



DEPARTMENT OF THE NAVY

NAVAL HOSPITAL JACKSONVILLE
BRANCH HEALTH CLINIC
MARINE CORPS LOGISTICS BASE
814 RADFORD BOULEVARD
ALBANY, GEORGIA 31704

IN REPLY REFER TO:
6260
Ser 14-086
14 Oct 14

From: Officer in Charge, Naval Branch Health Clinic, Albany, GA
To: Director, Communications and Information Systems
Division, Albany, GA

Subj: PERIODIC INDUSTRIAL HYGIENE SURVEY OF COMMUNICATIONS AND
INFORMATION SYSTEMS DIVISION

Ref: (a) OPNAVINST 5100.23G
(b) NAVMC DIR 5100.8

Encl: (1) Executive Summary
(2) Industrial Hygiene Survey Report

1. Per references (a) and (b) enclosures (1) and (2) are provided for your information.
2. Point of contact is Mr. John Sorenson, Industrial Hygienist at 639-7846.

A handwritten signature in black ink, appearing to be "R. M. Bristol", written over a horizontal line.

R. M. BRISTOL

Copy to:
MCLB Risk Management Office, MCLB Albany
Occupational Health Division, NBHC Albany

EXECUTIVE SUMMARY

A periodic industrial hygiene survey of the Communications and Information Systems Division (CISD), on the Marine Corps Logistics Base, Albany, GA was conducted on 01 October 2014 by Mr. John Sorenson, Industrial Hygienist, of Naval Branch Health Clinic (NBHC) Albany. The purpose of this survey was to identify health hazards present, assess actual health risk, and recommend controls where needed, as well as to assess your Occupational Health program status.

No formal response to the NBHC Albany Industrial Hygiene Division is needed, although recommendations made in this report may be specified as items for mandatory corrective action by the CISD Safety Officer.

Attachment (1) to enclosure (2) of this report provides an overall evaluation summary of Navy Safety and Occupational Health programs. Attachment (2) provides individual work center hazard assessments. These assessments are intended to be disseminated to the individual work areas. If there are any changes in work operations from what is described in this report, or if a focused health hazard evaluation of a specific work operation or new project is needed, please contact Mr. Sorenson, at the Naval Branch Health Clinic Albany, at (229) 639-7846 or by E-mail at john.sorenson@med.navy.mil.

The following issues were found during this survey:

Field Findings.

- Industrial Hygienist walk-through and employee interviews revealed no ergonomic, air quality, or other health concerns.

**PERIODIC INDUSTRIAL HYGIENE SURVEY
COMMUNICATIONS AND INFORMATION SYSTEMS DIVISION
MARINE CORPS LOGISTICS BASE
ALBANY, GEORGIA
REPORT NUMBER: AL14018**

Ref: (a) OPNAVINST 5100.23G, *Navy Safety and Occupational Health Program Manual*
(b) NAVMC DIR 5100.8, *Marine Corps Occupational Safety and Health (OSH) Program Manual*

Attn: (1) Evaluation Summary
(2) Individual Hazard Assessment
(3) Workplace Monitoring Plan
(4) Medical Surveillance Recommendations
(5) Glossary of Terms

1. Introduction. As required by references (a) and (b), a periodic industrial hygiene survey of the Communications and Information Systems Division (CISD) was conducted during the month of October 2014 by Mr. John Sorenson, Industrial Hygienist, Naval Branch Health Clinic, Albany, GA. The purpose of the survey was to identify health hazards present, assess actual health risk, and recommend controls where needed, as well as to assess your Occupational Health program status. This survey consisted of a site visit, walk through evaluations of all work areas, a review of the hazardous material inventory, and employee interviews as appropriate to assist in the industrial hygiene assessment.

2. Changes in Operations or Assessments. The CISD Division was previously included as part of Building 3500 in the "Administration Buildings" survey and is now being provided as a stand-alone report. All programs required by reference (a) and (b) are current.

3. Report Contents. An Evaluation Summary of Navy Safety and Occupational Health programs, control measures, and hazard evaluations is provided as attachment (1). The updated Individual Hazard Assessment is provided in attachment (2). The Workplace Monitoring Plan is provided in Attachment (3). Attachment (4) is the Medical Surveillance Recommendations. A short glossary of Industrial Hygiene terminology is provided as Attachment (5).

