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NASA Procedural Requirements

COMPLIANCE IS MANDATORY**NPR 1800.1D**
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Request Notification of Change (NASA Only)

Subject: NASA Occupational Health Program Procedure**Responsible Office: Office of the Chief Health & Medical Officer**[| TOC](#) | [Preface](#) | [Chapter1](#) | [Chapter2](#) | [Chapter3](#) | [Chapter4](#) | [Chapter5](#) | [Chapter6](#) | [Chapter7](#) | [AppendixA](#) | [AppendixB](#) | [AppendixC](#) | [AppendixD](#) | [AppendixE](#) | [AppendixF](#) | [AppendixG](#) | [AppendixH](#) | [ALL](#) |

Appendix C. Physical Examination Matrix

A1. Specific Potentially Hazardous Exposures

	Exam	Regulation
A.	Arsenic	29 CFR Part 1910.1018
B.	Asbestos	29 CFR Part 1910.1001 29 CFR Part 1926.1101
C.	Benzene	29 CFR Part 1910.1028
D.	Beryllium	10 CFR Part 850 (DOE) NIOSH
E.	Cadmium	29 CFR Part 1910.1027 29 CFR Part 1926.1127
F.	Chromium	29 CFR Part 1910.1026 29 CFR Part 1926.1126
G.	Ethylene Oxide	29 CFR Part 1910.1047
H.	Formaldehyde	29 CFR Part 1910.1048
I.	Hydrazines	NIOSH Occupational Safety and Health Guideline for Hydrazine, 1988
J.	Isocyanates	NIOSH
K.	Lead	29 CFR 1910.1025 29 CFR 1926.62
L.	Mercury	OSHA CPL 02-02-006 NIOSH, ATSDR
M.	Methylene Chloride	29 CFR Part 1910.1052 ATSDR
N.	4,4' Methylenebis (2-chloroaniline) (MOCA, MBOCA)	NIOSH, ATSDR, OSHA

O.	4,4' Methyleneedianiline (MDA)	29 CFR 1910.19, 1910.1050 and 1926.60
P.	Nitrogen Tetroxide (Dioxide)	NIOSH Pocket Guide to Chemical Hazards
Q.	Polychlorinated Biphenyls (PCB)	ATSDR NIOSH Current Intelligence Bulletin 45, February 24, 1986 NIOSH Pocket Guide to Chemical Hazards
R.	Silica Dust	29 CFR 1910.1000, 29 CFR 1915, OSHA CPL 2-2.7, NIOSH
S.	Trichloroethylene	NIOSH

A2. Hazardous Environments/ Workplace Examinations

	Exam	Regulation
A.	Bloodborne Pathogens	20 CFR 1910.1030
B.	Chemistry Laboratory	29 CFR 1910.1450
C.	Hazardous Waste Operations and Emergency Response	29 CFR 1910.120
D.	Health Care Provider	29 CFR 1910.1030, CDC
E.	Ionizing Radiation	OSHA 29 CFR 1910.1096, 10 CFR 20.1502
F.	Lasers	ANSI Z 136.1
G.	Noise	29 CFR 1910.95 NPR 1800.1D Chapter 4.8
H.	Pesticides	NIOSH
I.	Spray Painting	
J.	Water and Sewage	NIOSH
K.	Welding	NIOSH Criteria Document No. 88-110

A3. Certification Examinations

	Exam	Regulation
A.	Childcare Workers	
B.	Confined Space/Tank Entry	29 CFR 1910.134
C.	Crane Operator/Ground Floor/Remote-Operation/High/Cabin/Pulpit	NASA STD 8719.9 ASME B30.5-2011
D.	Diver	29 CFR 1910.423 29 CFR 1910.424
E.	DOT/Commercial Driver License/Motor Vehicle Certification/Multiple Passenger Van	49CFR 391.41-49

F.	Down Range/Shipboard Duty	46 CFR Subpart 10 and 12
G.	Firefighter	NFPA 1582
H.	Food Handler	46 CFR 12.25-20 NPR 1800.1B Chapter 4.10
I.	Locomotive Engineer	49 CFR 240.121
J.	Motive (Heavy) Equipment Operator	
K.	Occupational Respirator Use	29 CFR 1910.134 29 CFR 1910.134 Appendix A
L.	Ordnance Handler	NAVMED P-117, 15-107, AFI132-3001
M.	Primary Animal Contact	
N.	Primary Crew Contact	JSC 22538
O.	Security	
P.	Self-Contained Atmospheric Protective Ensemble	29 CFR 1910.134
Q.	Soldering	IPC J-STD-001ES
R.	Voluntary Respirator Use	29 CFR 1910.134 29 CFR 1910.134 Appendix A

A4. Flight Activities

	Exam	Regulation
A.	NASA Pilots, Flight Engineers, Other Primary Aircrew, Qualified Non-Crewmember, Unmanned Aircraft System (UAS) Pilots and Observers	OCHMO 110902MED, NPR 7900.3, 14 CFR 67
B.	Air Traffic Control Specialist (Not Requiring FAA Certification)	OPM GS-2152
C.	Second Class Airman's Medical Certification (Air Traffic Control Tower Operator)	14 CFR 67 Appendix A

A5. Special Administrative Examinations

	Exam	Regulation
A.	Fitness for Duty	NPR 1800.1B
B.	Return to Work	NPD 1840.1B NPR 1800.1B
C.	International Travel	NPR 1810.1A

A6. Voluntary Health Maintenance

	Exam	Regulation
A.	Preventive Health Examination	USPSTF

B.	Fitness Center Clearance	NPR 1800.1B
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EXAMINATION PROTOCOLS

A1. Surveillance Examinations for Workers with Specific Potentially Hazardous Exposures

A. Arsenic	
Reference	OSHA 29 CFR Part 1910.1018
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Annual Exam, if less than 45 years old 3. Semiannually, if 45 years old or older, or with 10 or more years of exposure 4. Variable or Exposure-Determined Examination 5. Exit/Reassignment Examination
Laboratory	<ol style="list-style-type: none"> 1. Chest X-ray (PA), annual 2. Discretionary Tests <ol style="list-style-type: none"> a. Pulmonary Function b. Complete Blood Count
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History 2. Physical Examination with focus on peripheral and CNS, GI system, skin including nasal mucosa, respiratory tract, and thyroid 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Liver, kidneys, skin, lungs, lymphatic system, CNS, PNS
Written Opinion	Standard Written Medical Opinion
Employee Counseling	Counseling on exam results and conditions of increased risk
Medical Removal	No requirement in standard

B. Asbestos	
Reference	OSHA 29 CFR Part 1910.1001 OSHA 29 CFR Part 1926.1101
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory (TX) 1.	<ol style="list-style-type: none"> 1. Chest X-ray (PA) (Must be read by "B reader", a board eligible/certified radiologist, or an experienced physician with known expertise in pneumoconiosis.): <ol style="list-style-type: none"> a. Baseline b. Periodic: <ol style="list-style-type: none"> i. 1-10 years since first exposure: <ol style="list-style-type: none"> 1. every 5 years ii. 10+ years since first exposure, and: <ol style="list-style-type: none"> 1. below age 35, every 5 years 2. age 35-45, every 2 years 3. age 45+, annually 2. Pulmonary Function

	<p>3. Discretionary Tests</p> <ul style="list-style-type: none"> a. Hemocult b. Annual TB Screening c. Urinalysis (dipstick)
Physical Exam	<p>1. Required Asbestos Questionnaire (Standardized on initial exam, Abbreviated Standardized on annual exam)</p> <p>2. Physical Examination with focus on respiratory, CV, and GI systems</p> <p>3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use</p>
Target Organs	Respiratory/lungs, pleural (Mesothelioma), gastrointestinal
Written Opinion	Standard Written Medical Opinion for Asbestos within 30 days, including statement that employee was informed of the increased risk of lung cancer attributable to combined effect of smoking and asbestos.
Employee Counseling	Exam results and conditions of increased risk including increased risk of lung cancer from combined effects of smoking and asbestos exposure
Medical Removal	No requirement in standard

