



DEPARTMENT OF THE NAVY

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

In reply refer to:

6260
Ser 667
01 AUG 2011

From: Officer in Charge, Naval Branch Health Clinic, Albany, GA
To: Commanding Officer, MCLB, Albany Georgia

Subj: COMPREHENSIVE INDUSTRIAL HYGIENE SURVEY

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

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

1. A comprehensive Industrial Hygiene Survey of the Public Safety Division was conducted as required by references (a) and (b). Enclosures (1) and (2) are provided for your information.
2. The point of contact for this report is Mr. John Sorenson, Head, Community and Occupational Health Division, Naval Branch Health Clinic. He may be reached at 639-7846 or by E-mail at john.sorenson@med.navy.mil.

A handwritten signature in cursive script, reading "John G. Sorenson", is positioned above the typed name.

J. G. SORENSON
By direction

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

EXECUTIVE SUMMARY

A comprehensive industrial hygiene survey of Public Safety Division (PSD) was conducted during July of 2011 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 Public Safety Division Safety Officer.

The assistance of your Safety Officers (Capt. Reynolds, Matthew Goldstein, and Stacey Williams) greatly facilitated the completion of this survey and is much appreciated.

Attachment (1) to enclosure (2) of this report provides an overall evaluation summary. Attachment (2) provides shop/process-specific individual work area hazard assessments. These are intended to be disseminated to the 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. John Sorenson at 639-7846, or by Email at john.sorenson@med.navy.mil.

Field Findings.

Ergonomic problems are a common issue to office personnel. There were no ergonomic issues found during this survey. Employee training on furniture/posture adjustment is recommended.

The noise levels at the shooting range expose the police to excessive levels of noise. Dosimetry measurements of noise exposures at firing ranges are normally found to be above the Navy standard. Double hearing protection is recommended for all personnel at the firing range. It is also recommended that Police Officers not be present at the firing range until it is their turn to shoot. Noise is a Navy Recognized Reproductive Hazard.

The Police Department makes it a practice to expose their employees to Capsicum (pepper spray) on a limited basis. The amount of pepper spray used is not expected to cause permanent injury.

The Fire Department personnel are also exposed to noise levels above the Navy Standard of 84 dBA when using gasoline power tools, such as the Jaws of Life, pumps, and other power equipment. Hearing protection is recommended when this type of equipment is in use.

The Fire Department's engine exhaust ventilation system is an excellent addition for protecting their worker's health. These systems were recently checked to confirm that they are in proper working condition. Positive innovations such as this should be continuously sought.

Medical Surveillance.

Exposure based medical surveillance recommendations are listed in attachment (3) to enclosure (2). Current exposure based medical surveillance recommendations are valid. It is recommended to place the police and fire department employees on to the Hearing Conservation Program.

The Fire Department is 100% up to date on their medical surveillance physical examinations.

The Police Department is 100% up to date on their medical surveillance physical examinations.

Please note that the following examinations are not listed in attachment (3):

- Medical certifications (those examinations which 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 (i.e. respirator use) or the job itself (i.e. forklift operators or security guards). These are specified by the command itself, not by Industrial Hygiene.
- Ionizing Radiation examinations, which are not specified by Industrial Hygiene, but rather by the Radiation Safety Officer.
- The requirement for a medical surveillance program for "sight conservation" is no longer Navy policy (see OPNAVINST 5100.23G, chapter 19). Position-specific requirements for visual acuity remain, but specification of such is outside the scope of Industrial Hygiene.

COMPREHENSIVE INDUSTRIAL HYGIENE SURVEY
Public Safety Division

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

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

1. **Introduction.** As required by reference (a) and (b), a periodic industrial hygiene survey of Public Safety Division (PSD) was conducted during the month of July 2011 by Mr. John Sorenson, Head, Occupational and Community Health, Naval Branch Health Clinic, Albany, GA. The survey consisted of site visits, walk-through evaluations of all work areas, a review of applicable policies, and employee interviews as appropriate to assist in the industrial hygiene assessment.