4. Design Reviews. Per references (a) and (b), industrial hygienists and safety professionals are tasked with ensuring that appropriate hazard control techniques are applied for all facility projects including both special projects and military construction projects as, in many instances, facility design engineers are not totally familiar with all potential health hazards created by various materials, equipment and operations used in Navy industrial facilities. Please ensure that all special projects, engineering designs, purchasing contracts, and newly developed SOPs involving potential health hazards, such as toxic materials, radiation, noise, or other health hazards, are sent to Industrial Hygiene for review.

5. Re-evaluation Schedule and Changes in the Workplace. Please retain this report on file. NBHC Industrial Hygiene will re-evaluate this division every 4 years. However, any significant

change in the type of operations performed, new equipment acquired, workplace setting, or change in the kind or amount of chemicals used will result in a need for a re-evaluation of the affected area. The Industrial Hygiene Department should be notified of such changes, per references (a) and (b). For future reference, should any employee have a possible health-related concern that he/she believes may be related to the workplace, the employee should report the issue to the supervisor when it occurs and be evaluated by Occupational Medicine Services.

6. Hearing Protection Usage and Enforcement. Under DoD guidelines, single hearing protection is required when noise level exceed 85 dBA and double hearing protection is required during activities where noise exceeds 96 dBA. Hearing Protection Devices (HPDs) must be capable of attenuating work noise exposure below the 8-hour TWA of 85 dBA. Noise levels in the CISD Division are well below the Navy standards.

EVALUATION SUMMARY
PERIODIC INDUSTRIAL HYGIENE SURVEY
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Reference Report

The most recent previous industrial hygiene survey report is NBHC Albany ltr 6260 Ser. 001/848 of 26 Nov 2013.

New or Significantly Modified Work Center Operations/Processes?

- No *significant* changes in operations/processes were identified. *
- The following changes were identified:

*For purposes of this survey, “*significant* changes” are defined as workplace modifications that require a change in recommended medical surveillance enrollment, personal protective equipment, or exposure control measures (ventilation, etc).

Program Findings and Recommendations

1. Medical Surveillance Program Status. Attachment (4) provides a summary of current medical surveillance needs.

- No Medical Surveillance is Recommended.
- Medical Surveillance is Recommended.
- No Change in Medical Surveillance Recommendations.
- Medical Surveillance Recommendations have changed as follows:

Comments:

2. Hazardous Material Control and Management (HMC&M) Program:

- AUL Y N N/A Accurate Y N (where spot checked)
- MSDS Files Y N N/A Accurate Y N (where spot checked)
- HAZMAT Training Required? Y N (Note: IH does not track training completion).
- Other (lead, asbestos, etc): Lead Y N (Note: IH does not track training completion)

Comments: No hazardous chemicals are used by CISD personnel.

3. Management of Reproductive Hazards:

- Reproductive Hazards Present? Y N
- Any change from previous survey? Y N

Comments:

4. Noise and Hearing Conservation Program (HCP):

- Are personnel recommended for the HCP? Y N
- Are personnel receiving audiograms? Y N Not All N/A or See Comments
- (Note: IH does not track training completion)
- Is hearing protection readily available? Y N N/A
- Is hearing protection used? Y N N/A Not Available for Observation

Comments:

5. Respiratory Protection:

- Are respirators used to control workplace exposures? Y N Voluntary Use
- Are they effective? Y N N/A
- Is the Respiratory Protection Program satisfactory? Y N N/A

Comments: Respiratory protection is not necessary.

6. Ventilation:

- Are ventilation systems used to control workplace exposures? Y N
- Are the systems effective and operating properly? Y N N/A

Comments:

7. Ergonomics:

- Ergonomic risk factors were identified pertaining to shop work office/computer work
- Available equipment/furniture incorporates good ergonomic design? Y N N/A
- Ergonomic training recommended? Y N (Note: IH does not track training completion)

Comments and/or Recommendations:

- Although the furniture used in this building is all ergonomically designed and adjustable, ergonomics training is recommended.

