
MEDICAL EXAMINER'S LICENSE OR CERTIFICATE NO. / ISSUING STATE		
SIGNATURE OF DRIVER	DRIVER'S LICENSE NO.	STATE
ADDRESS OF DRIVER		
MEDICAL CERTIFICATE EXPIRATION DATE		

REFERENCES:

1. [U. S. Department of Transportation, 49 CFR 391.41-49](#)
2. Hartenbaum, N. The DOT Medical Examination, OEM Press, Boston, MA 2010.
3. [Federal Motor Carrier Safety Administration FAQs](#).

REVIEWED: JANUARY 2011

MOTOR VEHICLE OPERATOR (OTHER THAN DOT)

	Program Frequency		Every 4 years	
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	4 yrs	No	
Has anything about your health status changed since your last examination	Yes	4 yrs	No	
Have any medications changed since your last examination	Yes	4 yrs	No	
Major illness or injury	Yes	4 yrs	No	
Hospitalization or surgery	Yes	4 yrs	No	
Cancer	Yes	4 yrs	No	
Back injury	Yes	4 yrs	No	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	4 yrs	No	
Have you ever smoked	Yes	4 yrs	No	
Do you currently smoke (packs/day)	Yes	4 yrs	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	4 yrs	No	
Current medication use (prescription or OTC)	Yes	4 yrs	No	
Medication allergies	Yes	4 yrs	No	
Use of seat belts (always, mostly, some, none)	Yes	4 yrs	No	
Any reproductive health concerns	Yes	4 yrs	No	
Headache, dizziness, light-headedness, weakness	Yes	4 yrs	No	
Head injury	Yes	4 yrs	No	
Change or loss of vision in either eye	Yes	4 yrs	No	
Loss or change in hearing	Yes	4 yrs	No	
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	4 yrs	No	
Repeated episodes of loss of or near loss of consciousness	Yes	4 yrs	No	
Epilepsy (seizure disorder)	Yes	4 yrs	No	
Problems with balance and coordination	Yes	4 yrs	No	
Problems with numbness, tingling, weakness in hands or feet	Yes	4 yrs	No	
Diabetes or other endocrine gland disorder	Yes	4 yrs	No	
Mental/emotional illness	Yes	4 yrs	No	
Depression, diff concentrating, excessive anxiety	Yes	4 yrs	No	
Personality change	Yes	4 yrs	No	
Comments on medical history:	Yes	4 yrs	No	
Audiology:				
Audiogram	Yes	4 yrs	No	

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EXAM ELEMENT	BASE	PERI	TERM
Optometry:			
Vision screen (visual acuity)	Yes	4 yrs	No
Visual fields	**	**	No
Color vision	**	**	No
Comments on laboratory results:	Yes	4 yrs	No
Physical examination:			
Vital signs	Yes	4 yrs	No
Central nervous system	Yes	4 yrs	No
Peripheral nervous system (strength, sensation, DTR)	Yes	4 yrs	No
Psychiatric (especially emotional stability)***	Yes	4 yrs	No
Back & musculoskeletal system	Yes	4 yrs	No
Cardiovascular system	Yes	4 yrs	No
Eyes	Yes	4 yrs	No
Ears (tympanic membranes)	Yes	4 yrs	No
Other appropriate examination (specify)	Yes	4 yrs	No
Comments on physical examination:	Yes	4 yrs	No
Recommendations:	Yes	4 yrs	No

** 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?

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

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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.

REFERENCES:

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](#)

REVISED: FEBRUARY 2011

NAVAL CRIMINAL INVESTIGATIVE SERVICE

Program Frequency	Up to 37 years	Every 3 yrs
	Age 38 to 40 years	Every 2 yrs
	Age 41 and over	Annual

BASE PERI TERM

EXAM ELEMENT

Medical history: have you ever had:

Personal history of:

Is your work exposure history current (OPNAV 5100/15)	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 examination	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 (packs/day)	Yes	By Age	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	By Age	No
Current medication use (prescription or OTC)	Yes	By Age	No
Medication allergies	Yes	By Age	No
Any reproductive health concerns	Yes	By Age	No
Heart disease, high blood pressure or stroke	Yes	By Age	No
Tuberculosis	Yes	By Age	No
Communicable disease	Yes	By Age	No
Nervous stomach or ulcer	Yes	By Age	No
Loss or change in hearing	Yes	By Age	No
Epilepsy (seizure disorder)	Yes	By Age	No
Mental/emotional illness	Yes	By Age	No
Permanent defect from illness, disease or injury	Yes	No	No

Comments on medical history: Yes By Age No

Laboratory:

Hematology:

Complete blood count (HGB, HCT, WBC, MCV, MCH, MCHC)	Yes	By Age	No
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Serum chemistry:

Basic profile to include: BUN, creatinine, uric acid, calcium,	Yes	By Age	No
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Total Bilirubin, alk. phos, AST			
Liver profile to include:			
AST, Total Bilirubin, alk. Phos	Yes	By Age	No
Cholesterol	Yes	By Age	No
Triglycerides	Yes	By Age	No
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	By Age	No
Cardiology:			
Electrocardiogram	Yes	***	No
Audiology:			
Audiogram	Yes	By Age	No
Radiology			
Chest x-ray (pa)	Yes	No	No
Optometry:			
Vision screen (visual acuity)	Yes	By Age	No
Color vision	Yes	By Age	No
Depth Perception	Yes	By Age	No
Comments on laboratory results:	Yes	By Age	No
Physical examination:			
Vital signs	Yes	By Age	No
Other appropriate examination (specify)	Yes	By Age	No
Comments on physical examination:	Yes	By Age	No
Is surveillance/PPE consistent with exposures	Yes	By Age	No
Are any abnormalities related to exposures/occupations	Yes	By Age	No
Recommendations:	Yes	By Age	No

***The EKG is given every 5 years beginning at age 35.

PROGRAM DESCRIPTION:

PROVIDER COMMENTS:

Certifications performed IAW NCIS manual for administration.

Review of functional/environmental requirements of SF 78.

OSHA Regulation 1910.1030 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.

Weight certification is required for NCIS agents. Weight certification is accomplished by completing the weight range chart (addendum 2, NCIS-1, Chapter 13) provided with the SF 78 at each examination and annually.

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PC Matrix 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 preplacement examinations.

REFERENCES:

1. NCIS Administrative Manual, NCIS-1, Chapter 13.
2. [OSHA Standard 1910.1030.](#)
3. [5 CFR 339](#)
4. [5 CFR 842](#)

REVISED: 1/98

OCCUPATIONS IN THIS PROGRAM:

All (Active Duty and Civilian)

	Program Frequency	Each Deployment
EXAM ELEMENT		BASE
Medical history: have you ever had:		
Personal history of:		
Is your Medical Surveillance Questionnaire current (OPNAV 5100/15)		Yes
Is your Periodic Health Assessment (PHA) current		Yes
Is your Pre-Deployment Health Assessment current (DD 2795)		Yes
Has anything about your health status changed since your last examination		Yes
Have any medications changed since your last examination		Yes
Major illness or injury		Yes
Hospitalization or surgery		Yes
Cancer		Yes
Back injury		Yes
Do you drink 6 or more drinks per week (beer, wine, liquor)		Yes
Have you ever smoked		Yes
Do you currently smoke (packs/day)		Yes
Heart disease, high blood pressure, or stroke		Yes
Current medication use (prescription or OTC)		Yes
Medication allergies		Yes
Any reproductive health concerns		Yes
Allergies (asthma, hay fever, eczema)		Yes
Do you currently have 2 pairs of glasses and/or contacts		Yes
Current pregnancy (self or spouse)		Yes
Respiratory disorder (asthma, sleep apnea)		Yes
Balance and/or coordination problems		Yes
Kidney disorder		Yes
Thyroid disorder		Yes
Diabetes (type I or II)		Yes
Excessive tiredness or fatigue		Yes
Numbness, tingling or weakness in hands and/or feet		Yes
Permanent defect from illness, disease or injury		Yes
Psychological disorders, Depression		Yes
Comments on medical history:		Yes
Tests:		
Laboratory:		
CBC w/o diff		Yes
AST, ALT, Total Bilirubin, Alk Phos.		Yes
Lipid (once after age 40)		Yes
HA1C (if Diabetic)		Yes

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Blood type	Yes
DNA	Yes
G6PD	Yes
HIV (baseline)	Yes
HCG	Yes
Urinalysis with microscopic	Yes
Additional tests:	
Tuberculosis screen: NAVMED 6224/8	Yes
Tuberculin Skin Test:	Yes
Electrocardiogram (once after age 40)	Yes
Dental:	
Dental screen (Class I or II)	Yes
Hearing:	
Audiogram	Yes
Vision:	
Vision screen (visual acuity)	Yes
Color vision	Yes
Comments on test results:	Yes
Immunizations:	
Measles/Mumps/Rubella	Yes
Tetanus/Tdap	Yes
Hepatitis A vaccine series completed	Yes
Hepatitis B vaccine series completed	Yes
Meningococcal	**
Polio	Yes
Typhoid	**
Varicella	Yes
Yellow Fever	Yes
Anthrax	**
Smallpox	**
Japanese Encephalitis Virus	**
Physical examination:	
Vital signs	Yes
Central nervous system	Yes
Peripheral nervous system (strength, sensation, DTR)	Yes
Cardiovascular system	Yes
Back & musculoskeletal system	Yes
Extremities	Yes
Eyes	Yes
Abdomen	Yes
Genitourinary tract	Yes
PAP smear	***
Mammogram	***
Respiratory system	Yes
Ears (tympanic membranes)	Yes
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes

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Other appropriate examination (specify)	Yes
Shipboard assignments:	
Able to pass through a standard escape hatch measuring 18 inches in diameter	Yes
Comments on physical examination:	Yes
Qualifications:	
Special notations:	
Is surveillance/PPE consistent with exposures?	Yes
Are any abnormalities related to exposures/occupations?	Yes
Recommendations:	Yes

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:

* HIV – within 120 days of deployment. OR within past 24 months?