C. Benzene	
Reference	OSHA 29 CFR Part 1910.1028
Frequency	<p>1. Baseline Examination</p> <p>2. Annual Examination</p> <p>3. Variable or Exposure-Determined Examination</p>
Laboratory	<p>1. Complete Blood Count (CBC) including a leukocyte count with differential, a quantitative thrombocyte count, hematocrit, hemoglobin, erythrocyte count, and erythrocyte indices (MCV, MCH, MCHC). (Repeat within 2 weeks if abnormal, refer to standard for action level)</p> <p>2. Pulmonary Function (if employee wears respirator, initial exam and then every 3 years)</p> <p>3. For Emergency Exposures Only:</p> <ul style="list-style-type: none"> a. Urine sample provided at the end of employee's shift for urinary phenol test within 72 hours and urine specific gravity corrected to 1.024. b. If urinary phenol test is equal to or greater than 75 mg phenol/L of urine, repeat Complete Blood Count monthly for 3 months. <p>4. Discretionary Tests:</p> <ul style="list-style-type: none"> a. Refer to Appendix C of standard for guidance
Physical Exam	<p>1. Detailed Medical and Occupational History initially, brief update annually</p> <p>2. Complete Physical Examination with focus on the blood, skin, CNS, and liver and kidney function</p> <p>3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use</p>
Target Organs	Eyes, respiratory, CNS, skin, blood/bone marrow
Written Opinion	Standard Written Medical Opinion within 15 days
Employee Counseling	Counseling on exam results and conditions of increased risk

Medical Removal	Required when referred to hematologist/internist
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D. Beryllium

Reference	10 CFR Part 850 (DOE rule)
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Annual Examination for beryllium workers 3. Every 3 years for beryllium associated workers 4. Variable or Exposure-Determined Examination
Laboratory	<ol style="list-style-type: none"> 1. Chest X-ray (PA) (Must be read by "B reader", a board eligible/certified radiologist, or an experienced physician with known expertise in pneumoconiosis.): <ol style="list-style-type: none"> a. Baseline b. Every 5 years 2. Pulmonary Function 3. Be-LPT
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History 2. Physical Examination with focus on skin, eyes, and respiratory tract 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Respiratory, kidney, CNS, liver, skin, eyes
Written Opinion	Standard Written Medical Opinion within 14 days of receipt of results
Employee Counseling	Counseling on exam results and conditions related to beryllium exposure that requires further evaluation or treatment.
Medical Removal	Required based upon medical recommendation
Multiple Physician Review Process	Required if requested by examinee (see CFR)

E. Cadmium

Reference	OSHA 29 CFR Part 1910.1027 OSHA 29 CFR Part 1926.1127
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Annual Examination 1 year following Baseline Examination 3. Biennially Examination (see standard for guidance on frequency with abnormal laboratory findings) 4. Variable or Exposure-Determined Examination 5. Exit/Reassignment Examination
Laboratory	<p>Annual Laboratory:</p> <ol style="list-style-type: none"> 1. Cadmium in urine (CdU) (See Appendix F for protocol for sample handling and laboratory selection) 2. Beta-2 microglobulin in urine (B(2)-M) 3. Cadmium in blood (CdB) 4. BUN and Serum Creatinine 5. Complete Blood Count (CBC) 6. Chest X-ray (PA) <ol style="list-style-type: none"> a. Baseline b. Exit/Reassignment 7. Pulmonary Function 8. Discretionary Tests:

	<ul style="list-style-type: none"> a. Annual Chest X-ray b. PSA (for males 50 years and older) c. Urinalysis
Physical Exam	<ul style="list-style-type: none"> 1. Cadmium Exposure Questionnaire required (Appendix D in CFR) 2. Complete Physical Examination with focus on blood pressure, respiratory, and urinary systems (refer to health effects Appendix A) 3. Prostate palpation, males 40 years and older 4. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Written Opinion	Standard Written Medical Opinion for Cadmium
Employee Counseling	Counseling on exam results and medical conditions related to cadmium exposure requiring further evaluation or treatment or removal.
Medical Removal	Required
Multiple Physician Review Process	Required if requested by examinee (see CFR)

F. Chromium	
Reference	OSHA 29 CFR 1910.1026, 29 CFR Part 1926.1126
Frequency	<ul style="list-style-type: none"> 1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory	Discretionary
Physical Exam	<ul style="list-style-type: none"> 1. Medical and Occupational History 2. Physical Exam with focus on skin and respiratory tract
Target Organs	Respiratory, liver, kidney, eye, skin
Written Opinion	Standard Written Medical Opinion within 30 days
Employee Counseling	Counseling on exam results and conditions of increased risk
Medical Removal	No requirement in standard

G. Ethylene Oxide	
Reference	OSHA 29 CFR Part 1910.1047
Frequency	<ul style="list-style-type: none"> 1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory	<ul style="list-style-type: none"> 1. Complete Blood Count (CBC) with differential 2. Discretionary Tests: <ul style="list-style-type: none"> a. Pregnancy test, if requested by employee b. Laboratory evaluation of fertility if requested by examinee and considered appropriate by provider c. Blood Chemistry Panel d. Urinalysis

Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on pulmonary, hematologic, neurologic, and reproductive system, and eyes and skin. 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Respiratory, blood, CNS, reproductive, eye, skin, liver, kidney
Written Opinion	Standard Written Medical Opinion within 15 days
Employee Counseling	Counseling on exam results and conditions of increased risk
Medical Removal	No requirement in standard

H. Formaldehyde

Reference	OSHA 29 CFR Part 1910.1048
Frequency	1. Baseline Examination 2. Annual Examination (for employees required to wear respirator, others discretionary) 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory	1. Pulmonary Function (for required respirator use) a. Baseline b. Annual
Physical Exam	1. Medical and Occupational History (nonmandatory medical disease questionnaire - Appendix D in CFR is recommended) 2. Physical Examination with focus on eyes, skin, mucous membranes, and allergies and allergic reactions 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Respiratory, eyes, skin
Written Opinion	Standard Written Medical Opinion for Formaldehyde within 15 days of results
Employee Counseling	Counseling on exam results and conditions of increased risk including whether medical conditions were caused by past or emergency exposures.
Medical Removal	Required
Multiple Physician Review Process	Required if requested by examinee (see CFR)

I. Hydrazines

Reference	NIOSH Occupational Safety and Health Guideline for Hydrazine, 1988
Frequency	1. Baseline Examination 2. Annual Examination

Laboratory	<ol style="list-style-type: none"> 1. Baseline Chest X-ray 2. Complete Blood Count 3. Liver Profile 4. Urinalysis with microscopic 5. Discretionary: <ol style="list-style-type: none"> a. Pulmonary Function
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History 2. Physical Examination 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Eyes, respiratory, skin, CNS, liver, kidneys
Written Opinion	No requirement in standard
Employee counseling	Counseling on exam results and conditions of increased risk
Medical Removal	No requirement in standard

J. Isocyanates

(e.g., Methylene Diisocyanate (MDI), Toluene Diisocyanate (TDI).)