8. Other Applicable Programs:

- Lead Control
- Asbestos Control
- Carcinogens
- Other

Comments:

Consultative or Special Surveys/Findings Since the Previous Survey: (check if none)

Additional Comments:

INDIVIDUAL HAZARD ASSESSMENT		DATE: 01 October 2014		
Recorded by: John Sorenson Signature:  Command: CISD Division Shop Name: Building 3500, Rooms 103, 106, 109, 111, 113, 114, and 205.		POC: Lois Hernandez PHONE: 639-8657 TOTAL PERSONNEL: 44 MALE: 36 FEMALE: 8		
Shop Operations: Administrative offices. Workers in these offices conduct meetings, write, and process paper work. They run the base's computer and telephone services. They answer help calls for the IT Support Help Desk, control computer (cyber) security, and monitor the base telephone systems. It is reported that some of these employees do leave their offices, but remain in Building 3500. They operate computers, copy machines, facsimile machines and other standard office equipment. All printer ink is supplied and installed in cartridges and are not contacted by the employees.				
HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT (1)
Noise: All office spaces are maintained quiet.	8 hrs per day	44	None	Acceptable: due to lack of hazard in work areas.
ELMR (Enterprise Land Mobile Radios) (Walkie-talkie) Repair Soldering No chemical contact cleaners are used, no chemicals are used.	Soldering: 10 minutes, Less than twice per year	2	Natural Dilution ventilation	Acceptable due to limited frequency of operation.
Office and desk work: Ergonomics	8 hrs per day	44	Education and training	Acceptable: No concerns were mentioned during IH walk through of employee interviews.
DOEHRS Processes: Administrative Tasks				
USE THE FOLLOWING EXPOSURE ASSESSMENT DEFINITIONS:				
ACCEPTABLE – One where the IH will not expect the SEG to be exposed above the selected OEL. UNCERTAIN – Additional data needs to be collected to clarify the exposure assessment. The IH should make an interim exposure assessment based on observation of the process and/or professional judgment. UNACCEPTABLE – One where the IH will expect the SEG to be exposed above the selected OEL. SKIN – The material poses a skin absorption hazard. REPRODUCTIVE HAZARD – The material is a Navy-Recognized Reproductive Hazard. CARCINOGEN – The material contains > 0.1% of an OSHA, ACGIH, IARC, or NTP-recognized carcinogen NOTE: "EXPOSED" refers to "POTENTIAL EXPOSURE" and does not take PPE, such as respiratory protection or hearing protection, into account.				

AL14018, CISD Division	P.O.C:	SURVEY PERIOD: 2014-2018 BY IH: John Sorenson ASSIGNED TO IHT: Kori Jowhar			
WORKPLACE MONITORING PLAN					
OPERATION AND STRESSOR TO BE MONITORED	# Samples Remaining to Categorize Exposure	I METHOD	II AREA	III FREQ*	IV MAN-HOURS
<i>There are no Workplace Monitoring needs for CISD Division.</i>					
Action:					
B.					
Rationale:	PRIORITY:				
Action:					
C.					
Rationale:	PRIORITY:				
Action:					
D.					
Rationale:	PRIORITY:				
Action:					
Monitoring Plan Completion Reviewed By: John Sorenson				TOTAL HOURS:	0

I Method of Measurement	II Area	III Frequency	IV Man-hours (Type/Number of Units/Hours)
DR --DIRECT READING INSTRUMENT	BZ – BREATHING ZONE	1 - 1X/YEAR	AIR: Full Shift per area: 1-3 9
IT ---INDICATOR TUBE	HZ – HEARING ZONE	2 - 2X/YEAR	BREATHING AIR: Each Line/1-2/2 2.5
B/I -- BUBBLE IMPINGER	GA – GENERAL AREA	3 - 3X/YEAR	hours
F -----FILTER	SZ – SOURCE ZONE	4 - 4X/YEAR	HEAT STRESS: 1/3.5 hours 3.5
PD ---PERSONAL DOSIMETER	O – OTHER (SPECIFY)	5 - 1X/2YEARS	NOISE DOSIMETRY: Full Shift/1-5 9
AT---ADSORPTION TUBE (CHARCOAL, SILICA GEL, ETC.)		6 - 1X/4YEARS	NOISE SLM: Each Source/1-5 2.5
			VENTILATION: Each Hood/1-5 3.5
			VENTILATION: Walk-In Booth/1 2.5
			VENTILATION: Operating Rooms /6 rooms (10 air supply/ 9 exhaust units) 36

*For BZ & Dosimetry, unless otherwise specified, collect up to 5 samples per evolution as operational availability permits.