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** 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.

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.

*** 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.

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.

REFERENCES:

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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](#)
 - a. DOD Foreign Clearance Guide (DoD 4500.54-G): Europe
 - b. DOD Foreign Clearance Guide (DoD 4500.54-G): North and South America
 - c. DOD Foreign Clearance Guide (DoD 4500.54-G): Pacific, South Asia and Indian Ocean
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](#) (check list)

CREATED: MARCH 2011

POLICE/SECURITY GUARD

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Program Frequency

Annual

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No
Has anything about your health status changed since your last examination	Yes	Annual	No
Have any medications changed since your last examination	Yes	Annual	No
Major illness or injury	Yes	Annual	No
Hospitalization or surgery	Yes	Annual	No
Cancer	Yes	Annual	No
Back injury	Yes	Annual	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	Annual	No
Have you ever smoked	Yes	Annual	No
Do you currently smoke (packs/day)	Yes	Annual	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	Annual	No
Current medication use (prescription or OTC)	Yes	Annual	No
Medication allergies	Yes	Annual	No
Any reproductive health concerns	Yes	Annual	No
Headache, dizziness, light-headedness, weakness	Yes	Annual	No
Change or loss of vision in either eye	Yes	Annual	No
Loss or change in hearing	Yes	Annual	No
Chest pain, angina, heart attack, irregular heart beat (arrhythmia), palpitation, or other heart problem	Yes	Annual	No
Repeated episodes of loss of or near loss of consciousness	Yes	Annual	No
Shortness of breath	Yes	Annual	No
Epilepsy (seizure disorder)	Yes	Annual	No
Problems with balance and coordination	Yes	Annual	No
Problems with numbness, tingling, weakness in hands or feet	Yes	Annual	No
Thyroid disease (heat or cold intolerance)	Yes	Annual	No
Diabetes or other endocrine gland disorder	Yes	Annual	No
Mental/emotional illness	Yes	Annual	No
Depression, diff concentrating, excessive anxiety	Yes	Annual	No
Personality change	Yes	Annual	No
Work history:			
Exposure to potentially infectious body fluids	Yes	Annual	No
Comments on medical history:	Yes	Annual	No

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EXAM ELEMENT	BASE	PERI	TERM
Laboratory:			
Serum chemistry:			
Basic profile to include:			
BUN, creatinine, uric acid, calcium,	Yes	Annual	No
Total bilirubin, alkaline phosphatase, AST			
Baseline lipid profile	Yes	No	No
Urinalysis:			
Routine:			
Urinalysis with microscopic	Yes	Annual	No
Additional lab tests:			
EKG/lipid profile done once past age 40?	Yes	*	No
Cardiology:			
Baseline electrocardiogram	Yes	No	No
Audiology:			
Audiogram	Yes	Annual	No
Optometry:			
Vision screen (visual acuity)	Yes	Annual	No
Comments on laboratory results:	Yes	Annual	No
Physical examination:			
Vital signs	Yes	Annual	No
Special attention in examination to:			
Central nervous system	Yes	Annual	No
Peripheral nervous system (strength, sensation, DTR)	Yes	Annual	No
Back & musculoskeletal system	Yes	Annual	No
Cardiovascular system	Yes	Annual	No
Eyes	Yes	Annual	No
Respiratory system	Yes	Annual	No
Ears (tympanic membranes)	Yes	Annual	No
Skin with regard to malignant & pre-malignant conditions	Yes	Annual	No
Thyroid	Yes	Annual	No
Metabolic disturbance (fever, tachycardia)	Yes	Annual	No
Overall physical fitness	Yes	Annual	No
Other appropriate examination (specify)	Yes	Annual	No
Comments on physical examination:	Yes	Annual	No
Qualifications:		Annual	
Current immunizations	Yes	Annual	No
Is hepatitis B series complete or prior infection documented?	Yes	Annual	No
Is surveillance/PPE consistent with exposures	Yes	Annual	No
Are any abnormalities related to exposures/occupations	Yes	Annual	No
Recommendations:	Yes	Annual	No

*EKG/Lipid profile should be done once after age 40.

PROGRAM DESCRIPTION:

CNIC HQ and BUMED OEM relate that The Secretary of the Army (SA) is the authoritative source for medical examination standards and physical fitness testing requirements for military and civilian police for the Department of Defense (DoD). Per Deputy SECDEF Memo of 4 Jan 06, SA is designated as the DoD Executive Agent for training, certification, and physical fitness standards for civilian police officers and security guards in the DoD. SA is responsible for promulgating requirement standards and monitoring of Services for compliance. Reference (4) provides guidance on periodicity of medical examinations and physical fitness testing requirements for military police.

