DEPARTMENT OF THE NAVY
NAVAL HOSPITAL
100 BREWSTER BLVD
CAMP LEJEUNE, NORTH CAROLINA 28547-2538

IN REPLY REFER TO
6260.7
06SF/15-143-7a
17 Jul 15

From: Commanding Officer, Naval Hospital Camp Lejeune
To: Commanding Officer, Marine Corps Base, Camp Lejeune
Attn: AC/S, G-4

Subj: 2015 PERIODIC INDUSTRIAL HYGIENE SURVEY FOR THE MARINE CORPS INSTALLATIONS EAST (MCIEAST)/MARINE CORPS BASE (MCB) CAMP LEJEUNE G-4

Ref: (a) MCO 5100.8
(b) OPNAVINST 5100.23G

Encl: (1) Periodic Industrial Hygiene Survey Report

1. The Periodic Industrial Hygiene Survey of the MCIEAST/MCB Camp Lejeune G-4 was conducted on 9 & 30 June 2015 per references (a) and (b).

2. The purpose of this survey is to assist you in meeting your legal responsibilities to provide a healthful work environment as outlined under Federal Occupational Safety, Health laws, Navy and Marine Corps regulations. The Industrial Hygiene evaluation and recommendations are based on the standards and guidelines established by references (a) and (b).

3. This Periodic Survey report contains the Industrial Hygiene Evaluation (IH-EVAL) of each work center in your unit. Each work center supervisor should maintain a copy of the IH-EVAL of his/her work center for review and action. This IH-EVAL is a good source for training work center personnel on Safety and Occupational Health issues related to their work place.

4. Significant findings can be found in the Executive Summary of enclosure (1). Recommendations to improve current Occupational Health programs are provided.

5. The Naval Hospital, Industrial Hygiene staff is available to provide training in any or all the Occupational Health programs. Assistance from Jonathan Murray and your personnel was invaluable and very much appreciated. Please contact Brian J. Loconto at 449-9673 or e-mail brian.j.loconto.civ@mail.mil for further assistance.

J. E. STONE, CIH
By direction

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2015 PERIODIC INDUSTRIAL HYGIENE REPORT
FOR
MCIEAST/MCB CAMP LEJEUNE
G-4

SURVEY CONDUCTED BY:	BRIAN J. LOCONTO INDUSTRIAL HYGIENIST
SAMPLES COLLECTED BY:	P. WILLIAMS INDUSTRIAL HYGIENE TECHNICIAN
SURVEY REPORT APPROVED BY:	J. E. STONE, CIH HEAD, INDUSTRIAL HYGIENE DEPARTMENT

Enclosure (1)

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EXECUTIVE SUMMARY

1. Brian J. Loconto, Industrial Hygienist, conducted the Periodic Industrial Hygiene Survey 9 June & 30 June 2015. The survey consisted of an evaluation of all work centers in your unit and review of your Safety and Occupational Health programs.

2. **HAZARD COMMUNICATION (HAZCOM) PROGRAM**: ***(Program meets Requirements)*** A number of workers have the potential for exposures to a variety of hazardous chemical agents such as paints, vehicle exhaust, lubricants, solvents, fuels and cleaning products. Each section's training representative should continue to conduct HAZCOM training annually and for all new personnel. Worksite evaluations and monitoring have indicated that exposures to toxic chemical agents do not exceed the Permissible Exposure Limits (PEL) or Action Level (AL) as established by Occupational Safety and Health Administration (OSHA).

a. Safety Data Sheets (SDS) are available to workers at each individual work site.

b. A review of the SDSs revealed that some chemical inventory items such as paints and petroleum products contain substances that are suspected carcinogenic and/or reproductive agents. Other products were noted as containing irritants to the eyes, skin or respiratory tract.

c. Substitution where feasible, with a non-hazardous product is the preferred control method. If substitution is not an option then the use of these products should be limited to specifically trained personnel. Information on safe usage and appropriate personal protective equipment can be found in the Health Hazard Section of the SDS.

3. **HEARING CONSERVATION PROGRAM (HCP): *(Program meets Requirements)***

a. According to MCO 6260.3, all active duty Marine Corps personnel must be included in the command's hearing conservation program (HCP). ***Individuals assigned to the HCP are required to have annual audiograms and attend training.***

b. All civilian personnel exposed to noise levels exceeding the Navy's Permissible Exposure Limit of Time Weighted Average of 85 decibels (dB(A)) are enrolled in the unit's hearing conservation program and listed on a unit occupational exposure registry (OER).

c. According to Hearing Conservation Program BO6260.4D, dated 08 December 2008, an OER of all civilian personnel is to be submitted semi-annually (June and December) to the Operational Audiology Department, Public Health, NHCL. The Hearing Conservation OER is located in Appendix A. **E-mail a**

copy of Appendix A to Hearing Conservation Division (HCD), Occupational Health Department, NHCL at kyle.h.shepard.mil@mail.mil. Please provide the HCD with an updated OER as staffing changes occur.

d. HCP medical surveillance recommendations in this report are based solely on "in garrison" work day exposure assessments and do not incorporate personnel noise exposure incurred during deployment(s). Based on previous noise dosimetry results (IH Report #10-169-7s dtd 26 Nov 10 and #10-187-7s dtd 29 Dec 10), the G-4 Lot 201 Blocker/Bracer and Crane Operator personnel should remain in the Hearing Conservation Program. Hazardous noise producing equipment and the area surrounding it were labeled with "Hearing Protection Required" decals in most areas.

e. Supervisory personnel should continue to enforce the wearing of hearing protection around hazardous noise producing equipment and continue to provide and document the annual training outlined in OPNAVINST 5100.23G & MCO 5100.8.