SAMPLING RATIONALE:

- (A) Fulfill regulatory sampling requirements.
- (B) Collect sufficient data to allow statistically valid exposure assessments.
- (C) Track workplace exposures to determine trends.
- (D) Validate professional judgments of unchanged exposure assessments.

PRIORITY CATEGORIES:

- Priority 1:** Needed to fulfill regulatory/instructional requirements (Federal, Navy, BUMED, etc).
- Priority 2:** Noise dosimetry and non-regulatory personal breathing zone sampling.
- Priority 3:** Other sampling needed in order to provide a more accurate or statistically valid exposure assessment.
- Priority 4:** Needed to validate professional judgments and/or to refresh existing data.

Regardless of the **Priority** assigned, workplace monitoring is an essential part of the Industrial Hygiene Program for the command. Command participation in the sampling process is necessary. It is requested that every effort be given to cooperating with the personnel assigned to perform the workplace monitoring. Cooperation by both artisans and supervisory personnel will expedite the sampling and minimize intrusion into work center operations. Cooperation will also enable the command to fulfill many of their responsibilities under the Navy's Occupational Safety and Health Program and help avoid potential deficiency findings resulting from inspections by higher authority.

**PERIODIC INDUSTRIAL HYGIENE SURVEY
COMMUNICATIONS AN INFORMATION SYSTEMS DIVISION
MARINE CORPS LOGISTICS BASE
ALBANY, GEORGIA
REPORT NUMBER: AL14018**

Industrial Hygienist: John Sorenson				Survey Period 2014-1018	
Shop	Hazard	Controls	Medical Evaluation	Code	Comments
	There are no Medical Surveillance requirements for CISD Division				
ADDITIONAL NON-EXPOSURE BASED MEDICAL SCREENING					
CODE REFERENCE: 1. <i>Medical Surveillance Procedures Manual and Medical Matrix, latest edition</i>					
Comment Explanations:					
2. For Noise Only: Use only those types listed in appendix 18-A of OPNAVINST 5100.23G, or for where a valid waiver has been granted. Participate in the Hearing Conservation Program. As per OPNAVINST 5100.23G to include: a. The use of PPE b. The labeling of noise hazardous non-combatant equipment. c. Annual Training Annual Audiometric evaluation.			3. For Respirator Use Only: Participate in the Respiratory Protection Program. As per OPNAVINST 5100.23G to include: a. The use of PPE b. Fit Testing c. Appropriate medical surveillance d. Annual Training		

1. Explanation of Medical Surveillance/Certification Recommendations. Recommendations to include employees in a hazard-based medical surveillance program involve the judgment of the industrial hygienist through observation and/or knowledge of the process, and an evaluation of sampling data representative of tasks of which indicates the worker is routinely exposed to chemical or physical stressors at or above 50% of applicable OSHA standards or other recognized action levels established through Navy instruction or federal regulation. Medical certifications that are required by specific Navy or federal directive where a certain degree of physical fitness has been judged as necessary for a component of the job, for example, respirator use, or the job itself, such as firefighters, forklift operators, etc, and except for respirator use, are not addressed in this table.
2. Temporary "Loan In" or "Light Duty" Personnel:
 - a. Temporary "Loan In" or "Light Duty" personnel should use the same level of Personal Protective Equipment as recommended/required by Industrial Hygiene and MDMC Safety for permanently assigned employees when performing the same operations.
 - b. Temporary "Loan In" or "Light Duty" personnel may be assigned to a shop that has different medical surveillance requirements from their permanent work center. In order to provide program continuity for employees anticipating a return to their permanent work center it is recommended that they remain in their current medical surveillance programs while on temporary assignment. This is in addition to any other medical surveillance requirements associated with the temporary assignment.
 - c. Questions regarding individual exposure and applicability of medical surveillance enrollment may be reviewed on a "case by case" basis and should be addressed to the Industrial Hygienist.
3. Additions/Deletions. There are no changes to exposure based medical surveillance recommendations from the previous industrial hygiene survey report, NBHC ltr 6260, Ser 14-035 of 04 Jun 2014, Report # AL13001.