Reference	NIOSH 78-215
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Variable or Exposure Determined Examination 3. Annual Examination
Laboratory	<ol style="list-style-type: none"> 1. Pulmonary Function 2. Chest X-ray (PA) at 5-year intervals
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History 2. Physical Examination with focus on respiratory system, skin, and mucous membranes (Isocyanates are potent sensitizers. Acute exposures may cause severe airway obstruction.) 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Eyes, respiratory, kidney, liver, skin, CNS
Written Opinion	No requirement in standard
Employee Counseling	Counseling on exam results and conditions of increased risk and delayed effects such as coughing or difficulty breathing at night.
Medical Removal	No requirement in standard

K. Lead

Reference	OSHA 29 CFR 1910.1025 OSHA 29 CFR 1926.62
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Annual Examination for employee's with blood lead over 40ug/100g in the preceding 12 months 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination

Laboratory	<ol style="list-style-type: none"> 1. Blood Lead and ZPP (Baseline and every 6 months) 2. If Blood Lead is at or above 40ug/100g, repeat every 2 months 3. Repeat blood lead 2 weeks after any test is at or above 60ug/100g (requires medical removal) 4. During Medical Removal, Blood Lead and ZPP monthly 5. Hemoglobin and Hematocrit, red cell indices, and examination of peripheral smear morphology 6. BUN and Serum Creatinine 7. Urinalysis with microscopic 8. Discretionary Tests: <ol style="list-style-type: none"> a. Pregnancy/fertility testing, if employee requests
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History 2. Complete Physical Examination with focus on teeth, gums, hematological, GI, CV, renal, and neurological system. 3. Blood Pressure 4. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Pulmonary, kidney, blood, reproductive, CNS, gastrointestinal, CV, gums, teeth, eyes
Written Opinion	Standard Written Medical Opinion for all evaluations and employee written notification of blood level results over 40ug/100g within 5 business days
Employee Counseling	Counseling on exam results and conditions of increased risk including advising of occupational and non-occupational conditions requiring further examination or treatment.
Medical Removal	Required (see CFR for criteria)
Multiple Physician Review Process	Required if requested by examinee (see CFR)

L. Inorganic Mercury

Reference	OSHA CPL 02-02-06
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Annual Interim History 3. Variable or Exposure-Determined Examination
Laboratory	<ol style="list-style-type: none"> 1. Complete Blood Count (CBC) 2. Urinalysis 3. Voluntary pregnancy test, where appropriate 4. Urine mercury level (for history of exposure, recommend all employees in given work area be tested at the same time). If exposed above PEL test every 3 months, if below PEL test every 6 months.
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History (annual interim history) 2. Physical Examination with focus on central nervous and respiratory systems, kidneys, and skin. 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Liver, kidney, CNS, PNS, lung, eye, mucous membranes
Written Opinion	Standard Written Medical Opinion

Employee Counseling	Counseling on exam results and conditions of increased risk and any medical conditions which require further examination or treatment.
Medical Removal	No requirement in standard

M. Methylene Chloride

Reference	OSHA 29 CFR Part 1910.1052
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Annual Medical and Occupational History Update 3. Examination Frequency Age Determined: <ol style="list-style-type: none"> a. Annual, if age 45 or older b. Every 36 months under age 45 4. Variable or Exposure-Determined Examination 5. Exit/Reassignment Examination
Laboratory	<ol style="list-style-type: none"> 1. Discretionary: <ol style="list-style-type: none"> a. Pulmonary Function b. Hemoglobin and Hematocrit c. ALT, SGPT d. Post-shift Carboxyhemoglobin e. ECG
Physical Exam	<ol style="list-style-type: none"> 1. Methylene Chloride Questionnaire required (annual interim history-CFR Appendix B) 2. Physical Examination focus on employee health status and analysis of questionnaire responses 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Respiratory, CV, liver, CNS, skin, blood
Written Opinion	<p>Standard Written Medical Opinion for Methylene Chloride with the following within 15 days of completion of medical and laboratory findings but not more than 30 days past examination including:</p> <ol style="list-style-type: none"> a. Statement that the physician has informed the employee Methylene Chloride (MC) is a potential carcinogen risk b. The risk factors for heart disease, and the potential exacerbation of underlying heart disease from MC exposure and its metabolism to carbon monoxide
Employee Counseling	Counseling on exam results and that MC is a potential occupational carcinogen, risk factors for heart disease and potential exacerbation of underlying heart disease by exposure to MC through metabolism of carbon monoxide.
Medical Removal	Required
Multiple Physician Review Process	Required if requested by examinee (see CFR)

N. 4,4' Methylenebis (2-chloroaniline) (MOCA, MBOCA)

Reference	NIOSH Publication No. 78-188
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Frequency	1. Baseline Examination 2. Annual Examination 3. Laboratory only every 6 months (employees working directly in production or handling for 10 years or longer)
Laboratory	1. Complete Blood Count (CBC) 2. Blood Chemistry Profile (to include LFTs) 3. Urinalysis with microscopic 4. Chest X-ray (discretionary)
Physical Exam	1. Medical and Occupational History 2. Focused Physical Examination
Target Organs	Liver, blood, kidneys
Written Opinion	No requirement in standard
Employee Counseling	Counseling on exam results and conditions of increased risk
Medical Removal	No requirement in standard

O. 4,4' Methyleneedianiline (MDA)

Reference	OSHA 29 CFR 1910.1050
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	1. Blood Chemistry Profile (to include LFTs) 2. Urinalysis with microscopic
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on skin disease and liver dysfunction 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Skin, eyes, liver, CV, spleen
Written Opinion	Standard Written Medical Opinion required
Employee Counseling	Counseling on exam results and conditions of increased risk
Medical Removal	Required
Multiple Physician Review Process	Required if requested by examinee (see CFR)

P. Nitrogen Tetroxide (Dioxide)

Reference	NIOSH Pocket Guide to Chemical Hazards-Nitrogen Dioxide
Frequency	Baseline Examination
Laboratory	1. Discretionary a. CBC with diff b. PFT c. EKG d. CXR

Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on pulmonary system, skin, and eyes
Target Organs	Eyes, respiratory, CV
Written Opinion	No requirement in standard
Employee Counseling	Counseling on exam results and conditions of increased risk
Medical Removal	No requirement in standard

Q. Polychlorinated Biphenyls (PCB)

Reference	NIOSH Current Intelligence Bulletin 45, February 24, 1986, NIOSH Pocket Guide to Chemical Hazards-Polychlorinated Biphenyls
Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory	1. Blood Chemistry 2. Complete Blood Count 3. Urinalysis 4. Chest x-ray (baseline) 5. Discretionary Tests: a. ECG b. Pulmonary Function c. Fecal Occult
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on the skin, liver, and nervous system. 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Skin, eyes, liver, reproductive system
Written Opinion	No requirement in standard
Employee Counseling	Counseling on exam results and conditions of increased risk
Medical Removal	No requirement in standard

R. Silica Dusts

Reference	NIOSH Publication No. 2002-129, OSHA 29 CFR 1910.1000
Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination
Laboratory	1. Chest X-ray (Must be read by "B reader", a board eligible/certified radiologist, or an experienced physician with known expertise in pneumoconiosis.): a. Baseline b. Every 5 years for workers exposed less than 20 years c. Every 2 years for workers exposed over 20 years 2. Pulmonary Function

	3. Annual TB Screening
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on respiratory system 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Lungs/respiratory, eyes
Written Opinion	Standard Written Medical Opinion including: a. Signs and symptoms of silica exposure manifested by the employee b. Report of chest x-ray and pulmonary function test c. Opinion on whether employee has detected medical condition that may place employee at increased risk of impairment to the employee's health from exposure to silica or other substances or would directly or indirectly aggravate any detected medical condition d. Any recommended limitations upon employee's exposure to silica or other substances or upon use of Personal Protective Equipment (PPE) and respirators e. Statement employee has been informed by the physician of any medical condition which requires further examination or treatment
Employee Counseling	Counseling on exam results and conditions of increased risk and any medical conditions which require further examination or treatment.
Medical Removal	No requirement in standard