4. **RESPIRATORY PROTECTION PROGRAM (RPP)**: ***(Program not Needed)*** The G-4 is not required to have a RPP. However, should changes occur in your work processes which necessitate the use of a respirator contact Industrial Hygiene at 451-4218.

5. **PERSONAL PROTECTIVE EQUIPMENT (PPE):** PPE for specific work centers can be found in the PPE Checklist after the work center assessment. Surgical gloves are not allowed under any circumstances, and should be substituted with nitrile or neoprene gloves. Should personnel be required to participate in field day and use cleaning chemicals, the manufacturer's recommendations concerning hazards and PPE should be followed.

6. **HEAT STRESS:** A potential for heat stress is present in the summer months for many personnel. Personnel are trained in how to prevent heat stress. Subject should continue to be covered during safety meetings and documented. Marine Corps Order 6200.1E is the applicable regulation to follow but has recently been cancelled. There is no active guidance on heat stress injury prevention at this time. Currently, MARADMIN 111/15 provides interim guidance for commanders and officers-in-charge for planning and executing heat stress injury prevention until a new MCO is formally incorporated.

7. **ERGONOMICS:**

a. Ergonomics is concerned with the way workers interact with their work environment. There were no ergonomic complaints at the time of the survey. Although there were no complaints, the consistent use of computers, power tools and associated heavy equipment can result in fatigue and Cumulative Trauma Disorders (CTDs). A guideline for helping prevent/reduce CTD's and adjusting workstations properly has been provided on page 10 of this report.

b. Instructions on back safety and proper lifting techniques should also be incorporated to augment the ergonomic program, refer to page 11 of this report. Ergonomic awareness training should be conducted and be sure to document all training.

8. **SIGHT CONSERVATION**: Eyewash stations are provided in all appropriate sites. Routine maintenance of eyewashes is outstanding in most workspaces. A logbook for time of inspection and changing of water for each eyewash station is in place. Recommend adding water preservative for prevention of growth of harmful bacteria in self-contained eyewash stations.

9. Documentation on required Occupational Safety and Health Programs (OSH) training is present. Please see the OSH Training table for specific topics.

10. This report reflects the present conditions and operations at the G-4 during the survey period. Industrial Hygiene surveys are required for most industrial workplaces by the OPNAVINST 5100.23G. In addition, changes in procedures, processes or workloads that may significantly alter personnel exposures require more frequent evaluations. Supervisory personnel are encouraged to notify the Industrial Hygiene Department when significant changes occur pertaining to engineering designs, SOPs, purchasing transactions/contracts relevant to industrial hygiene.

11. The next Industrial Hygiene survey will be conducted in 2017 per OPNAVINST 5100.23G, Chapter 8, App. 8-B. The G-4 is listed as Category II Moderate Hazard and the required periodic Industrial Hygiene reevaluation frequency is listed as every 2 years.

12. **The following page contains information regarding discrepancies in which corrective actions should be addressed within 30 days.**

DISCREPANCY/HEALTH RISK CODE (HRC)

1. Discrepancies are assigned a Health Risk Code (HRC), which represents the severity of a hazard and the probability of the mishap occurring. A summary of the total HRC assigned to the Occupational health discrepancies noted during the survey is as follows. There were two noted at the time of this walk-thru.

WORK CENTER	NUMBER	HRC	DISCREPANCY/REFERENCE CITED

HRC	Number of Discrepancies
1. - Critical	0
2. - Serious	0
3. - Moderate	0
4. - Minor	0
5. - Negligible	0

A summary of these findings is provided in the table above. Detailed findings and specific recommendations are provided in the Industrial Hygiene Survey Report under findings and recommendations sections. The discrepancies noted are to be corrected within 30 days of the receipt of the survey report. Appropriate correspondence with corrective action should then be reported to the Industrial Hygiene Department. If there are discrepancies, which cannot be corrected within this time frame contact the point of contact, stated in the survey.