GLOSSARY OF TERMS

AABA: Ambient Air Breathing Apparatus. Unlike compressors used for breathing air for atmosphere supplying respirators which must be tested quarterly to ensure that at least Grade D quality air is supplied to respirator wearers; AABAs are exempt from quarterly Grade D air quality testing.

NOTE: AABA air intakes must be located in fresh clean ambient air.

Acceptable (in the context of exposure assessment): Exposure estimate of similar exposure group is less than half (50%) of the occupational exposure limit (OEL). *See also Action Level.*

ACGIH[®]: American Conference of Governmental Industrial Hygienist is an independent standard setting group who develops Threshold Limit Values[®], the workplace exposure limit recommended by the American Conference of Governmental Industrial Hygienists. Examples of this include annual editions of the *TLVs[®] and BEIs[®]* and work practice guides. *See also TLV[®] (Threshold Limit Value); TWA (Time-Weighted Average); STEL (Short-Term Exposure Limit); and Ceiling Limit*

Action Level: Unless otherwise specified in a NAVOSH standard, one-half the relevant PEL, TLV[®], etc. *See also Occupational Exposure Limit (OEL).*

Administrative Control: Procedures and practices that limit exposure to harmful physical or chemical agents by control or manipulation of work schedule or the manner in which work is performed. Administrative controls reduce the exposure to stressors and thus reduce the cumulative dose to any one worker. If unable to alter the job or workplace to reduce the stressors, administrative controls should be used. Administrative controls are most effective when used in combination with engineering controls.

AUL: Authorized User List: A listing of chemicals whose use is authorized by for a department, shop or other entity.

BBP: Blood-Borne Pathogen: Pathogenic microorganisms transmissible by exposure to blood and other potentially infectious materials, and include Hepatitis B Virus (HBV), Hepatitis C, and Human Immune Deficiency Virus (HIV), as well as syphilis and malaria.

Carcinogen: The material contains greater than or equal to 0.1% OF AN Occupational Safety and Health Administration (OSHA), American Conference of Governmental Industrial Hygienist (ACGIH), International Agency for Research on Cancer (IARC), or National Toxicology Program (NTP)-recognized carcinogen.

Ceiling Limit- TLV[®]: (**TLV-C**): Is a concentration that should not be exceeded during any part of the workday (as recommended by the ACGIH). *See also OEL*

Concentration: The quantity of a substance per unit volume (in appropriate units). The following are examples of concentration units. *See unit examples below*

Mg/m ³	Milligrams per cubic meter	Unit of airborne concentration for gases, vapors, fumes, and/or dusts
µg/m ³	Micrograms per cubic meter	Unit of airborne concentration for gases, vapors, fumes, and/or dusts
PPM	Parts per million (air)	Unit of airborne concentration for vapors or gases
Fibers/cc or f/cc	Fibers per cubic centimeter	A unit of measure for fibrous airborne particulates such as asbestos fibers.
Mppcf	Millions of particles per cubic foot	A unit used for airborne dusts based on particle counts & which has virtually been eliminated from routine use.

CHRIMP: The **C**onsolidated **H**azardous **M**aterial **R**eutilization and **I**nventory **M**anagement **P**rogram serves as a fundamental element of the Navy's life-cycle control and management of Hazardous Materials.

Contaminant: A material or agent in concentrations higher than those normally present in the atmosphere, e.g., dust, fume, gas, mist or vapor, which can be harmful, irritating, or a nuisance.

Decibel-dB: A unit used to express sound pressure levels; specifically, 20 times the logarithm of the ratio of the measured sound pressure to a reference quantity, 20 micro-pascals (0.0002 microbars).

dBA or dBA_s: A sound level reading in decibels as measured on the A-weighted network of a sound level meter. (See A-weighted Sound Level) Sometimes referred to as dBA_s meaning A-weighted Sound level, where the sound level meter is set to “slow response.” A –weighted sound pressure is designated to approximate the response of the human ear to sound.

DV: Dilution **V**entilation – An engineering control strategy which relies upon the dilution of potential contaminants with fresh (outside) air thus reduces the concentration of potential contaminants to acceptable levels.