2. **Report Purpose and Use.** The purpose of this survey is to identify and assess chemical and physical health hazards that are present within PSD work areas, evaluate controls present and recommend modified or additional controls where necessary, and identify hazard-based medical surveillance needs. To this end, this survey contains the following:

a. An evaluation summary of NAVOSH programs, control measures, and hazard evaluations, provided as attachment (1).

b. The updated Individual Hazard Assessments for each work area, provided in attachment (2). These describe significant operations/processes that may produce health hazardous exposures, as described by shop supervisors.

d. A summary of current medical surveillance recommendations, provided as attachment (3).

e. An Exposure Monitoring Plan, provided as attachment (4).

f. Attachment (5) is listing of all ventilation measurements.

g. A glossary of Industrial Hygiene terminology is provided as attachment (6).

3. **Re-evaluation Schedule and Changes in the Workplace.** Please retain this report on file. NBHC Industrial Hygiene will re-evaluate PSD annually. However, any significant change in the type of operations performed, 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. NBHC Albany Industrial Hygiene should be notified of such changes.

Enclosure (2)

EVALUATION SUMMARY
 PERIODIC INDUSTRIAL HYGIENE SURVEY
 PUBLIC SAFETY DIVISION

Reference Report

The most recent previous Industrial Hygiene survey report for PSD is NBHC ltr 6260/513 of 04 August 2010

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.

- No Exposure Based Medical Surveillance is Recommended.
- Exposure Based Medical Surveillance is Recommended.
- No Change in Exposure Based Medical Surveillance Recommendations.
- Exposure Based 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
- MSDS Files Y N N/A Accurate Y N
- 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:

3. Management of Reproductive Hazards:

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

Comments: Noise is a Reproductive hazard. The Police and Fire Department personnel can be exposed to noise levels above the Navy standard of 84 dBA.

4. Noise and Hearing Conservation Program (HCP):

- Are personnel recommended for the HCP? Y N
- Are personnel receiving audiograms? Y N N/A (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: Hearing protection is worn when loud noise is anticipated.

5. Respiratory Protection:

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

Comments:

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: New ergonomically correct workstations are installed in office areas to reduce Ergonomic risk in the office areas.

<p>8. Other Applicable Programs:</p> <p><input type="checkbox"/> Lead Control</p> <p><input type="checkbox"/> Asbestos Control</p> <p><input type="checkbox"/> Carcinogens</p> <p><input type="checkbox"/> Other</p> <p>Comments:</p>
<p>Consultative or Special Surveys/Findings Since the Previous Survey: <input checked="" type="checkbox"/> (check if none)</p>
<p>Changes to Specific Workplace Evaluations and Monitoring Plan</p>
<p>1. Workplace Assessments:</p> <p><input checked="" type="checkbox"/> No significant change to workplace assessment information was identified.</p> <p><input type="checkbox"/> The following significant workplace assessment changes were identified:</p>
<p>2. Exposure Assessment:</p> <p><input type="checkbox"/> New exposure data were obtained since the prior evaluation and are summarized below</p> <p><input checked="" type="checkbox"/> No change in any exposure assessment was identified as part of the survey or from sampling data.</p> <p><input type="checkbox"/> The following changes in exposure assessments were identified:</p> <p>Comments:</p>
<p>3. Findings and Recommendations:</p> <p><input checked="" type="checkbox"/> There were no significant findings identified during this survey that require corrective action.</p> <p><input type="checkbox"/> The following significant findings were identified:</p>
<p>4. Exposure Monitoring Plan. Attachment (3) provides the current Exposure Monitoring Plan.</p> <p><input checked="" type="checkbox"/> Exposure monitoring needs were identified.</p> <p><input type="checkbox"/> No exposure monitoring needs were identified.</p> <p><input type="checkbox"/> There are no changes to the previous Exposure Monitoring Plan.</p> <p>Comments: Noise dosimetry measurements of the police at the shooting range will be added to the Exposure Assessment Plan.</p> <p>Additional Comments:</p> <p>Noise dosimetry measurements were taken at truck gate. TWA < 84 dBA.</p> <p>Measurements of the Fire Department's new engine exhaust ventilation system found the system to provide adequate ventilation.</p>