PRODUCTS CONTAINING POTENTIAL CARCINOGEN OR REPRODUCTIVE HAZARDS

MANUFACTURER/NSN	PRODUCT	POTENTIAL HAZARD	AREA
Infinity	Penetrating Oil	C- Mineral Spirits 3.5% C and R- Kerosene with Xylene mix .5-1.5%	DMO
Unknown	Gas	R and C- Gasoline	DMO, Bas MT-Bldg 1407
Unknown	Diesel fuel	R and C- diesel	DMO
SC Johnson,Inc.	OFF Insect Repellant	R- Ethanol 60-100%	DMO
WECHEM	Zapper Wasp and Hornet Killer	C- Permethrin .375%	DMO
The Sterno Group	Sterno Brand Canned Heat Cooking Fuel	R- Ethanol 67%	Food Service
DAP Inc.	Original Contact Cement	R- Toluene 50-60%	Food Service
Gorilla Glue Company	Gorilla Glue	S– MDI 30%	Food Service
Unknown	Diesel Fuel	R and C- Benzene	Base MT-Bldg 1407
Tru-Flate	Universal Cement	C- Trichloroethylene 90-95% C- 1,2 Butylene Oxide .1-.5%	Base MT-Bldg 1502
DemKote	Flat White	C- Titanium Dioxide 5.14% R and C- Toluene 8.44% C- Mineral Spirits 3.2%	Base MT-Bldg 1504
Rust- Oleum	American Accents Metallic Aerosol Topcoats	C- Ethylbenzene <5% R and C- Toluene <40% R and C- Xylene <10% R- Aliphatic Petroleum Distillates <15%	Base MT-Bldg 1504
CRC Industries	Heavy Duty Degreaser	C- Tetrachloroethylene 50-60% C- Trichloroethylene 40-50% C- 1,2-Butylene Oxide	Base MT-Bldg 1502
LocTite	Nickel Anti-Seize	C- Nickel 10-30%	Base MT-Bldg 1502
Marvel	Air Tool Oil	C- Mineral Spirits 20-30%	BASE MT-Bldg 1502
3M	Super Weatherstrip	R and C- Toluene 5-10% R- Benzene <.0005% C- Ethylbenzene <.2 C- Formaldehyde <.05% C- Talc <.2%	Base MT-Bldg 1502
Fleet Charge	Anti-freeze Coolant	R- Ethylene Glycol 95%	Base MT-Bldg. 1502 POL room
Sherwin Williams	Industrial Enamel Safety Yellow	C- Titanium Dioxide 13% C- Ethylbenzene .1%	Fuel Farm
Rustoleum	Safety Red	C- Ethylbenzene 5% R- Xylene 10%	Fuel Farm
Sherwin Williams	HYDROGLOSS Extra White	C- Titanium Dioxide 12%	Fuel Farm
Rustoleum	Yellow Inverted Striping Paint	R- Xylene 10% C- Titanium Dioxide 5% R- Toluene 25% C- Ethylbenzene 5%	Fuel Farm

Legend:

S = Sensitizer
R = Reproductive Hazard
C = Carcinogen

HDI = Hexamethylene Diisocyanate
MDI = Diphenylmethane Diisocyanate

LIST OF REQUIRED OSH TRAINING

Reference: OPNAVINST 5100.23G

PROGRAM	TRAINING	PERIODICITY
HAZARD COMMUNICATION	ALL PERSONNEL	INITIALLY & ANNUALLY
SIGHT CONSERVATION	EYE HAZARD AREAS	INITIALLY & ANNUALLY
HEARING CONSERVATION	PERSONNEL REQUIRING HEARING PROTECTION & ALL MARINE CORPS PERSONNEL	INITIALLY & ANNUALLY
PERSONAL PROTECTIVE EQUIPMENT (PPE)	AREAS REQUIRING PPE	INITIALLY & ANNUALLY
HEAT STRESS	ALL PERSONNEL	INITIALLY & ANNUALLY
ERGONOMICS	ALL PERSONNEL	INITIALLY & ANNUALLY

The Industrial Hygiene Department highly recommends annual training for all personnel. Base Order (BO) 5100.20A provides training criteria and requires supervisory personnel a minimum of 2-hours documented formal training annually. All other personnel involved in handling hazardous material must receive a minimum 1-hour initial documented formal hazardous material training. Training must be updated when personnel assigned to new areas or when shop processes change to introduce a new chemical. Training will specifically address reproductive hazards per OPNAVINST 5100.23G and should include the identification and control of chemicals that possess reproductive hazards.

MEDICAL SURVEILLANCE PROGRAM SUMMARY

SHOP	PROGRAM NUMBERS	SPECIAL EXAMINATIONS AND/OR STRESSORS
CUSTOMER RELATIONS MANAGEMENT, LOGISTICS SUPPORT DIVISION & WORKFORCE SUPPORT DIVISION	***N/A***	
DISTRIBUTION MANAGEMENT OFFICE	***503***	***Noise***
SUPPLY MANAGEMENT DIVISION	***503***	***Noise***
BASE MOTOR TRANSPORT	***N/A***	
FOOD SERVICE DIVISION	***N/A***	
OPERATIONS & PLANS DIVISION	***N/A***	