S. Trichloroethylene

Reference	NIOSH Pocket Guide to Chemical Hazards-Trichloroethylene
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	Discretionary a. LFTs b. PFTs c. Urinalysis d. Blood Chemistry e. Complete Blood Count f. Visual acuity
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on cardiac, pulmonary, liver, and kidneys 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Respiratory, CV, kidney, liver, skin, CNS, eyes
Written Opinion	No requirement in standard
Employee Counseling	Counseling on exam results and conditions of increased risk
Medical Removal	No requirement in standard

2. Hazardous Environments/Workplace Examinations

A. Bloodborne Pathogens

Reference	OSHA 20 CFR 1910.1030
Frequency	1. Baseline Examination (for occupational groups covered under the standard) 2. Variable or Exposure-Determined Examination
Laboratory	1. Hepatitis B Vaccine 2. Hepatitis B Surface antibody (HepBSAb)Titer (required one time only after 3rd dose completed) 3. Declination statement must be signed if Hepatitis B Vaccine declined by employee (Appendix A of OSHA Standard) 4. Discretionary: Post-exposure <ul style="list-style-type: none"> a. Victim: HIV test, HepBSAb if not already documented, and HepCAb (other tests per provider) b. Source (after consent given): HIV test (rapid screen if available), HepB Surface Antigen (HepBSAg), and HepCAb (other tests per provider) c. If any HIV test is performed because of a specific occupational exposure, then a confidential ID system and a secure method to receive the test results shall be insured for both victim and source.
Physical Exam	1. Medical and Occupational History 2. Focused Physical Examination (discretionary)
Target Organs	Multiple organs
Written Opinion	Standard Written Medical Opinion required within 15 days of completion of evaluation including whether Hepatitis B immunization is indicated and if the employee has received such vaccine
Employee Counseling	Counseling on exam results and conditions of increased risk. Post exposure counseling regarding HBV vaccine and follow-up.
Medical Removal	No requirement in standard

B. Chemical Laboratory

Reference	OSHA 29 CFR 1910.1450
Frequency	Variable or Exposure-Determined Examination
Laboratory	1. Discretionary: <ul style="list-style-type: none"> a. Blood Chemistry Profile b. Complete Blood Count (CBC) c. Chest X-ray d. Pulmonary Function e. Urinalysis f. Visual Acuity
Physical Exam	1. Medical and Occupational History 2. Focused Physical Examination 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Multiple organs, especially eyes, skin, liver
Written Opinion	Standard Written Opinion required
Employee Counseling	Counseling on exam results and conditions of increased risk
Medical Removal	No requirement in standard

C. Hazardous Waste Operations and Emergency Response	
Reference	OSHA 29 CFR 1910.120, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory	<ol style="list-style-type: none"> 1. Audiogram (Baseline) 2. Visual Acuity, Color Discrimination, Visual Fields 3. Complete Blood Count (CBC) 4. Blood Chemistry 5. Urinalysis 6. Chest X-Ray (Baseline) 7. Discretionary Tests: <ol style="list-style-type: none"> a. ECG b. Exercise Stress Test c. Pulmonary Function d. Other based on specific exposure (see Guidance Manual) e. Chest X-Ray (Follow-up)
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History 2. Physical Examination with focus on worker's fitness, including ability to wear any required PPE, back or musculoskeletal problems, heat stress, claustrophobia 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use 4. Employee may also be covered by Bloodborne Pathogen standard
Target Organs	Multiple organs
Written Opinion	<p>Standard Written Medical Opinion required including:</p> <ol style="list-style-type: none"> a. Statement that the employee has sufficient strength, endurance, and emotional stability to perform the work b. Opinion that no medical condition was detected which would place the employee at increased risk of material impairment of the employee's health or would be a hazard to self or others from hazardous waste operations, emergency response, or respirator use c. Any limitations in job functions or ability to wear PPE d. The results of the medical examination and tests were also provided if requested by the employee
Employee Counseling	Counseling on exam results and conditions of increased risk.
Medical Removal	No requirement in standard
<i>NOTE regarding eligibility</i>	<p><i>Protocol covers the following employees:</i></p> <ol style="list-style-type: none"> a. Potentially exposed to hazardous substances, without regard to the use of respirator, for more than 30 days per year b. Required to use a respirator more than 30 days per year c. Injured from exposure of hazardous substances during an emergency incident d. Members of a HazMat team <p>Employees Not Covered in Standard:</p> <ol style="list-style-type: none"> a. Emergency responders not designated members of HazMat team (e.g., security, firefighters)

D. Healthcare Provider	
Reference	OSHA 20 CFR 1910.1030
Frequency	1. Baseline Examination 2. Variable or Exposure-Determined Examination
Laboratory	1. Hepatitis B Vaccine (required or declination letter shall be completed) or demonstrated immunity 2. TB Screening required for baseline, periodic testing is discretionary based on risk assessment for the facility 3. Discretionary: <ul style="list-style-type: none"> a. Hepatitis Profile b. Measles, Mumps, Rubella Vaccine c. Diphtheria, Tetanus, and Pertussis (Td, Tdap) d. Varicella Vaccine (if no history of chicken pox) e. Influenza Vaccine offered annually
Physical Exam	1. Medical and Occupational History 2. Focused Physical Examination (discretionary) 3. Employee also covered by Bloodborne Pathogen Standard
Target Organs	Respiratory, blood, liver, skin
Written Opinion	No requirement in standard
Employee Counseling	Counseling on exam results and conditions of increased risk.
Medical Removal	No requirement in standard

E. Ionizing Radiation	
Reference	OSHA 29 CFR 1910.1096, 10 CFR 20.1502
Frequency	Variable or Exposure-Determined Examination
Laboratory	Complete Blood Count (CBC) with Differential
Physical Exam	1. Medical and Occupational History including exposure 2. Focused Physical Examination
Target Organs	Exposure determined
Written Opinion	No requirement in standard
Employee Counseling	Counseling on exam results and conditions of increased risk.
Medical Removal	No requirement in standard

F. Lasers	
Reference	ANSI Z 136.1 (2014), Required for Class 3B and Class 4 Lasers <i>NOTE: Baseline examinations are not mandatory but encouraged to serve as a basis for comparison in the event of a mishap. Centers should establish a uniform policy applicable to all employees working with Class 3B and 4 lasers.</i>
Frequency	1. Baseline Examination (per Center Policy) 2. Variable or Exposure-Determined Examination (within 48 hours)

Laboratory	<ol style="list-style-type: none"> 1. Visual Acuity with refraction corrections to 20/20 (6/6) far and near vision (more extensive examination indicated if this is not met – see standard) 2. Amsler Grid (or similar pattern to test macular function for vision distortions and scotomas) 3. Color Vision Discrimination (Ishihara or similar color vision test) 4. Ocular fundus Examination with Ophthalmoscope or appropriate Fundus Lens at a Slit Lamp if visual acuity, macular function, or color vision is abnormal. Dilated exam required if abnormalities found.
Physical Exam	<ol style="list-style-type: none"> 1. Medical, Occupational, and Ocular History 2. Focused Physical Examination performed by or under supervision of ophthalmologist, optometrist, or other qualified physician 3. Limited skin examination
Target Organs	Eye, skin
Written Opinion	No requirement in standard
Employee Counseling	Counseling on exam results and conditions of increased risk.
Medical Removal	No requirement in standard