Reference (5) provides additional DoD-wide qualification guidance for surveillance exams on this class of worker.

Reference (9) provides basic medical requirements for USMC civilian police officers, security guards and physical security specialists.

PROVIDER COMMENTS:

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.

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.

Tetanus immunization should be kept current.

Reference (10) notes that security personnel who have animal control duties should have the rabies vaccination.

REFERENCES:

1. [29 CFR 1910.1030](#)
2. [5 CFR 930](#)
3. [X-118 Series GS-083](#)
4. AR 190-56, The Army Civilian Police and Security Guard Program
5. [DoDI 6055.05 C3.4 Occupational Medicine Surveillance Exams for Police Officers and Security Guards](#)
6. [U.S. Office of Personnel Management Policies and Instructions Medical Requirements](#)
7. [OPNAV INST 3591, Small Arms Training and Qualifications](#)
8. ACOEM Guidance for the Medical Evaluation of Law Enforcement Officers
9. [MCO 5580.2 \(series\), Enclosure \(1\); The Marine Corps Law Enforcement Manual](#)

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10. [BUMEDINST 6230.15 \(series\), Immunizations and Chemoprophylaxis](#)

REVISED: MAY 2011

RESPIRATOR USER CERTIFICATION EXAM

Program Frequency	By Age
15 to 34 years	Every 5 years
35 to 44 years	Every 2 years
45+ years	Annual
SCBA user	Annual

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	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 examination	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?	Yes	By Age	No
# of packs per day _____			
Heart disease, high blood pressure, stroke or circulation problems	Yes	By Age	No
Current medication use (prescription or OTC)	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, abnormal pigmentation or other skin abnormality	Yes	By Age	No
Lung/respiratory disease (for example: COPD, emphysema, asthma, bronchitis, pneumonitis, asbestosis, silicosis, pneumothorax/collapsed lung)	Yes	By Age	No
Wheezing	Yes	By Age	No
Tuberculosis	Yes	By Age	No
Chest surgery or injury (including broken ribs)			
Use of eye glasses	Yes	By Age	No
Contact lens use	Yes	By Age	No
Loss of vision in either eye	Yes	By Age	No
Color blindness	Yes	By Age	No
Eye irritation	Yes	By Age	No
Any other eye or vision problem	Yes	By Age	No

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EXAM ELEMENT	BASE	PERI	TERM
Inability or reduced ability to smell	Yes	By Age	No
Any injury to your ears	Yes	By Age	No
Ruptured ear drum	Yes	By Age	No
Loss or change 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), or other heart problem	Yes	By Age	No
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
Shortness of breath	Yes	By Age	No
Cough (dry or productive)	Yes	By Age	No
Current pregnancy (females only)	Yes	By Age	No
Epilepsy or seizures	Yes	By Age	No
Problems with balance and 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/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
Work history of:			
Prior respirator use	Yes	By Age	No
If yes, any problems that interfered with use	Yes	By Age	No
Comments on medical history:	Yes	By Age	No
Physical examination:			
Vital signs	Yes	By Age	No
Height	Yes	By Age	No
Weight	Yes	By Age	No
Special attention in examination to:			
Cardiovascular system	Yes	By Age	No
Eyes	Yes	By Age	No
Respiratory system	Yes	By Age	No
Ears (tympanic membrane defect)	Yes	By Age	No
Skin (rash, erosion, ulcer, pigment, eczema, etc)	Yes	By Age	No
Other appropriate examination (specify)	Yes	By Age	No
Comments on physical examination:	Yes	By Age	No
Is surveillance/PPE consistent with exposures	Yes	By Age	No
Are any abnormalities related to exposures/occupations	Yes	By Age	No
Recommendations:	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.

PROVIDER COMMENTS:

According to reference (2), workers with blood pressures of ≥ 180 systolic or ≥ 110 diastolic are temporarily restricted from respirator use; blood pressures of ≥ 140 systolic or ≥ 90 require evaluation by a physician.

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. (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.

REFERENCES:

1. OSHA Standard 29 CFR 1910.134
<http://frwebgate.access.gpo.gov/cgi-bin/get-cfr.cgi?TITLE=29&PART=1910&SECTION=134&YEAR=1999&TYPE=TEXT>
2. American National Standard for Respiratory Protection-Respirator Use, Physical Qualifications for Personnel; ANSI/AIHA Z88.6-2006
<http://www.aiha.org/favicon.ico>
3. NIOSH Respirator Decision Logic, U.S. Department of Health and Human Services, DHHS (NIOSH) Pub. No. 2005-100
<http://www.cdc.gov/niosh/docs/2005-100/pdfs/05-100.pdf>
4. OPNAVINST 5100.23 (series), Chapter 15
http://www.cpp.usmc.mil/mcas/docs/OPNAVINST_5100.23F.pdf
5. OPNAVINST 5100.19 (series), Chapter B6
[http://doni.daps.dla.mil/Directives/05000 General Management Security and Safety Services/05-100 Safety and Occupational Health Services/5100.19E - Volume I Part I.pdf](http://doni.daps.dla.mil/Directives/05000%20General%20Management%20Security%20and%20Safety%20Services/05-100%20Safety%20and%20Occupational%20Health%20Services/5100.19E%20-%20Volume%20I%20Part%20I.pdf)
6. OPNAVINST 6120.3 Preventive Health Assessment
http://www-nehc.med.navy.mil/downloads/PHA/SECNAVINSTRUCT61203_Sep_07.pdf
7. American Thoracic Society, Respiratory Protection Guidelines, American Journal of Respiratory Critical Care Medicine, Vol. 154. pp 1153-1165, 1996
<http://www.thoracic.org/statements/resources/eoh/respl-13.pdf>

REVISED: FEBRUARY 2011

SUBMARINE DUTY**717**

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.

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.

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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.

REFERENCES:

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.](#)

REVISED: FEBRUARY 2011

WASTEWATER/SEWAGE WORKER

702

	Program Frequency	Every 5 years		
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	5 yrs	No	
Has anything about your health status changed since your last examination	Yes	5 yrs	No	
Have any medications changed since your last examination	Yes	5 yrs	No	
Major illness or injury	Yes	5 yrs	No	
Hospitalization or surgery	Yes	5 yrs	No	
Cancer	Yes	5 yrs	No	
Back injury	Yes	5 yrs	No	
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	5 yrs	No	
Have you ever smoked	Yes	5 yrs	No	
Do you currently smoke (packs/day)	Yes	5 yrs	No	
Heart disease, high blood pressure, stroke or circulation problems	Yes	5 yrs	No	
Current medication use (prescription or OTC)	Yes	5 yrs	No	
Medication allergies	Yes	5 yrs	No	
Any reproductive health concerns	Yes	5 yrs	No	
Skin disease, rash, erosion, ulcer, eczema, abnormal pigmentation or other skin abnormality	Yes	5 yrs	No	
Comments on medical history:	Yes	5 yrs	No	
Qualifications:		5 yrs		
Current immunizations	Yes	5 yrs	No	
Certifications performed IAW NAVMED P-5010	Yes	5 yrs	No	
Is surveillance/PPE consistent with exposures	Yes	5 yrs	No	
Are any abnormalities related to exposures/occupations	Yes	5 yrs	No	
Recommendations:	Yes	5 yrs	No	

PROGRAM DESCRIPTION:

The immunization status of wastewater/sewage worker should be reviewed every five years.

Tetanus, diphtheria and pertussis (Tdap) vaccine should be updated according to current recommendations. Polio vaccine is administered to individuals not fully immunized. Current CDC recommendations do not support hepatitis A vaccination for sewage workers.

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.

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REFERENCES:

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)

OCCUPATIONS IN THIS PROGRAM:

Crane operators

Program Frequency

2 years

EXAM ELEMENT	BASE	PERI	TERM
Medical history: have you ever had:			
Personal history of:			
Is your work exposure history current (OPNAV 5100/15)	Yes	2 yrs	No
Has anything about your health status changed since your last examination	Yes	2 yrs	No
Have any medications changed since your last examination	Yes	2 yrs	No
Major illness or injury	Yes	2 yrs	No
Hospitalization or surgery	Yes	2 yrs	No
Cancer	Yes	2 yrs	No
Back injury	Yes	2 yrs	No
Do you drink 6 or more drinks per week (beer, wine, liquor)	Yes	2 yrs	No
Have you ever smoked	Yes	2 yrs	No
Do you currently smoke (packs/day)	Yes	2 yrs	No
Heart disease, high blood pressure, stroke or circulation problems	Yes	2 yrs	No
Current medication use (prescription or OTC)	Yes	2 yrs	No
Do you take any prescribed or unprescribed stimulants besides caffeine?	Yes	2 yrs	No
Do you take any prescribed or unprescribed habit-forming drug?	Yes	2 yrs	No
Medication allergies	Yes	2 yrs	No
Any reproductive health concerns	Yes	2 yrs	No
Use of seat belts (always, mostly, some, none)	Yes	2 yrs	No
Lung/respiratory disease (ex: COPD, bronchitis, pneumonitis)	Yes	2 yrs	No
Disturbances of breathing (apnea) during sleep	Yes	2 yrs	No
Headache, dizziness, light-headedness, weakness	Yes	2 yrs	No
Nervous stomach or ulcer	Yes	2 yrs	No
Head injury	Yes	2 yrs	No
Sleep disorder, breathing pauses while sleeping, sleep apnea, loud snoring, daytime sleepiness	Yes	2 yrs	No
Change or loss of vision in either eye	Yes	2 yrs	No
Loss or change in hearing	Yes	2 yrs	No
Chest pain, angina, heart attack, congestive heart failure irregular heart beat, (arrhythmia), palpitation, or other heart problem	Yes	2 yrs	No