PROGRAM NUMBERS AND SPECIAL EXAMINATIONS	PROGRAM NUMBERS AND STRESSOR CATEGORIES
701-Aviation **702**-Wastewater/Sewage Worker **703**-Child Care Worker **704**-Construction, Railroad, & Weight Handling Equipment Operators **705**-Diver/Hyperbaric Worker **706**-Motor Vehicle Operator (DOT) **707**-Firefighter **708**-Welders/Braziers/NDI **709**-Foodservice Personnel **710**-Forklift Operator **711**-Hazardous Waste Workers & Emergency Responders **712**-Motor Vehicle Operator (Other than DOT) **713**-Naval Criminal Investigative Service **714**-Police/Guard Security **716**-Respirator User Certification Exam **719**-Health Care Worker **720**-Explosives Vehicle Operators **721**-Explosive Handler **723**-Barber and Beauty Shop Employees	**CHEMICAL STRESSORS** **113**-Asbestos, Current Worker **117**-Benzene **124**-Cadmium **133**-Chromic Acid/Chromium VI **151**-Formaldehyde **161**-Lead **168**-Methylene Chloride **178**-Blood and/or Body Fluids **187**-Silica (Crystalline) **196**-Isocyanates **210**-Manganese Oxide Fumes **PHYSICAL STRESSORS** **502**-Heat **503**-Noise **505**-Radiation (Ionizing) **506**-Radiation (Laser; Class III & IV) **508**-Hand/Arm Vibration **MIXED EXPOSURES** **108**-Anesthetic Gases **207**-Animal Associated Disease **212**-Manmade Mineral Fibers **602**-Metal Fumes **604**-Wood Dust

***** HCP medical surveillance recommendations in this report are based solely on "in garrison" work day exposure assessments and do not incorporate personnel noise exposure incurred during deployment(s).**

http://www.public.navy.mil/navsafecen/pages/osh/medsurv.aspx

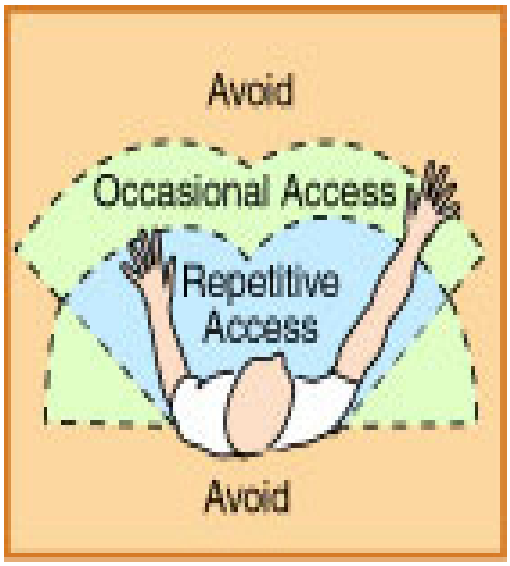
ERGONOMICS PROGRAM TRAINING HANDOUT

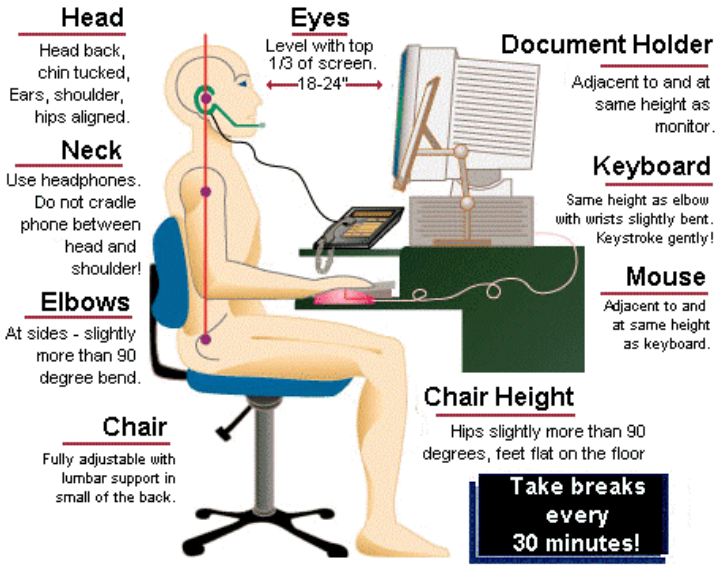
Maintaining a healthy office environment requires attention to work station design. Conditions in offices that can lead to potential injury or illness include: physical hazards (such as cords across walkways, leaving low drawers open, objects falling from overhead); task related hazards (speed, repetition, and duration), and design related hazards (such as nonadjustable furniture or equipment). When the requirements of the job do not match the capabilities of the worker, potential injury or illness may result.

A well designed office allows each employee to work comfortably without needing to overreach, sit or stand too long, or use awkward postures. Sometimes, equipment or furniture changes are the best solution to allow employees to work comfortably. On other occasions, the equipment may be satisfactory but the task could be modified. For example, studies have shown that those working at computers have less discomfort when encouraged to take short breaks and stretching regularly. It is recommended that for every 30 minutes of work at least 5 minutes are spent walking and stretching.