G. Noise	
Reference	OSHA 29 CFR 1910.95, NPR 1800.1D Chapter 4.8
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Annual Examination 3. Exit/Reassignment Examination
Laboratory	<ol style="list-style-type: none"> 1. Baseline Audiogram or within 30 days 2. Audiogram Annually 3. Retest (audiogram) within 30 days if there is a STS
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History 2. Focused Physical Examination with focus on external and tympanic membrane
Target Organs	Ears and hearing system
Written Opinions	Required within 21 days of Standard Threshold Shift (STS) determination including statement that STS has occurred, whether further evaluation and testing indicated, and opinion on work relatedness or aggravation by occupational noise exposure, and limitation in use of protective hearing equipment
Employee Counseling	Counseling if STS or suspected ear pathology
Medical Removal	No requirement in standard

H. Pesticide	
Reference	NIOSH Pocket Guide the Chemical Hazards

Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination 4. Exit/Reassignment Examination
Laboratory	<ol style="list-style-type: none"> 1. Baseline (required before occupational exposure) Plasma and RBC cholinesterase baselines should be established by performing each test twice (3 to 7 days between tests) and averaging the result for the baseline for each. 2. Blood Chemistry 3. Urinalysis (dipstick) 4. Discretionary Tests: <ol style="list-style-type: none"> a. Pulmonary Function b. RBC cholinesterase levels for recent exposure c. Plasma cholinesterase for acute exposure
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History 2. Physical Examination with focus on the skin and nervous system 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Target Organs	Kidney, liver, CNS, skin, lung
Employee Counseling	Counseling on exam results and conditions of increased risk.
Medical Removal	If plasma or RBC cholinesterase activity is decreased by 30 percent or greater from baseline the employee should be removed from exposure until follow-up test levels are at least 80 percent of baseline.

I. Spray Painting

Reference	
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Variable or Exposure-Determined Examination
Laboratory	Discretionary Tests: <ol style="list-style-type: none"> a. Blood Chemistry Profile b. CBC c. Chest X-ray d. Urinalysis e. Pulmonary Function Test
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History 2. Physical Examination (discretionary) 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use 4. Evaluation of other potential exposures, e.g. lead
Target Organs	Exposure determined
Employee Counseling	Counseling on exam results and conditions of increased risk.
Medical Removal	Exposure determined, e.g. lead

J. Water and Sewage

Reference	NIOSH Publication 2002-149
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Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination
Laboratory	1. Immunizations offered: a. Tetanus Diphtheria (Td) Vaccine b. Hepatitis A and B Vaccine 2. Discretionary Tests: a. Blood Chemistry Profile b. Complete Blood Count (CBC) c. Chest X-ray
Physical Exam	1. Medical and Occupational History 2. Physical Examination (discretionary)
Target Organs	Liver, gastrointestinal, blood
Written Opinion	No requirement
Employee Counseling	Counseling on exam results and conditions of increased risk.
Medical Removal	No requirement

K. Welding	
Reference	NIOSH Criteria Document No. 88-110
Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination
Laboratory	1. Pulmonary Function (Base only) 2. Blood Chemistry Profile 3. Complete Blood Count (CBC) 4. Urinalysis 5. Visual Acuity, Depth Perception, and Color Discrimination 6. Chest X-ray (Baseline) Skin exam (burns, chronic damage)
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on skin, respiratory, macular, cornea, fundus, and any condition that may interfere with ability to perform duties 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination Occupational Respirator Use 4. Evaluation of other potential exposures, e.g. metals, flux, compounds
Target Organs	Respiratory, eyes, varies with exposure type
Written Opinion	No requirement in standard
Employee Counseling	Counseling on exam results and conditions of increased risk, including smoking.
Medical Removal	Exposure determined, e.g. lead

3. Certification Examinations

A. Childcare Workers	
Reference	

Frequency	1. Baseline Examination 2. Variable or Exposure-Determined Examination
Laboratory	1. Annual TB Screening 2. Discretionary Vaccines offered: <ul style="list-style-type: none"> a. Influenza b. Measles, Mumps, and Rubella (MMR) c. Tetanus/Diphtheria (Td) d. Polio e. Hepatitis A f. Chickenpox g. Hepatitis B
Physical Exam	1. Medical and Occupational/Immunization History 2. Physical Exam with focus on ability to lift and bend repetitively
Target Organs	Musculoskeletal
Written Opinion	Job Certification with any limitations
Employee Counseling	Counseling on exam results and conditions of increased risk

B. Permit-Entry Confined Space/Tank Entry

Reference	29 CFR 1910.134
Frequency	1. Variable or Exposure-Determined Examination
Laboratory	1. Audiogram 2. Visual Acuity, Depth Perception, and Color Vision (or demonstration of employee's ability to see and hear warnings, such as flashing lights, buzzers, and sirens) 3. Discretionary Tests: <ul style="list-style-type: none"> a. ECG b. Chest X-ray (Baseline) c. Urinalysis (dipstick) d. Pulmonary Function
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on employee's ability to carry out assigned duties and detection of any disease or abnormality that would make it difficult to work within confined spaces 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use 4. Evaluation of other exposures may be required
Written Opinion	Job Certification with any limitations
Employee Counseling	Counseling on exam results and conditions of increased risk.

C. Crane Operators/Riggers

NOTE: Includes ground floor, remote operation, high, cabin, pulpit

Reference	National Commission for the Certification of Crane Operators; NPR 8719.9
Frequency	1. Baseline Examination 2. Every 3 years

Laboratory	<ol style="list-style-type: none"> 1. Audiogram: Hearing threshold average in better ear \leq 40 dB (500, 1000, 2000 Hz) 2. Visual Acuity: Minimum of 20/40 Snellen in each eye without correction or separately corrected to 20/40 Snellen in both eyes with or without corrective lenses 3. Depth Perception 4. Field of vision at least 70 degrees in the horizontal median in each eye 5. Color Vision 6. Discretionary Tests: <ol style="list-style-type: none"> a. ECG b. Urinalysis c. Pulmonary function d. Hemoglobin (Hgb) and Hematocrit (Hct) e. HbA1C (discretionary)
Physical Exam	<p>Complete examination:</p> <ol style="list-style-type: none"> 1. History to ascertain any condition that may cause any sudden incapacitation or inability to perform duties 2. Evaluation for reaction time, manual dexterity, and coordination 3. No tendencies to seizures, dizziness, claustrophobia, sudden incapacitation, loss of physical control, or similar undesirable conditions such as insulin controlled diabetes 4. No evidence of physical defects, or emotional instability, that in the opinion of the examiner, would present a hazard to self or others
Written Opinion	Job Certification with any limitations or referral for further testing
Employee Counseling	Counseling on exam results and conditions of increased risk.

D. Diver	
Reference	29 CFR 1910.401-441, Subpart T
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Annual Exam
Laboratory	<ol style="list-style-type: none"> 1. Audiogram 2. Baseline and Annual ECG 3. Baseline Chest X-ray (PA and lateral) 4. Pulmonary Function (Vital Capacity) 5. Urinalysis (dipstick) 6. Blood Chemistry 7. Complete Blood Count (CBC) 8. TB Screening 9. Visual Acuity and Color Discrimination 10. Discretionary Tests: <ol style="list-style-type: none"> a. Exercise Stress Test
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History to include predisposition to unconsciousness, vomiting, cardiac arrest, impairment of oxygen transport, serious blood loss, or anything that interferes with effective underwater work 2. Physical Examination
Written Opinion	Job Certification with any limitations, or recommend further specialized clinical evaluation or testing
Employee Counseling	Counseling on exam results and conditions of increased risk.