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EXAM ELEMENT	BASE	PERI	TERM
Repeated episodes of loss of fainting, loss or near loss of consciousness	Yes	2 yrs	No
Kidney disease	Yes	2 yrs	No
Epilepsy (seizure disorder)	Yes	2 yrs	No
Problems with balance and coordination	Yes	2 yrs	No
Problems with numbness, tingling, weakness in hands or feet	Yes	2 yrs	No
Migraine headache	Yes	2 yrs	No
Diabetes or other endocrine gland disorder (thyroid, parathyroid, pituitary, adrenal gland)	Yes	2 yrs	No
Are you seeing or being treated by a psychiatrist or psychologist	Yes	2 yrs	No
Mental/emotional illness	Yes	2 yrs	No
Depression, diff concentrating, excessive anxiety	Yes	2 yrs	No
Treatment for drug or alcohol use	Yes	2 yrs	No
Have you ever been diagnosed with alcoholism?	Yes	2 yrs	No
Personality change	Yes	2 yrs	No
Muscle or joint problems, rheumatism, or arthritis	Yes	2 yrs	No
Permanent defect from illness, disease or injury	Yes	2 yrs	No
Comments on medical history:	Yes	2 yrs	No
Laboratory:			
Serum chemistry:			
Baseline lipid profile	Yes	No	No
Urinalysis:			
Urinalysis with microscopic	Yes	2 yrs	No
Additional lab tests:			
EKG/lipid profile done once past age 40?	Yes	*	No
Cardiology:			
Electrocardiogram	Yes	No	No
Audiology:			
Audiogram	Yes	2 yrs	No
Optometry:			
Vision screen (visual acuity)	Yes	2 yrs	No
Color vision	Yes	2 yrs	No
Visual fields	Yes	2 yrs	No
Comments on laboratory results:	Yes	2 yrs	No
Physical examination:			
Vital signs	Yes	2 yrs	No
Special attention in examination to:			
Central nervous system	Yes	2 yrs	No
Peripheral nervous system (strength, sensation, DTR)	Yes	2 yrs	No
Back & musculoskeletal system	Yes	2 yrs	No
Extremities	Yes	2 yrs	No
Cardiovascular system	Yes	2 yrs	No

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EXAM ELEMENT	BASE	PERI	TERM
Peripheral vascular system (Reynaud's)	Yes	2 yrs	No
Eyes	Yes	2 yrs	No
Abdomen	Yes	2 yrs	No
Genitourinary tract	Yes	2 yrs	No
Respiratory system	Yes	2 yrs	No
Ears (tympanic membranes)	Yes	2 yrs	No
Overall physical fitness	Yes	2 yrs	No
Other appropriate examination (specify)	Yes	2 yrs	No
Comments on physical examination:	Yes	2 yrs	No
Is surveillance/PPE consistent with exposures	Yes	2 yrs	No
Are any abnormalities related to exposures/occupations	Yes	2 yrs	No
Recommendations:	Yes	2 yrs	No

*Waivers pertain only to crane operators.

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.

REFERENCES:

1. [NAVFAC P-307, Management of Weight Handling Equipment](#)

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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](#).
5. REVISED: February 2011

WELDERS/BRAZIERS/NON-DESTRUCTIVE INPECTION TECHS

708

STRESSOR(S) IN THIS PROGRAM:

UV light

	Program Frequency	Annual		
EXAM ELEMENT	BASE	PERI	TERM	
Medical history: have you ever had:				
Personal history of:				
Is your work exposure history current (OPNAV 5100/15)	Yes	Annual	No	
Has anything about your health status changed since your last examination	Yes	Annual	No	
Have any medications changed since your last examination	Yes	Annual	No	
Major illness or injury	Yes	Annual	No	
Hospitalization or surgery	Yes	Annual	No	
Cancer	Yes	Annual	No	
Back injury	Yes	Annual	No	
Do you drink 6 or more drinks per week	Yes	Annual	No	
Have you ever smoked	Yes	Annual	No	
Do you currently smoke (packs/day)	Yes	Annual	No	
Heart disease, high blood pressure, or stroke	Yes	Annual	No	
Current medication use (prescription or OTC)	Yes	Annual	No	
Medication allergies	Yes	Annual	No	
Any reproductive health concerns	Yes	Annual	No	
Change or loss of vision	Yes	Annual	No	
Cataracts	Yes	Annual	No	
Eye irritation	Yes	Annual	No	
Eye injury	Yes	Annual	No	
Comments on medical history:	Yes	Annual	No	
Optometry:				
Vision screen (visual acuity)	Yes	Annual	No	
Color vision	Yes	Annual	No	
Comments on laboratory results:	Yes	Annual	No	
Physical examination:				
Vital signs	Yes	Annual	No	
Special attention in examination to:				
Eyes	Yes	Annual	No	
Comments on physical examination:	Yes	Annual	No	
Is surveillance/PPE consistent with exposures	Yes	Annual	No	
Are any abnormalities related to exposures/occupations	Yes	Annual	No	
Recommendations:	Yes	Annual	No	

* Periodic chest radiograph done at intervals to be determined by examining physician, based on exposure risk

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 or without correction. Also, color perception criteria notes the welder must be able to distinguish silver, straw, light blue, dark blue, purple, and gray.