EPA: United States **E**nvironmental **P**rotection **A**gency is a federal agency charged with the promulgation and enforcement of environmental regulations. Their mission includes Air, Water and Waste regulation to protect the public and the environment.

Ergonomic Hazards: Workplace conditions that pose a biomechanical stress to a worker's body as a consequence of posture and force requirements, work/rest regimens, repetition rate, or other similar factors. Faulty work station layout, improper work methods, or tools may contribute to such conditions.

Ergonomics: The study of the design of work in relation to the physiological and psychological capabilities of people. The aim of the discipline is the evaluation and design of facilities, environments, jobs, training methods, and equipment to match the capabilities of users and workers, and thereby to reduce fatigue, error, or unsafe acts.

AND / OR

Ergonomics is the field of study that involves the application of knowledge about physiological, psychological and biomechanical capacities and limitations of the human body. This knowledge is applied in the planning, design, and evaluation of work environments, jobs, tools and equipment to enhance worker performance, safety and health and reducing the potential for fatigue, error, or unsafe acts.

Ergonomics is essentially fitting the workplace to the worker. The application of knowledge about physiological, psychological and biomechanical capacities and limitations of the human body to work environments, jobs, tools and equipment to enhance worker performance, safety and health and to reduce the potential for fatigue, error, or unsafe acts.

Fibers per cubic centimeter (fibers/cc): Unit of measure used to describe the concentration of asbestos or manmade fibers in air. This unit is often used to describe airborne or occupational inhalation exposure potential and in describing recommended control limits.

Hazardous Chemical: Any chemical that is a physical hazard or a health hazard per 29 CFR Section 1910.1200(c), and with some exceptions as specified in the Community Right to Know Law of 1986 (Superfund Amendments and Reauthorization Act [SARA], Title III). *See "Hazardous Material."*

Hazardous Material (HM): For the purposes of the Material Safety Data Sheet (MSDS), a hazardous material is defined as a material having one or more of the following characteristics:

- (a) Has a flashpoint below 200°F (93.3°C) closed cup, or is subject to spontaneous heating or is subject to polymerization with release of large amounts of energy when handled, stored, and shipped without adequate control.
- (b) Has a threshold limit value (TLV) below 1000 ppm for gases and vapors, below 500 mg/m³ for fumes, and below 30 mppcf for dusts.
- (c) A single oral dose which will cause 50 percent fatalities to test animals when administered in doses of less than 500 mg per kilogram of test animal weight.
- (d) Is a strong oxidizing or reducing agent.
- (e) Causes first degree burns to skin in short time exposure or is systematically toxic by skin contact.
- (f) In the course of normal operations, may produce dusts, gases, fumes, vapors, mists, or smokes with one or more of the above characteristics.

- (g) Produces sensitizing or irritating effects.
- (h) Is radioactive.
- (i) The item has special characteristics, which in the opinion of the manufacturer could cause harm to personnel if used or stored improperly.

Hazardous Substance: Any substance that, because of its quantity, concentration, or hazardous properties, may pose a substantial hazard to human health or the environment when purposely released or accidentally spilled.

HCP: Hearing Conservation Program – Such programs typically include: monitoring, audiometric testing, hearing protectors, training, and recordkeeping requirements.

IHFOM: The Navy Industrial Hygiene Field Operations Manual
<http://www-nehc.med.navy.mil/ih/ihfom.htm>

L_{avg}: Best described as the Average Sound Level over the period of the measurement. Usually measured A-weighted but there is no time constant applied. As it is an average, it will settle to a steady value, making it much easier to read accurately than with a simple instantaneous Sound Level. Being an average, it is also showing the total energy of the noise being measured, so it is a better indicator of potential hearing damage or the likelihood that the noise will generate complaints.

LEV: Local Exhaust Ventilation – an engineering control form which relies on exhaust systems equipped with specially designed ‘hoods’ which capture dusts, fumes, mists, gases or vapors to prevent or reduce the inhalation contaminants.

Mandatory

1. authoritatively ordered; obligatory; compulsory: *It is mandatory that all personnel show ID badges when entering the gate.*
2. permitting no option; not to be disregarded or modified: *e.g. a mandatory requirement*

MCE Filter: Mixed Cellulose Ester membrane filters – a type of sampling media used to collect specific particulates as a part of Industrial Hygiene evaluation.