INDIVIDUAL HAZARD ASSESSMENT			DATE: 26 July 2011	
RECORDED BY: John Sorenson SIGNATURE: <i>John Sorenson</i> COMMAND: MCLB PUBLIC SAFETY DIVISION SHOP NAME: Base Police Department			POC: Lt. William Womble PHONE: 639-7323 TOTAL PERSONNEL: 79 MALE: 66 FEMALE: 13	
SHOP OPERATIONS: Employees in this department perform normal Police duties.				
HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT (1)
Office and desk work: Ergonomics	8 hrs per day	79	Ergonomically adjustable furniture is in use. Education and training to properly use furniture that is provided.	Acceptable based upon the presence of ergonomically adjustable furniture.
Training and qualification with "Pepper Spray:" Capsicum. Each officer is required to annually "feel the effect" of the pepper spray agent.	Once per year for 1 minute.	79	None.	Acceptable due to low toxicity, short duration and low frequency. Dosage is not expected to cause permanent injury.
Sentry duty at the truck gate: Noise Heat	1 or 2 minutes many times per day. Daily for Full Shift (seasonal)	79	Administrative: Daily rotation of personnel to other gates or duties. Eng. Control: AC inside of shack	Acceptable due to short duration and administrative control. Acceptable due to Engineering Control.
First responder: Blood borne pathogens. Acute exposure to blood/body fluid may occur during emergency responses.	Emergency only, possible exposure	79	Training and PPE: impermeable gloves and face shields	Acceptable: all employees are on the Blood Borne Pathogen program.
Qualification and Practice Shooting: Noise	Twice per year for half day	79	PPE: Double hearing protection: Ear Muffs and plugs Admin. Control: rotating personnel off of firing line when not actually shooting.	Unacceptable based upon measurements of similar operations. Noise is a Navy recognized reproductive hazard.

INDIVIDUAL HAZARD ASSESSMENT			DATE: 26 July 2011	
RECORDED BY: John Sorenson SIGNATURE: <i>John A. Sorenson</i> COMMAND: MCLB PUBLIC SAFETY DIVISION SHOP NAME: Base Police Department			POC: Lt. William Womble PHONE: 639-7323 TOTAL PERSONNEL: 79 MALE: 66 FEMALE: 13	
SHOP OPERATIONS: Employees in this department perform normal Police duties.				
HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT (1)
1. USE THE FOLLOWING EXPOSURE CODES: ACCEPTABLE – ONE WHERE THE IH WILL NOT EXPECT THE SEG TO BE EXPOSED ABOVE THE SELECTED OEL. UNCERTAIN – ADDITIONAL DATA NEED 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				

INDIVIDUAL HAZARD ASSESSMENT			DATE: July 25, 2011	
RECORDED BY: John Sorenson SIGNATURE: <i>John Sorenson</i> COMMAND: MCLB PUBLIC SAFETY DIVISION SHOP NAME: Fire Department			POC: Matthew Goldstein PHONE: 639-5610/5611 TOTAL PERSONNEL: 38 MALE: 37 FEMALE: 1	
SHOP OPERATIONS: Fire fighting and first response (EMS). These employees spend a majority of their time doing equipment maintenance and training. Physical training is performed in the presence of emergency medical personnel.				
HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT (2)
Acute exposures to smoke and thermo decomposition products may occur during fire fighting operations.	Emergency only	387	Positive Pressure SCBA and Level A and Level B protective suits are available. CO level in blood is monitored.	ACCEPTABLE based upon high level of training to avoid exposures
Operation of power equipment and tools; jaws of life, chain saws: Noise	Short duration when required.	38	PPE: Ear muffs and/or plugs.	Unacceptable; due to high noise level of power equipment, all firefighters are enrolled in the HCP. Noise is a recognized reproductive hazard.
First responder: Blood borne pathogens. Acute exposure to blood/body fluid may occur during emergency responses.	Emergency only, possible exposure	38	Training and PPE: impermeable gloves and face shields. Refresher Universal Precautions and Body Substance Isolation (BSI) training is conducted and required annually	Acceptable: all employees are on the Blood Borne Pathogen program.
Running engines in garage area: Diesel exhaust	Daily	38	Eng. Control: Automatic exhaust ventilation systems that attach and seal directly to the vehicles exhaust pipes. All exhaust is vented outdoors. Large garage doors are open providing direct ventilation. CO level in blood is monitored.	Acceptable: due to engineering controls.