RECOMMENDATION TO ELIMINATE ERGONOMIC RELATED INJURIES:

- Arrange materials in front of the body so they can be easily reached with elbows close to the torso.
- Use fully adjustable, padded chairs that support the forearms, legs, and low back. Armrests should allow the elbows to hang normally at the side of the body.
- Arrange your monitor so that the most commonly viewed area is slightly below (about 20 degrees), horizontal eye level and can be seen without looking up. Enlarge text on computer to avoid leaning forward.
- Use an adjustable keyboard tray and mouse support. Keep wrists straight while typing and use wrist pads to rest on when not typing.
- Take short breaks as needed to stretch and walk throughout the work shift (especially when performing highly repetitive tasks). Avoid remaining in a static position for prolonged periods of time.





GUIDELINES FOR PROPER LIFTING

Back injuries are the most common work-related injury aboard MCB Camp Lejeune. Back pain indicates that damage to your back has already occurred. Most incidents are cumulative in nature. Stretching may help reduce the likelihood of injury but should not be used in place of engineering or administrative controls.

PLAN THE LIFT:

* Inspect the load
    - Check for tags indicating weight
    - Test the load for stability
    - Choose a path that allows keeping the lift in your power zone
    - Clear out objects along path and watch for trip hazards
    - Reduce horizontal and vertical travel distance
    - Use lifting/transport equipment (i.e. dolly)
    - Pushing loads is better than pulling
* Do not lift beyond your capability
    - Split up your lift (repackage containers)
    - Allow time for work/rest breaks for repetitive lifting tasks
    - Ask a co-worker for help
    - Alternate heavy and light lifting to reduce fatigue

AS YOU LIFT:

* Squat to lift and lower
    - Never bend at the waist
    - Keep your low back bowed in
* Always use both hands
    - Gloves reduce grip strength; Choose a size that fits
    - Ensure a secure and comfortable grip (avoid pinching)
* Avoid jerking and twisting; turn your whole body
    - Keep your feet apart and staggered for better stability
    - Keep load close to your body & lift by pushing up with your legs

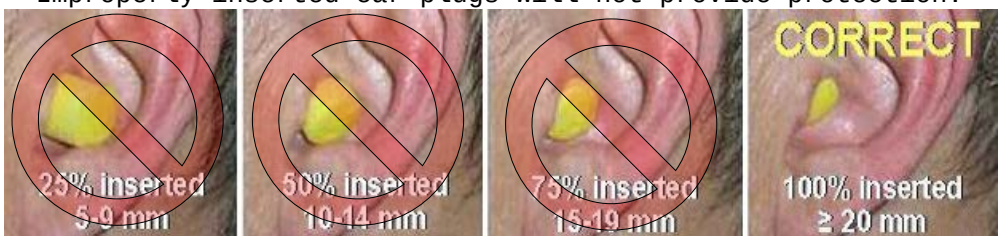
HOW TO WEAR HEARING PROTECTION

Noise induced hearing loss cannot be reversed, but you can prevent hearing loss by using properly inserted ear plugs or using ear muffs. Always wash hands prior to fitting, especially when working with oils, heavy metals, and/or solvents that may also contribute to hearing loss.

INSERTED HEARING PROTECTION: Remember to straighten ear canal.

ROLL **PULL** **HOLD**

Improperly inserted ear plugs will not provide protection.



CHECK YOUR SEAL: Cup your hands tightly over your ears. If sounds are much more muffled with your hands in place, the earplug may not be sealing properly.

EAR MUFFS: Check foam cushions on muffs for wear and clean periodically with a damp cloth.

Eye protection and glasses can break the seal on ear muffs.

CHECK YOUR SEAL: Press the earmuff cups together against your head in a noisy environment. If you notice noise reduction, the earmuffs may not be sealing properly.

EXPOSURE MEASUREMENT CRITERIA AND RATIONALE

This survey report presents the concentration of chemical contaminants in terms of mass per unit volume (milligrams per cubic meter - mg/m^3) or, in the case of asbestos, in fibers per cubic centimeter of air (f/cc). The time weighted average (TWA) or ceiling concentrations of chemicals or particulate, as well as the directly measured levels of physical hazards, such as noise, are compared to exposure standards established by appropriate Naval instructions or Permissible Exposure Limits (PEL) established by the Occupational Safety and Health Administration (OSHA). In the case that neither a Navy nor an OSHA standard has been promulgated, then a nationally recognized consensus standard such as those established by the American Conference of Governmental Industrial Hygienists (ACGIH), the American National Standards Institute (ANSI) or the National Fire Protection Association (NFPA) may be used.

It should be noted that the measured workplace levels of chemical, physical or biological hazards are compared to the standards without regard for any personal protective equipment that may be worn or the protection that may be afforded by it. The goal is to reduce workplace hazard levels by other means so that personal protective equipment is not required.

The sampling and analyses performed in support of this survey follow methods approved and validated by the National Institute for Occupational Safety and Health (NIOSH) or by appropriate Naval instructions. When methods are either unavailable or not applicable, other consensus methods may be used. In all cases, accepted professional industrial hygiene practices are followed. Documentation concerning the types of instruments used and their calibration records is held by the Industrial Hygiene Department, Directorate for Public Health, Naval Hospital Camp Lejeune.