E. DOT/Commercial Driver License/ Motor Vehicle Certification/Multiple Passenger Van	
Reference	49 CFR 391.41-49
Frequency	1. Baseline Examination 2. Biennial Exam unless more frequent examination is required by the examining provider (per DOT regulations)
Laboratory	1. Forced whisper voice in better ear at not less than 5 feet with or without hearing aid or Audiogram: Hearing threshold average loss in better ear not > 40 dB at 500, 1,000, 2,000 Hz with or without hearing aid 2. Visual Acuity: At least 20/40 (Snellen) in each eye without corrective lenses or visual acuity separately corrected to 20/40 or better with corrective lenses, distant binocular acuity of at least 20/40 in both eyes with or without corrective lenses 3. Depth perception 4. Gross field of vision: 70 degrees in each eye 5. Traffic signal color perception 6. Urinalysis (dipstick) 7. Discretionary Tests: a. Chest X-ray b. Complete Blood Count (CBC) c. Blood Chemistry Profile d. ECG e. Exercise Stress Test f. Pulmonary Function
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on any condition that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, dizziness, claustrophobia, loss of physical control, or similar undesirable conditions (Cannot qualify if diabetic on insulin or if currently on medication for seizure disorder/epilepsy)
Written Opinion	Job Certification with any limitations, or referral for additional specialized clinical evaluation or testing
Employee Counseling	Counseling on exam results and conditions of increased risk.

F. Down Range/Shipboard Duty	
Reference	46 CFR Subpart 10.205; 12.02-27; 12.25
Frequency	1. Baseline Examination (temporary assignment to ships, submarines, or NASA Test Range shipboard) 2. Annual Examination (for Masters, Chief Mates, Chief Engineers, 1st Assistant Engineer, Food Handlers, or anyone 60 years and up, or temporary assignments) 3. Variable (if none of the above): a. Every 5 years for 17 to 24 years of age b. Every 3 years for 25-49 years of age c. Every 2 years for 50 to 59 years of age

Laboratory	<ol style="list-style-type: none"> 1. Audiogram 2. Visual Acuity: 20/200 correctable to 20/40 (Snellen) for deck responsibility; correctable to 20/50 for engineering responsibility 3. TB Screening 4. Gross Visual Fields: If otherwise qualified, may have lost vision in one eye if remaining good eye's vision is passing 5. Color Perception (Pseudoisochromatic Plates or Eldridge--Green Color Perception Lantern) 6. Discretionary Tests: <ol style="list-style-type: none"> a. Chest X-ray b. ECG c. Travel Immunizations (offered)
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History 2. Physical Examination 3. Shipboard food handlers must abide by the Food Handler protocol
Written Opinion	Job Certification with limitations
Employee Counseling	Counseling on exam results and conditions of increased risk.

G. Fire Fighter

Reference	National Fire Protection Association (NFPA) 1582
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Annual Examination, if 40 or older 3. Biennial Examination, if between ages 30-39 4. Triennial Examination, if 29 or younger
Laboratory	<ol style="list-style-type: none"> 1. Audiogram: Average hearing loss in the unaided better ear less than 40 dB at 500, 1000, 2000, and 3000 Hz. 2. Comprehensive Metabolic Panel (including cholesterol, HDL, LDL, triglycerides, lipid ratios, LFTs) 3. CBC 4. Chest X-Ray: <ol style="list-style-type: none"> a. Baseline b. Every 5 years 5. ECG 6. Pulmonary Function: Ratio of FEV1/FVC must be greater than 0.70 if both FEV1 and FVC are below normal 7. Urinalysis (dipstick) 8. Visual Acuity: Far (Snellen) at least 20/40 binocular corrected and at least 20/100 binocular uncorrected for those routinely using corrective lenses. 9. Color Perception 10. Stress test if clinically indicated by history or symptoms 11. Mammography: annually age 40 and older 12. Discretionary Tests: <ol style="list-style-type: none"> a. TB Screen b. Hepatitis C screen c. Immunizations offered: <ol style="list-style-type: none"> (i) Hepatitis B Vaccine (ii) Tetanus/diphtheria (Td) Vaccine (iii) MMR Vaccine (iv) Polio Vaccine (v) Varicella Vaccine (vi) Influenza Vaccine d. HIV screen

	e. Depth perception f. Gross visual fields
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on any condition that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, dizziness, claustrophobia, loss of physical control, or similar undesirable conditions 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Written Opinion	Job Certification with: a. Statement that the employee has sufficient strength, endurance, and emotional stability to perform the work b. An opinion the employee would not be a hazard to self or others c. Any limitations in job functions or ability to wear PPE
Employee Counseling	Counseling on exam results and conditions of increased risk.

H. Food Handler	
Reference	21 CFR 10.115; 29 CFR 1910.141(h)
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	1. TB Screening, baseline, then discretionary 2. Hepatitis A (Center may offer) 3. Discretionary Tests: a. CBC b. Chest X-Ray
Physical Exam	1. Medical and Occupational History focusing upon transmittable infectious diseases 2. Focused Physical Examination 3. Examiner should provide counseling regarding hygiene and prevention of cross contamination/fecal-oral diseases
Written Opinion	Job Certification with statement that employee is medically cleared as indicated in the Food Safety section of this document.
Employee Counseling	Counseling on exam results and conditions of increased risk.
<i>NOTE:</i>	<i>For Crew Food Handler, refer to Primary Crew Contact Physical</i>

I. Locomotive Engineer	
Reference	49 CFR 240.121 and Appendix F
Frequency	1. Baseline Examination 2. Triennial Examination
Laboratory	1. Audiogram: Hearing loss in better ear \leq 40 dB at 500, 1,000, 2,000 Hz with or without hearing aid 2. Visual Acuity: 20/40 with or without corrective lenses 3. Visual Fields: at least 70 degrees in each eye 4. Color: Recognize and distinguish between the colors of railroad signals

Physical Exam	1. Medical and Occupational History 2. Focused Physical Examination with focus on assessing any condition affecting vision and/or hearing that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, loss of physical control, or similar undesirable conditions
Written Opinion	Job Certification with any limitations
Employee Counseling	Counseling on exam results and conditions of increased risk.

J. Motive (Heavy) Equipment Operator

NOTE: includes specialized maintenance and construction equipment such as bulldozers, dump trucks, etc.

Reference	
Frequency	1. Pre-placement/Baseline Examination 2. Biennial Exam 3. If Commercial Driver License required, refer to DOT/CDL
Laboratory	1. Audiogram: Hearing threshold average in better ear \leq 40 dB (500, 1000, 2000 Hz) 2. ECG-baseline, and clinically indicated 4. Visual Acuity: 20/40 with or without corrective lenses 5. Gross Visual Fields: 70 degrees in each eye 6. Color: Recognize and distinguish between the colors 7. Urinalysis (dipstick) 8. Discretionary Tests: a. Chest X-Ray b. Pulmonary Function c. Blood Chemistry Profile d. Complete Blood Count (CBC) e. HbA1C (discretionary)
Physical Exam	1. Occupational and Medical History 2. Physical Examination with focus on assessing any condition affecting vision and/or hearing that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, loss of physical control, or similar undesirable conditions
Written Opinion	Job Certification with any limitations
Employee Counseling	Counseling on exam results and conditions of increased risk.