INDIVIDUAL HAZARD ASSESSMENT		DATE: July 25, 2011		
RECORDED BY: John Sorenson SIGNATURE: <i>John C. Sorenson</i> COMMAND: MCLB PUBLIC SAFETY DIVISION SHOP NAME: Fire Department		POC: Matthew Goldstein PHONE: 639-5610/5611 TOTAL PERSONNEL: 38 MALE: 37 FEMALE: 1		
SHOP OPERATIONS: Fire fighting and first response (EMS). These employees spend a majority of their time doing equipment maintenance and training. Physical training is performed in the presence of emergency medical personnel.				
HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT (2)
1. USE THE FOLLOWING EXPOSURE CODES: ACCEPTABLE – ONE WHERE THE IH WILL NOT EXPECT THE SEG TO BE EXPOSED ABOVE THE SELECTED OEL. UNCERTAIN – ADDITIONAL DATA NEED 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				

INDIVIDUAL HAZARD ASSESSMENT		DATE: 26 July 2011		
RECORDED BY: John Sorenson SIGNATURE: <i>John A. Sorenson</i> COMMAND: MCLB PUBLIC SAFETY DIVISON SHOP NAME: Risk Management Office		POC: STACEY WILLIAMS PHONE: 639-7049 TOTAL PERSONNEL: 9 MALE: 7 FEMALE: 2		
Shop operations: Administrative offices. Workers in these offices conduct meetings, write, and process paper work. They operate computers, copy machines, facsimile machines and other standard office equipment. The inspectors go out to all areas of the base to conduct safety inspections.				
HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT (1)
Office and desk work: Ergonomics	8 hrs per day	8	Ergonomically adjustable furniture is in use. Education and training to properly use furniture that is provided.	Acceptable due to education, training and adjustable furniture.
1. USE THE FOLLOWING EXPOSURE CODES: ACCEPTABLE – ONE WHERE THE IH WILL NOT EXPECT THE SEG TO BE EXPOSED ABOVE THE SELECTED OEL. UNCERTAIN – ADDITIONAL DATA NEED 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				

INDIVIDUAL HAZARD ASSESSMENT			DATE: 26 July 2011	
RECORDED BY: John Sorenson SIGNATURE: <i>John A. Sorenson</i> COMMAND: MCLB PUBLIC SAFETY DIVISION SHOP NAME: Public Safety Manager's Office		POC: ADA BERRY PHONE: 639-5535 TOTAL PERSONNEL: 5 MALE: 3 FEMALE: 2		
Shop operations: Administrative offices. Workers in these offices conduct meetings, write, and process paper work. They operate computers, copy machines, facsimile machines and other standard office equipment. The inspectors go out to all areas of the base to conduct safety inspections.				
HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT (1)
Office and desk work: Ergonomics	8 hrs per day		Ergonomically adjustable furniture is in use. Education and training to properly use furniture that is provided.	Acceptable
1. USE THE FOLLOWING EXPOSURE CODES: ACCEPTABLE – ONE WHERE THE IH WILL NOT EXPECT THE SEG TO BE EXPOSED ABOVE THE SELECTED OEL. UNCERTAIN – ADDITIONAL DATA NEED 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				