WORKPLACE ASSESSMENTS AND RECOMMENDATIONS
NAVAL HOSPITAL CAMP LEJEUNE, INDUSTRIAL HYGIENE DEPARTMENT
PERIODIC INDUSTRIAL HYGIENE SURVEY OF THE
MCIEAST/MCB CAMP LEJEUNE G-4

SHOP/LOCATIONS: **CUSTOMER RELATIONS MANAGEMENT, WORKFORCE SUPPORT DIVISION & LOGISTICS SUPPORT DIVISION, BLDG# 1**

DATE OF SURVEY: 9 June 2015

REFERENCES: (a) OPNAVINST 5100.23G
(b) MCO 5100.8

1. **INTRODUCTION**: The works of the above work centers are administrative in nature. It is mainly entering data into the computer, exchanging information electronically and managing the associated correspondence. Current Personnel assigned are: 1 civilian male and 3 civilian females.

2. **OPERATIONS**: The current work tasks and the potential or known health hazards associated with them are presented in the table below. A discussion of each task follows the table.

TASK	HAZARD	WORKERS INVOLVED	DURATION & FREQUENCY	HAZARD CONTROLS	EXPOSURE ASSESSMENT RATIONALE*
Administrative Duties (Computer Use, etc.)	Repetitive Motion	All	6-8 Hours Daily	WorkStation Design, Training, Breaks	Acceptable ***(Based on existing controls)***

LEGEND:
* = Refer to Appendix B
C = Classified as a known or suspected human carcinogen per ACGIH (A1 & A2) or OSHA
R = Classified as a known reproductive hazard in Chapter 29 OPNAVINST 5100.23G

3. **ADMINISTRATIVE DUTIES/COMPUTER USE - (Repetitive Motion):**

OBSERVATION: Personnel use computers in performing administrative functions. The consistent use of computers and associated equipment can result in fatigue and Cumulative Trauma Disorders (CTD). The restrictions placed on personnel assigned to duties utilizing computers, due to prolonged sedentary positioning, is the major contributor to CTD. The basic design of workstations can contribute to poor posture that leads to complaints of back, neck, arm and leg pain.

RECOMMENDATIONS:

a. The goal of ergonomics is the control and ideally the prevention of CTDs. Body positioning is of basic importance with special attention focused on support of the hands and arms in a “neutral” position. The repetitive nature of work can be reduced by frequent stretch breaks and performing non-repetitive duties to vary the work. Complaints concerning CTDs should be given timely attention with the initial symptoms. The early

detection and resolution of ergonomic problems can control or prevent potentially disabling injuries. The Occupational Health Clinic, 451-2181, should evaluate personnel experiencing repetitive motion discomfort that is suspected to be occupational.

b. The Ergonomics Program Training Handout, on page 10 of this report, is provided for supervisors to use in training personnel on how to help prevent and reduce CTDs and adjust their workstations. Employee education in the area of ergonomics is probably the single most effective way in dealing with physical and mental strain associated with computer usage. Training employees in the proper adjustment of their workstation may prevent occupational injuries and enhance productivity.

c. Instructions on back safety and proper lifting techniques should be incorporated to augment the ergonomic program, refer to page 11 of this report. Ergonomic awareness training should be conducted and be sure to document all training per references (a) and (b).

PERSONAL PROTECTIVE EQUIPMENT (PPE): None is recommended for this Division.

MEDICAL SURVEILLANCE RECOMMENDED: Personnel are not recommended for inclusion in any Medical Surveillance Programs at this time.

WORKPLACE ASSESSMENTS AND RECOMMENDATIONS
NAVAL HOSPITAL CAMP LEJEUNE, INDUSTRIAL HYGIENE DEPARTMENT
PERIODIC INDUSTRIAL HYGIENE SURVEY OF THE
MCIEAST/MCB CAMP LEJEUNE G-4

SHOP, LOCATION: **DISTRIBUTION MANAGEMENT OFFICE (DMO), BLDGs 1011, 1069, 1081, 1118, Lot 201, S-806, TC-754 & AS-4307**

DATE OF SURVEY: 9 June 2015

REFERENCES:
(a) OPNAVINST 5100.23G
(b) MCO 5100.8
(c) 29 CFR 1910.132
(d) 29 CFR 1910.1000 (1989-1992 Standards)
(e) 29 CFR 1910.1200
(f) International Agency for Research on Cancer

ATTACHMENTS:
(1) Personal Protective Equipment (PPE) Checklist

1. **INTRODUCTION:** Base DMO facilities Lot 201, Building 1011, Building 1069, Building 1081, Building 1118 and office spaces were surveyed. Current personnel assigned are: 23 active duty males, 10 active duty females, 36 civilian males and 14 civilian females.

2. **OPERATIONS:** The current work tasks reported by the staff and the potential or known health hazards associated with them are presented in the table below. Remarks concerning each of the work tasks and other concerns follow the table.