K. Occupational Respirator Use

Reference	OHSA 29 CFR 1910.134, and 29 CFR 1910.134 Appendices A, B1, B2 , C
Frequency	1. Baseline Examination 2. Baseline and annual respirator questionnaire 3. Variable or Exposure-Determined Examination
Laboratory	1. Discretionary

Physical Exam	<ol style="list-style-type: none"> 1. OSHA Respirator Medical Evaluation Questionnaire (Mandatory: 1910.134 Appendix A) annually 2. Focused Physical Examination with a focus on employee's ability to use a respirator for baseline 3. Annual Focused Physical Examinations required only if positive responses to Questions 1-8, Section 2, Part A of Appendix C, or at the discretion of the physician 4. Discretionary Tests: <ol style="list-style-type: none"> a. Chest X-ray b. Pulmonary Function (spirometry)
Written Opinion	Required Standard Written Medical Opinion including: <ol style="list-style-type: none"> a. Statement employee is medically able to use the respirator, or any limitations on respirator use related to a medical condition or related to workplace conditions in which respirator will be used b. The need for any medical follow-up c. A statement that employee has been given a copy of the written opinion d. If the respirator is a negative pressure respirator and the PLHCP finds a medical condition that may place the employee's health at increased risk if the respirator is used, the employer shall provide a PAPR if the medical evaluation finds that the employee can use such a respirator; if a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then the employer is no longer required to provide a PAPR
Employee Counseling	Counseling on exam results, conditions of increased risk and copy of written opinion provided to employer.
Medical Removal	No requirement in standard

1. Medical and Occupational History to ascertain any condition that may cause

L. Ordnance Handler	
Reference	
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Annual Examination
Laboratory	<ol style="list-style-type: none"> 1. Audiogram 2. Visual Acuity 3. Depth Perception 4. Color Perception (as related to specific job requirements) 5. Urinalysis (dipstick) 6. Discretionary Tests: <ol style="list-style-type: none"> a. ECG b. Complete Blood Count (CBC) c. Blood Chemistry Profile d. Chest X-ray e. Pulmonary Function
Physical Exam	any sudden incapacitation or inability to perform duties, tendencies to seizures, dizziness, claustrophobia, loss of physical control, or similar undesirable conditions <ol style="list-style-type: none"> 2. Physical Examination focusing on strength, endurance, agility, coordination, adequate visual acuity and hearing, and emotional stability
Written Opinion	Job Certification with any limitations
Employee Counseling	Counseling on exam results and conditions of increased risk.

M. Primary Animal Contact	
NOTE: May have to be modified to cover the animal species and specific agents being used.	
Reference	
Frequency	1. Baseline Examination 2. Annual Examination 3. Variable or Exposure-Determined Examination
Laboratory	Baseline only: 1. Complete Blood Count (CBC) 2. Blood Chemistry Profile 3. Pulmonary Function 4. TB Screening 5. Tetanus every 10 years 6. Discretionary: a. Serum Sample (10 mL) for storage b. Rabies Titer c. Rubeola Titer d. Hepatitis A and B e. Offer Rabies Vaccine
Physical Exam	1. Medical and Occupational History (annual interim history) 2. Physical Examination with focus on immunization history, conditions with suppression of the immune system, allergies to animals, and prior illnesses from animal 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use
Written Opinion	Job Certification with any limitations
Employee Counseling	Counseling on exam results and conditions of increased risk.

N. Primary Crew Contact	
Reference	Flight Crew Health Stabilization Program JSC 22538
Frequency	1. Mission specific: No earlier than L-21 every scheduled manned launch 2. Permanent Primary Contacts: Annual 3. Food Depot: Every 6 months
Laboratory	Required for Food Depot only: (a) CBC (b) Urinalysis (c) Blood Chemistry Panel and Cholesterol Panel (d) TB screening (annual) (e) Hepatitis A and Influenza Vaccine (offered) Discretionary Tests for all others: (f) WBC count with differential (g) Urinalysis (h) Other serological or bacteriological testing (i) TB screening
Physical Exam	Focused Physical Examination with focus on detection of infectious disease
Written Opinion	Certification status (JSC Form 270, KSC Form 13-116)

Employee Counseling	Counseling on exam results and conditions of increased risk.
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O. Security	
Reference	
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	1. Audiogram 2. Visual Acuity, Color Vision, Visual Field 3. ECG 4. Urinalysis (dipstick) 5. TB Screening 6. Discretionary Tests: a. Pulmonary Function b. Exercise Stress Test
Physical Exam	1. Medical and Occupational History 2. Physical Examination with focus on ability to perform the essential functions of the job and maintain emotional stability
Written Opinion	Required: a. Certification statement that the employee has emotional stability to perform the work b. In the opinion of the examiner that no medical condition was detected which would place the employee at increased risk of material impairment of the employee's health or would be a hazard to self or others c. Any limitations in job functions
Employee Counseling	Counseling on exam results and conditions of increased risk.

P. Self-Contained Atmospheric Protective Ensemble (SCAPE)	
Reference	29 CFR 1910.134
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	1. Blood Chemistry Profile 2. Complete Blood count (CBC) 3. Baseline Chest X-ray 4. Pulmonary Function 5. Audiogram: Hearing threshold \leq 40 dB average hearing loss at 500, 1000, 2000, and 3000 Hz in the "Better Ear" 6. Visual Acuity: a. Far (Snellen) at least 20/70 in one eye and 20/100 in the other eye corrected to 20/20 in one eye and 20/40 in the other eye b. Near vision correctable to 20/40 (Snellen equivalent) bilaterally 7. Color perception 8. Depth perception 9. Gross visual fields intact 10. Discretionary Tests: a. Annual Chest X-ray b. Urinalysis with microscopic c. ECG

Physical Exam	<ol style="list-style-type: none"> 1. OSHA Respirator Medical Evaluation Questionnaire (Mandatory: 29 CFR 1910.134, Appendix A) 2. Physical Examination with focus on employee's ability to use a respirator under the conditions of use (i.e., temperature extremes) 3. Have sufficient strength, endurance, agility, coordination, and emotional stability to avoid interference with performance
Written Opinion	<p>Required:</p> <ol style="list-style-type: none"> a. Statement that the employee is medically able to use the Self-Contained Atmospheric Protective Ensemble (SCAPE), or any limitations on SCAPE use related to a medical condition or related to workplace conditions in which the SCAPE will be used b. Any need for medical follow-up c. Statement that employer/employee has been given a copy of the written opinion
Employee Counseling	Counseling on exam results, conditions of increased risk and copy of written opinion provided to employer.
Medical Removal	No requirement in standard

Q. Soldering

Reference	IPC J-STD-001ES, Space Applications Electronic Hardware Addendum to JPC J-STD-001E
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination 2. Biennial 3. Variable or Exposure-Determined
Laboratory	<ol style="list-style-type: none"> 1. Pulmonary Function (Baseline only) 2. Visual Acuity, and Color Discrimination
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History 2. Physical Examination with focus on skin and respiratory tract. 3. Evaluation of ability to wear respirator may be required, see protocol Section 3 K, Certification Examination. Occupational Respirator Use 4. Evaluation of other potential exposures, e.g. lead
Target Organs	Respiratory, skin, varies with type of solder used
Written Opinion	
Employee Counseling	Counseling on exam results and conditions of increased risk.

R. Voluntary Respirator Use

Reference	OSHA 29 CFR 1910.134 Appendix A ,B1, B2, C, D
Frequency	<ol style="list-style-type: none"> 1. Baseline Examination
Physical Exam	<ol style="list-style-type: none"> 1. Focused physical evaluation 2. History to ascertain any condition that may cause any sudden incapacitation, inability to perform duties. 3. Evaluation of ability to wear respirator under expected use conditions (i.e., temperature extremes). 4. OSHA Respirator Medical Evaluation Questionnaire (Mandatory: 1910.134 Appendix A)

Written Opinion	Required: a. Any limitations in job functions or ability to wear PPE
Employee Counseling	Counseling on exam results and conditions of increased risk.

4. Flight Activities

A. Pilots, Flight Engineers, Other Primary Aircrew, Qualified Non-Crewmember, Unmanned Aircraft System (UAS) Pilots and Observers

NOTE: Refer to Section 2.2 of OCHMO 110902MED; NPR 7900.3 Aircraft Operation Management Manual; 14 CFR 67 Medical Standards and Certification for certification examination requirements.