SUMMARY OF EXPOSURE-BASED MEDICAL SURVEILLANCE STATUS
Public Safety Division

The following table summarizes current *exposure-based* medical surveillance status. For some shops there are few if any data available, and so new sampling is being conducted to validate whether specified exposure based medical surveillance enrollment is appropriate. However, no shops will be added to or removed from any exposure based medical surveillance program without adequate industrial hygiene sampling data, an assessment of the data, and review of industrial hygiene recommendations by Occupational Medicine personnel. Work areas not listed in this table have no exposure-based medical surveillance recommendations.

PRODUCTION SHOP	HEARING CONS		
Fire Department	X		
Police Department	X		

Explanation of Exposure Based Medical Surveillance Recommendations.

1. Recommendation for inclusion in a Exposure-based medical surveillance program for employees involved in a given operation is based on the industrial hygienist's judgment, either through observation or knowledge of the process or representative sampling, that these employees will be routinely exposed to workplace concentrations at or above 50% of applicable OSHA standards or action levels established by Navy instruction or Federal regulation.
2. Medical certifications are not included in this table. Certifications 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 (i.e. respirator use) or the job itself (i.e. forklift operators or security guards), and as such are specified by the command, not by Industrial Hygiene. Governing references regarding certifications should be followed.
3. Ionizing Radiation examinations are not specified by Industrial Hygiene, but rather by the Radiation Safety Officer, and so are not included on this table.
4. The requirement for a medical surveillance program for "sight conservation" is no longer Navy policy (see OPNAVINST 5100.23G, chapter 19), so such specifications are not included in this table. Position-specific requirements for visual acuity remain, but specification of such is outside the scope of Industrial Hygiene.
5. The exposure based medical surveillance listed above represents no change from previous exposure based medical surveillance recommendations.

Exposure Monitoring Plan 2011-2012
Public Safety Division

Date Issued: 01 August 2011

IH: John Sorenson

COST WORK CENTER	POINT OF CONTACT (SHOP SUPERVISOR)	STRESSOR	SAMPLING INSTRUCTIONS	NUMBER OF SAMPLES NEEDED	MAN-HOURS	PRIORITY (SEE NOTE 1)	COMMENTS
Police Department	Sgt. Will Wombie	Noise	Full shift personal noise dosimetry on two non-consecutive days on each of two truck gate security guards on days on typical work days.	2	16	2	To validate HCP enrollment.
TOTAL MAN-HOURS					16		

NOTE 1: DEFINITION OF MONITORING PRIORITIES:

Priority 1: Mandated by instruction/law

Priority 2: Needed for forming hazard assessment or establishing PPE need (everything not fitting 1 or 3)

Priority 3: Nice to have/freshen old data/have data but want to strengthen the statistics/miscellaneous or screening sampling

LOCATION	RESULTS	STANDARD AND REFERENCE	WITHIN STANDARD (Y/N)	COMMENTS
Fire Station #2 Nederman Engine Exhaust Ventilation System	Q = 311 ft ³ /min	NA	NA	Evaluation completed 27 July 2011
Fire Station #1 Plymoverent Engine Exhaust Ventilation System	Q = 238 ft ³ /min	NA	NA	Evaluation completed 27 July 2011

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 Consolidated Hazardous Material Reutilization and Inventory Management Program 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 Ventilation – 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 Environmental Protection Agency 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 preplacement 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 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, **Self-Contained Breathing Apparatus** – 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: **Sound Level Meter** – a device for measuring sound or noise levels

SPL: **Sound Pressure Level** – a term used in discussion of sound or noise measurements.

STEL: **Short-Term Exposure Limit** – 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®: **Threshold Limit Values®** 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: **Time-Weighted Average** - 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: **Ultra Violet light:** Ultraviolet rays have wavelengths shorter than visible rays. So short that they are not part of the visible light spectrum.

WBGT: The **wet-bulb globe temperature** 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.