TASK	HAZARD	WORKERS INVOLVED	DURATION & FREQUENCY	HAZARD CONTROLS	EXPOSURE ASSESSMENT RATIONALE*
Administrative Duties (Computer Use, etc.)	Repetitive Motion	All	4-8 Hours Daily	Training, Breaks	Acceptable ***(Based on existing controls)***
Operating Forklifts And Heavy Equipment (Loading & Unloading Equipment)	Noise(R), Dust, Carbon Monoxide(R), Diesel Exhaust Particulates (C), CTDs, Heat Stress	14	Up to 6 Hours Daily	PPE, Training, Natural Ventilation, Stretch Breaks & Rest Breaks	Unacceptable **(Noise >85 dBA)**
Power Tool Operation	Noise	20	1-2 Hours Weekly	PPE, Training, Frequency & Duration	Acceptable ***(Based on existing controls)***
Cutting/Grinding	Metal Particulate/ Dust	20	5-10 Hours Yearly	PPE, Training, Frequency & Duration	Acceptable ***(Based on existing controls)***
Painting	Toluene(R) & Xylene(R)	20	2-5 Hours Monthly	Training, Natural Ventilation, Frequency & Duration	Acceptable ***(Based on existing controls)***

LEGEND:
* = Refer to Appendix B
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RECOMMENDATIONS:

a. The goal of ergonomics is the control and ideally the prevention of CTDs. Body positioning is of basic importance with special attention focused on support of the hands and arms in a "neutral" position. The repetitive nature of work can be reduced by frequent stretch breaks and performing non-repetitive duties to vary the work. Complaints concerning CTDs should be given timely attention with the initial symptoms. The early detection and resolution of ergonomic problems can control or prevent potentially disabling injuries. The Occupational Health Clinic, 451-2181, should evaluate personnel experiencing repetitive motion discomfort that is suspected to be occupational.

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c. Instructions on back safety and proper lifting techniques should be incorporated to augment the ergonomic program, refer to page 11 of this report. Ergonomic awareness training should be conducted and be sure to document all training per references (a) and (b).

4. **OPERATING HEAVY EQUIPMENT & FORKLIFTS/LOADING & UNLOADING EQUIPMENT** – (**Noise, Dust, Carbon Monoxide, Diesel Exhaust Particulates, Cumulative Trauma Disorders & Heat Stress):**

OBSERVATIONS:

a. Blocker/bracers and the crane operator located at Lot 201 are subject to hazardous noise levels on a regular basis. Earplugs and muffs were available at the worksites.

b. Operation of diesel forklifts and heavy equipment result in the generation of diesel exhaust particulates as well as hazardous exhaust fumes. The time of use in the Distribution Warehouse Building 1011 is up to six hours daily. The lighter

forklifts are often used in warehouse settings where air dilution volumes are large and cross ventilation can be established.

c. Personnel are also exposed to dust during loading and unloading vehicles, tanks and similar items as well as the operation of the heavy equipment and forklifts. This is due to Lot 201 consisting of gravel.

d. Personnel load and unload wheel and tracked vehicles, tanks engineering equipment and similar items. Lifting and associated body movements can result in fatigue and Cumulative Trauma Disorders (CTD). The repetitive work processes can contribute to complaints of musculoskeletal pain and strain.

RECOMMENDATIONS:

a. Noise dosimetry results (IH Report #06-57-7a dtd 28 Jul 06 and #10-169-7s dtd 26 Nov 10) indicate that Blocker/bracers and the Crane Operator at Lot 201 should be placed in or remain in the Hearing Conservation Program.

b. Considering the pattern and extent of current forklift and heavy equipment operations being conducted mostly outdoors, carbon monoxide levels are acceptable and are not expected to exceed the Permissible Exposure Limits (PEL), established by reference (d). Education of personnel to explain the hazards connected with exhaust fumes and minimize personnel presence in areas where fumes are generated is recommended.

c. It should be noted that Carbon Monoxide, a component of exhaust fumes has been designated as a developmental reproductive hazard in reference (a). Also, be sure to inform personnel that the diesel exhaust particulates are considered a carcinogen by reference (f). Industrial Hygiene should be notified of any change in forklift operations that could result in higher airborne contaminant concentrations such as more frequent use or in poorly ventilated areas.

d. Based on previous sampling during similar operations (IH Report #13-83-23s dtd 27 Jun 13), airborne exposures for respirable or total dust while working at Lot 201 are acceptable and are not anticipated to be in excess of the PEL, established by reference (d). Most of the heavy equipment has enclosed cabs that help prevent dust exposure.

e. Proper lifting techniques can increase worker productivity by extending and amplifying manipulative abilities. Proper attention should be paid to the task and how to accomplish the task to minimize the risks of upper extremity CTD and back injuries. The use of mechanical assist devices designed to minimize or eliminate high contact forces; extreme or awkward joint positions, repetitive action of fingers, wrist and arm; should be utilized when available.

f. Instructions on back safety and proper lifting techniques shall also be incorporated into the ergonomic program. Annual training needs to be conducted and documented per reference (a). A guideline for proper lifting is enclosed on page 11 of this report.

g. A potential for heat stress is present in the summer months for many personnel. Personnel should be trained in how to prevent heat stress. Subject should continue to be covered during safety meetings and documented. Marine Corps Order 6200.1E is the applicable regulation to follow but has recently been cancelled. There is no active guidance on heat stress injury prevention at this time. Currently, MARADMIN 111/15 provides interim guidance for commanders and officers-in-charge for planning and executing heat stress injury prevention until a new MCO is formally incorporated.