REFERENCES:

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.](#)

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Chapter 8:

C10. Reviews and Revisions

The following list of stressors was reviewed and not included in the Medical Matrix. Any questions or concerns should be addressed to Committee members or Occupational Medicine staff at NMCPHC. The list will be reviewed periodically and updated.

	STRESSOR	DATE REVIEWED
	Acetone	Dec 1989
	Asphalt Fumes	Dec 1989
	Benzo(a)pyrine	Dec 1989
	Crysene	Dec 1989
	Fungicides	Nov 1990
	N-heptane	Dec 1989
	N-Hexane	Dec 1989
	Petroleum distillates (kerosene, Stoddard Solvent, Naphtha, Mineral Spirits)	Dec 1989
	Silver	Dec 1989

On further review for chronic effects and evaluation of usage, these programs were removed from the Medical Matrix. Solvents were included in Program #603, Mixed Solvents, and program #157 was combined with an existing program. The program numbers will be retained for historical purposes.

107	Ammonia	Aug 1990
111	Arsenic, past exposure	June 2010
119	Benzoyl Peroxide	Aug 1990
120	Benzyl Chloride	Aug 1990
123	2-Butanone (Methyl Ethyl Ketone)	Aug 1990
129	Chlorine	Aug 1990
136	Cyclohexanone	Aug 1990
144	Ethyl Butyl Ketone	Aug 1990
147	Ethylene Glycol	Aug 1990
722	Firefighter, Annual Exam	June 2011
153	Glycol Ethers (other than ethoxy and methoxy ethanol)	Aug 1990
212	N-Heptane	Aug 1990
154	Hexone	Aug 1990
157	Hydrogen Fluoride (Combined with #150)	Aug 1990
160	Isopropyl Alcohol	Aug 1990
164	Methyl (N-Amyl) Ketone	Aug 1990
165	Methyl Alcohol	Aug 1990
169	Morpholine	Aug 1990
101	Nuisance Dusts	Aug 1990
181	2-Pentanone (Methyl Propyl Ketone)	Aug 1990
182	Phenol	Aug 1990

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183	Phosgene	Aug 1990
504	Radiation- Infrared, UV and visible	Apr 1995
507	Radiation-Radiofrequency & Microwave	Apr 1995
188	Sodium Hydroxide	Aug 1990
193	TMPP (Trimethylolpropane Phosphate)	Aug 1990
199	Triorthocresylphosphate (TOCP)	Aug 1990
200	Tungsten (merged with #208)	Feb 1994
201	Vanadium	Feb 1994
202	Vinyl Acetate	Aug 1990
206	Zinc Oxide	Aug 1990

Chapter 9:

C11. General References

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Rom WN (ed). *Environmental & Occupational Medicine*, 3rd Ed. Philadelphia: Lippincott-Raven, 1998.

Hathaway GJ, Proctor NH (eds). *Proctor and Hughes' Chemical hazards of the workplace*. 5th ed. New York: Van Nostrand Reinhold; 2004.

Sullivan JB, Krieger GR (eds). *Clinical Environmental Health and Toxic Exposures*. Philadelphia: Lippincott Williams & Wilkins, 2001.

Rosenstock L, Cullen MR, Brodtkin CA, Redlich CA (eds). *Textbook of Clinical Occupational and Environmental Medicine*, 2nd Ed. Philadelphia: Elsevier Saunders, 2004.

LaDou J (ed). *Current Occupational & Environmental Medicine*, 3rd Ed. New York: McGraw-Hill, 2004.

DiNardi SR (ed). *The Occupational Environment: Its Evaluation, Control and Management*. 2nd Ed. Fairfax: American Industrial Hygiene Assoc, 2003.

NMCPHC-TM OM 6260
Chapter 10

C12. Sample Letters

C12.1. Suggested or Requested Changes in the Medical Matrix

The following page is a form that may be used to request a change to the Medical Matrix. Use of the form is not required. However, the information referred to in the form should be included when submitting a request. (A copy in Adobe Acrobat© format that may be filled out and submitted online is available on the Matrix page of the NMCPHC Occupational and Environmental Medicine Web site.)

Medical Matrix Improvement Request

(Use of this form is not necessary as long as the requested information is included.)

Originator (name)	Date
Address	E-mail
	Telephone (COM)
	Telephone (DSN)

This is a request for a CHANGE in a current program.