Micrograms per cubic meter ($\mu\text{g}/\text{cu.m.}$ or $\mu\text{g}/\text{m}^3$): A unit of measure for exposures to materials based on mass per unit volume. A microgram represents one millionth of a gram of material. *See also Milligrams per cubic meter and parts per million*

Milligrams per cubic meter ($\text{mg}/\text{cu.m.}$ or mg/m^3): A unit of measure for exposures to materials based on mass per unit volume. A milligram represents one thousandth of a gram of material. *See also Micrograms per cubic meter and parts per million.*

Monitoring, Industrial Hygiene: Measurement of the amount of contaminant or physical stress reaching the worker in the environment.

Monitoring, Medical Surveillance: The replacement and periodic evaluation of the health status of workers exposed to toxic substances or physical agents in the workplace. Measures the effects of contaminant on a workers body functions and tissues, e.g., decreased lung function, dermatitis, and abnormal blood count.

MSAL: **Medical Surveillance Action Level;** The recommended threshold at which ongoing medical surveillance should be initiated as an additional assurance that clinical health effects are not occurring. Medical surveillance may be specified by standard or voluntarily adhered to by convention. *See also Action Level*

Navy Occupational Safety and Health (NAVOSH) Standards: Occupational safety and health standards published by the Navy which include, are in addition to, or are alternatives for the OSHA standards which prescribe conditions and methods necessary to provide a safe and healthful working environment.

NEHC: **Navy Environmental Health Center**

NIOSH: The **National Institute for Occupational Safety and Health** is the federal agency that tests equipment, evaluates and approves respirators, conducts studies of workplace hazards, and proposes occupational exposure standards to OSHA.

NOAA: The **National Oceanic and Atmospheric Administration** is a federal agency focused on the condition of the oceans and the atmosphere.

NOEL: **Navy Occupational Exposure Limit**

Noise: Noise is defined as unwanted sound.

Noise Exposure: Personal exposure to a combination of sound levels at various intensities and durations.

Occupation Exposure Limit (OEL): The exposure limit used by a health professional to help determine a workers' or populations' health risk from exposure to a hazard. "OEL" is a generic term used to apply to all exposure limits, to include: DoD standards from DoD 6055.1, Occupational Safety and Health Administration (OSHA), Permissible Exposure Limits (PELs), DoD Component standards, military deployment environmental health limits, American Conference of Governmental Industrial Hygienists (ACGIH[®]), Threshold Limit Values[®] (TLVs[®]), National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits (RELs), and other exposure limits reviewed for potential use.

Occupational Health: That multidisciplinary field of preventive medicine that is concerned with the promotion and maintenance of the highest degree of physical, mental and social well being of workers in all occupations, and the prevention and/or treatment of illness or injury induced by factors in the workplace. The major disciplines involved are: occupational medicine, occupational health nursing, epidemiology, toxicology, audiology, industrial hygiene, ergonomics, and health physics. Activities include the design, implementation and evaluation of 30 Dec 05 G-19 comprehensive health and safety programs that promote employee health and safety in the workplace.

OEL: *See Occupational Exposure Limit*

OSHA: (a) **Occupational Safety and Health Act,** or

(b) **Occupational Safety and Health Administration,** Department of Labor (DOL), the federal agency which adopts and enforces health and safety standards.

Peak Noise Level: The true peak value is the maximum value of the noise waveform. The impulse measurement is an integrated measurement. The true peak reading should only be used when determining compliance with OSHA's 140 dB peak sound pressure level [1910.95(b)(1) or 1926.52(e)].

Note: The user should *not* use "impulse" response when measuring true peak sound pressure levels.

PEL: Permissible Exposure Limit – The maximum permissible concentration of a toxic chemical or exposure level of a harmful physical agent (normally averaged over an 8-hour period) that an employee may be exposed. This term is applied to OSHA regulated limits.

Potentially Hazardous Noise: Exposure to greater than the Navy Occupational Exposure Limit of 84 dBA sound level or 140 dB peak sound pressure level for impulse noise. The safe exposure time (T) for periods of less than 16 hours in any 24-hour period may be determined by using the equation:

$$T = 16/2^{[(L-80)/4]}$$

Where T = time in hours

L = effective sound level in dBA

Potentially Hazardous Noise Area: Any work area where the A-weighted sound level (continuous or intermittent) is greater than 84 dBA or any work area where the peak sound pressure level exceeds 140 dB.