B. Air Traffic Control Specialist (Not requiring FAA Certification)

Reference	Office of Personnel Management (OPM) GS-2152
Frequency	1. Baseline Examination 2. Annual Examination
Laboratory	1. Audiogram: No hearing loss in either ear of more than 25 decibels at 500, 1000, or 2000 Hz. No hearing loss in these ranges of more than 20 decibels in the better ear. 2. Visual Acuity: a. Distant 20/20 in at least one eye with or without correction b. Near vision 20/20, Snellen equivalent, with or without correction 3. Visual Fields: Normal 4. Color Vision 5. Tonometry 6. ECG 7. 8. 9. Discretionary Tests: a. Blood Chemistry (can include fasting blood sugar and blood lipid profile). b. Complete Blood Count (CBC) c. Chest X-ray d. Pulmonary Functions e. Urinalysis (dipstick) f. Exercise Stress Test
Physical Exam	1. Medical and Occupational History 2. Physical Examination (see OPM qualifications on age based blood pressure values) with focus on cardiovascular, neurological, musculoskeletal, general medical, psychiatric, and substance dependency
Written Opinion	Certification with any limitations

C. Second Class Airman's Medical Certificate (Air Traffic Control Tower Operator)

Reference	14 CFR 67 Appendix A
Frequency	1. Baseline Examination 2. Annual Examination

Laboratory	<ol style="list-style-type: none"> 1. Audiogram See FAA II 2. Visual Testing and Requirements: See FAA II 3. ECG (transmitted to FAA): First examination after 35 years of age, and annually after 40 years of age 4. Discretionary Tests: <ol style="list-style-type: none"> a. Blood Chemistry Profile (can include fasting blood sugar and blood lipid profile) b. Complete Blood Count (CBC) c. Chest X-ray d. Pulmonary Function e. Urinalysis (dipstick) f. Exercise Stress Test
Physical Exam	<ol style="list-style-type: none"> 1. Medical and Occupational History 2. Physical Examination by FAA certified physician with focus on any condition that may cause any sudden incapacitation or inability to perform duties, tendencies to seizures, dizziness, claustrophobia, loss of physical control, or similar undesirable conditions 3. Average BP should not exceed 155mm/95mm 4. Check references above for acceptable standards, equipment, and requirements.
Written Opinion	<ol style="list-style-type: none"> a. Certification with any limitations, or referral to Aerospace Medical Certification Division, or Regional Flight Surgeon for possible further specialized clinical evaluation or testing. b. See 14 CFR 67 for Pilot Medical Standards

5. Special Administrative Examinations

A. Fitness For Duty (FFD)	
Regulation	
Defined	Fitness for Duty (FFD) examinations are performed at the request of management when a change in work performance, productivity, or health is observed or suspected.
Frequency	Variable upon an unexpected change in behavior or performance. The examination should be completed as soon as possible after a written request through management has been made
Scope	The physician should evaluate whether there is a medical or psychological condition impacting work performance. A job description with the physical requirements and essential job functions is an integral part of this evaluation. Cooperation and coordination with the treating physician(s), as well as other services such as the Employee Assistance Program (EAP) can be of help to an affected employee
Managers Responsibilities	<p>The supervisor/manager requesting the FFD examination should notify the employee and have their consent, provide documentation to the physician and a copy of the employee's job description.</p> <p>Managers must also decide if there is a "For Cause" need for drug testing based upon performance. Since this testing is not a medical test, the manager must contact the Drug Free Workplace (DFW) coordinator to arrange testing</p>
Laboratory	Discretionary

Confidentiality	Confidentiality is of utmost importance and all recommendations and reports must be limited to work-related matters, e.g., work limitation, modifications, or accommodations. No non-work related medical diagnosis should be released in the written opinion
Written Opinion	Required return to duty status for the employee's manager, including recommendations for work limitations or accommodations

B. Return to Work (RTW)	
Regulation	
Defined	RTW evaluations are usually performed when employees are returning to work after an illness or injury of greater than 3 business days
Frequency	Variable or Exposure-Determined Examination
Scope	1. Vital signs 2. The evaluation should focus on the employee's ability to perform the essential job functions with or without work limitations, modifications, or accommodations. The information from the employee's physician is reviewed, and a decision is made whether a focused physical and/or tests are necessary
Managers Responsibilities	The manager requesting the RTW examination must provide a copy of the employee's job description that includes the functional and physical requirements
Laboratory	Focused laboratory based upon the prior condition/problem of the employee
Confidentiality	Confidentiality is of utmost importance and all recommendations and reports must be limited to work-related matters, e.g., work limitation, modifications, or accommodations
Written Opinion	A RTW certificate for the employee's manager should indicate: a. A statement of work limitations (including modifications and duration) b. A statement of any Personal Protective Equipment (PPE) needed or limitations in use of PPE c. For an occupational related issue, safety, and health should receive a copy of the RTW statement

C. International Traveler	
Reference	CDC
Frequency	1. Variable or Exposure-Determined Examination 2. NOTE: Medical clearance required for NASA civil service employees traveling outside the United States or its possessions, with special emphasis for those traveling to Russia or the former nations under the Soviet Union, TAL site, or any developing or medically under-served country
Laboratory	Immunizations offered based on recommended WHO and CDC country requirements
Physical Evaluation	1. Medical Record Review 2. Medical and Occupational History 3. Physical Examination (discretionary) 4. Offer HRA 5. Provide education based on health risk assessment with emphasis on food and water precautions and other specific issues related to travel destination

Written Opinion (Clearance)	As required by Center policy
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6. Voluntary Health Maintenance

A. Preventive Health Examination	
Reference	U.S. Preventive Services Task Force
Frequency	1. Offer annually to NASA employees 2. Offer at retirement to NASA employees if not previously done
Laboratory	1. Vital signs 2. Total body skin examination: baseline and at providers discretion 3. BMI 4. Baseline and at providers discretion: a. Visual Acuity b. Audiogram c. Pulmonary Function d. ECG 5. Breast examination 6. PAP smear (at clinical discretion) 7. PSA test (at clinical discretion) 8. Digital Rectal examination offered to men age 40 and older 9. Complete Blood Count (CBC) 10. Blood Chemistry Profile (includes fasting blood glucose) 11. Lipid profile 12. Urinalysis 13. High Sensitivity Fecal Occult Blood
Physical Exam	1. Medical and Family History, if history of smoking offer smoking cessation 2. Physical Examination Complete baseline then focused as clinically indicated
Counseling/ Education	1. Tobacco cessation, if indicated 2. Healthful diet and physical activity 3. Risk factors based on age, history and examination 3. Breast or testicular self-examination 4. Mammograms every 1-2 years age 40 to 49, every 2 years for age 50 to 74 5. Colonoscopy every 10 years after age 50, earlier with family history (refer to private MD)
Target Organs	Multiple Organs
Written Opinion	A summary of examination and laboratory results provided to the employee along with individualized preventive health recommendations

B. Fitness Center Clearance	
Reference	
Frequency	Per Center or component facility policy
Laboratory	Discretionary

Physical Exam	<ol style="list-style-type: none"> 1. Review of Physical Activity Readiness Questionnaire (PARQ), if applicable 2. Vital signs (blood pressure, pulse) 3. Physical examination and testing as clinically indicated. Refer to primary care provider as appropriate for additional testing/documentation. Medical Director must review documentation provided by primary care provider.
Written Opinion (Clearance)	Medical clearance may specify any limitations in clearance duration (i.e., 1-year) or Fitness Center activity

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