Name of program or stressor

Recommendation (include supporting references, if any)

This is a request for the ADDITION of a new program.

Recommendation (include references and a description of the program)

Mail to:
ATTN: OEM Medical Matrix Committee
Navy and Marine Corps Public Health Center
620 John Paul Jones Circle, Suite 1100
Portsmouth, VA 23708-2111

Or fax:
757-953-0787

Or email the above info:
occmed@nehc.mar.med.navy.mil

C12.2. Physician's/Provider's Written Opinion Samples

On the following pages are samples of physician's/provider's written opinions required by OSHA for certain programs. The physician's/provider's written opinion contains the results of the medical examination and the following:

1. The physician's/provider's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of health impairment from continued exposure to the particular hazard.
2. Any recommendations for limitations on the employee or for use of personal protective equipment.
3. A statement that the employee has been informed of the results of the medical evaluation and about any medical conditions resulting from exposure to the particular hazard.

The physician's/provider's written opinion is given to the employee's command and therefore must not reveal specific findings or diagnoses unrelated to occupational exposure to the hazards.

Sample Physician's/provider's Written Opinions are given for the following.

[Asbestos Medical Surveillance Program](#)
[Hazardous Waste Workers and Emergency Responders](#)
[Notice of Significant Threshold Shift](#)
[Occupational Exposure to Benzene](#)
[Occupational Exposure to Blood and/or Body Fluids](#)
[Occupational Exposure to Butadiene](#)
[Occupational Exposure to Cadmium](#)
[Occupational Exposure to Ethylene Oxide](#)
[Occupational Exposure of Firefighters](#)
[Occupational Exposure to Formaldehyde](#)
[Occupational Exposure to Lead](#)
[Occupational Exposure to Methylene Chloride](#)
[Occupational Exposure to Methylenedianiline.](#)

NMCPHC-TM OM 6260

From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

--	--	--

(Name)

(Last 4 SSN)

(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 / WAS NOT 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 / ARE NOT 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.

NMCPHC-TM OM 6260

From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

(Name)	(Last 4 SSN)	(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 WAS / WAS NOT 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 / ARE NOT 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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NMCPHC-TM OM 6260
NOTICE OF SIGNIFICANT THRESHOLD SHIFT

Name	SSN	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 reindoctration 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:

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(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
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

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(Name)

(Last 4 SSN)

(Dept/Code)

1. The above noted individual was monitored and/or examined according to 29 CFR 1910.1028 regarding **benzene** on _____ (date). On the basis of this examination the following comments are submitted.
 - a. A medical condition WAS / WAS NOT detected that would place the employee's health at greater than normal risk of material impairment from exposure to benzene.
 - b. Limitations on this employee's exposure to benzene or use of protective clothing or equipment and respirators ARE / ARE NOT 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 examination and of any medical conditions resulting from benzene 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.

NMCPHC-TM OM 6260

From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

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(Name)

(Last 4 SSN)

(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 / IS NOT recommended for this employee.
 - b. This employee HAS / HAS NOT 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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NMCPHC-TM OM 6260

From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

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(Name)

(Last 4 SSN)

(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 / WAS NOT 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 / ARE NOT 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.

NMCPHC-TM OM 6260

From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

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(Name)

(Last 4 SSN)

(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 WAS / WAS NOT 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 / ARE NOT 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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 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 SSN) (Dept/Code)

1. The above noted individual (firefighter) was evaluated according to 29 CFR 1910.1030 regarding **blood and/or body fluids** and 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. Hepatitis B vaccination IS / IS NOT recommended for this employee.
 - b. This employee HAS / HAS NOT received hepatitis B vaccination.
 - c. The diagnosis is firefighter occupational medical surveillance examination, which includes hazardous waste operations or emergency response and potential occupational exposure to blood and/or body fluids.
 - d. A medical condition WAS / WAS NOT 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. Any limitations upon the employee's assigned work ARE / ARE NOT recommended, as noted below.

- e. Any comments, and, 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 about any medical conditions resulting from exposure hazardous waste operations or 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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NMCPHC-TM OM 6260

From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

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(Name)

(Last 4 SSN)

(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 / WAS NOT 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 / ARE NOT 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.

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(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.

NMCPHC-TM OM 6260

From: _____

To: Supervisor, _____ (dept/code)

Subj: PHYSICIAN'S/PROVIDER'S WRITTEN OPINION in the case of

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(Name)

(Last 4 SSN)

(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 / WAS NOT 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 / ARE NOT recommended on this individual's exposure or use of respirators, including the following.
 - i. The employee CAN / CANNOT wear a negative pressure respirator.
 - ii. The employee CAN / CANNOT 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)

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 SSN)

(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 UNLIKELY TO contribute to or aggravate the employee's existing cardiac, hepatic, neurological (including stroke) or dermal disease
 - b. A medical condition WAS / WAS NOT 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 / ARE NOT 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)