PPE: Personal Protective Equipment – See *Protective Clothing and Protective Equipment*.

ppb: Parts Per Billion - A measure of concentration used much like percent. One part per billion represents 0.000001% and conversely, one percent is equivalent to 10,000,000 ppb.

ppm: Parts Per Million – A measure of concentration used much like percent. One part per million represents 0.001% and conversely, one percent is equivalent to 10,000 ppm.

Protective Clothing: An article of clothing furnished to an employee at government's (as the employer's) expense and worn for personal safety and protection in the performance of work assignments in potentially hazardous conditions.

Protective Equipment: A device or item to be worn, used, or put in place for the safety or protection of an individual or the public at large, when performing work assignments in or entering hazardous areas or under hazardous conditions. Equipment includes hearing protection, respirators, electrical matting, barricades, traffic cones, lights, safety lines, life jackets, etc.

Prudent Practice: Generally accepted reasonable and prudent practice. "A prudent or good practice" involves not only accepted customary practices, but also prudent behavior in terms of the risks of violation of law or regulation, that is, the risk of adverse publicity for the institution and the risk of injury and/or damages.

PVC Filter: Poly Vinyl Chloride filters – a type of sampling media used to collect specific particulates as a part of Industrial Hygiene evaluation.

Reproductive Hazard: Any occupational stressor (biohazard, chemical, or physical) that has the potential to adversely affect the human reproductive and/or developmental process.

RPP: Respiratory Protection Program

SCBA: A type of Positive pressure respirator, **S**elf-**C**ontained **B**reathing **A**pparatus – a form of respiratory protection which relies on bottled breathing air (worn by the user) as the source of air to be breathed by the wearer. Most typically, these devices are equipped with a full face mask which also serves to protect the wearer’s face and eyes from incident splash and or gas/vapor contact.

SLM: **S**ound **L**evel **M**eter – a device for measuring sound or noise levels

SPL: **S**ound **P**ressure **L**evel – a term used in discussion of sound or noise measurements.

STEL: **S**hort-**T**erm **E**xposure **L**imit – Type of Threshold Limit Value, (workplace exposure limit) recommended by the American Conference of Governmental Industrial Hygienists® (ACGIH®). A concentration to which workers can be exposed for a short periods of time (15 min.) without adverse affect. The STEL supplements the TLV® and is recommended where toxic effects have been reported for short-term exposures. *See also Threshold Limit Value (TLV®).*

TLV®: **T**hreshold **L**imit **V**alues® are established by the American Conference of Governmental Industrial Hygienists® (ACGIH®). TLVs refer to airborne concentrations of a substance and represent conditions under which it is believed that nearly all workers may be exposed day after day without adverse effect. *See also TWA, STEL and Ceiling Limits.*

TLV-C: *See Ceiling Limit - TLV*

TWA: **T**ime-**W**eighted **A**verage - Occupational exposure limit guideline - An average value weighted in terms of the actual time that it exists during a given time interval. That is, across a sampling period, an 8-hour work day, etc. *See also OEL, PEL, REL, and TLV®.*

Unacceptable (in the context of exposure assessment): Exposure estimate of similar exposure group is greater than (100%) of the occupational exposure limit (OEL). *See OEL.*

Uncertain (in the context of exposure assessment): Additional data is needed to clarify the exposure. Measurements, further fact-finding or sample collection may be necessary in order to resolve an exposure assessment.

UV: **U**ltra **V**iolet light: Ultraviolet rays have wavelengths shorter than visible rays. So short that they are not part of the visible light spectrum.

WBGT: The **w**et-**b**ulb **g**lobe **t**emperature is considered the most practical heat stress index, characterizing the effect of a heat stress environment on the individual. WBGT was developed because the dry-bulb temperature alone does not provide a realistic guide to the effects of heat, inasmuch as it does not take humidity and heat radiation into consideration. The WBGT is used in setting the weather “Flag” (white, green, yellow, red, or black) conditions used to communicate the relative risk of heat stress during outdoor work or exercise.