NOTE: Due to safety and health concerns for employees, Industrial Hygiene recommends the diesel-powered forklifts used in Building 1011 be replaced with propane forklifts. Propane burns more completely with fewer emissions than diesel fuel. However, it is important to ensure there is adequate ventilation when using any combustion engine (diesel or propane) indoors, such as in warehouses or garages. Breathing harmful levels of combustion gases, such as carbon monoxide, carbon dioxide, and nitrogen oxides can be harmful to your health.

5. **POWER TOOLS – (Noise):**

OBSERVATION: Power tools such as a grinder and radial arm saw, are used in the vehicle shed at Lot 201. These tools have been previously monitored and found to be noise hazardous. Noise warning decals are affixed to the bench grinder and radial saw.

RECOMMENDATION: When power tools are in use in the shed, all persons in the shed area should wear hearing protection. The space in the shed should be posted as “Noise Hazardous”.

6. **CUTTING/GRINDING – (Dust/Metal Particulate):**

OBSERVATION: Nuisance dust or metal particulate may be generated during grinding operations. Grinder is marked as an eye hazard and eye protection PPE is available.

RECOMMENDATION: Continue to wear eye protection as instructed during grinding operations.

7. **PAINTING – (Toluene & Xylene):**

OBSERVATION: Personnel perform spot painting operations on different equipment in their shop. These paints contain reproductive hazards such as toluene and xylene. Based on the duration and frequency of the painting as well as previous sampling during similar operations, airborne exposures to the solvents are acceptable and are not anticipated to be in excess of the Permissible Exposure Limits (PEL) or Action Level (AL)

during routine operations per reference (d). (IH Report #96-39-50b dtd 27 Aug 96)

RECOMMENDATIONS:

a. Per reference (a), Chapter 29, personnel should continue to be informed about reproductive hazards that they are exposed to during operations. This training can be conducted as a part of the annual Hazard Communication program training. Industrial Hygiene Department personnel can provide assistance in ensuring personnel receive this training. Ensure all products are listed on the chemical inventory and SDSs are maintained per reference (e).

b. Be sure to conduct all painting outdoors.

8. **MOLD:**

OBSERVATION: At the time of the survey, mold was beginning to appear around the air supply vent. It was stated that the doors to the office area in building 1081 are opened and closed constantly for work purposes. Doors that are repeatedly opened and closed are often the main sources of humidity entering a workspace.

RECOMMENDATION: Attempt to keep doors shut to the office area as much as possible in building 1081. This will help to keep out excessive humidity. The mold/mildew should be cleaned off all surfaces immediately in both buildings. Keep up with housekeeping and clean off any mold/mildew when it begins to accumulate. Be sure to wear gloves and goggles. Never mix bleach and ammonia!

PERSONAL PROTECTIVE EQUIPMENT (PPE): A PPE checklist has been provided as Attachment (1). A copy should be posted in the appropriate work area and all recommendations followed. It should be insured that training in the use and maintenance of PPE is provided per reference (c).

MEDICAL SURVEILLANCE RECOMMENDED:

a. According to MCO 6260.3, all active duty Marine Corps personnel must be included in the command's Hearing Conservation Program (HCP). Due to the hazardous noise exposure, all personnel assigned as a Motor Vehicle Operator CJC WG-5703, Blocker/Bracer CJC 4602 and Crane Operator CJC 8725 should be enrolled in the Hearing Conservation Program. Supervisors should ensure that personnel receive (1) annual audiograms, (2) hearing protection and (3) training in Hearing Conservation.

b. According to Hearing Conservation Program BO6260.4D, dated 08 December 2008, an Occupational Exposure Registry (OER) is to be submitted semi-annually (June and December) **for the civilians assigned to the program** to the Hearing Conservation Division, Occupational Health, NHCL. Send OERs to **kyle.h.shepard.mil@mail.mil**.

PERSONAL PROTECTIVE EQUIPMENT CHECKLIST

Command: G-4 Ind. Hyg: Brian Loconto
Shop: Distribution Mgmt Office Telephone: 449-9673
Date: 9 June 15

WORKTASK	EYE AND HEARING PROTECTION	CLOTHING AND HAND PROTECTION	MINIMUM RESPIRATORY PROTECTION
Forklifts Operator	f		
Motor Vehicle Operator	f		
Blocker/Bracers (Loading & Unloading)	e, f	f (leather), i, j	
Crane Operator	f		
Operating Radial Saw and Grinder	e, f		
Painting	a	f	

EYE AND HEARING PROTECTION	CLOTHING AND HAND PROTECTION	RESPIRATORY PROTECTION
a. Chemical Goggles	a. Tyvek Coveralls	a. ½ Face, APR* w/P100
b. Face Shield	b. Cloth Coveralls	b. ½ Face, APR w/Organic Vapor
c. Welding Helmet	c. Rubber Apron	c. ½ Face, APR w/Organic Vapor & Pre-Filter
d. Welding Goggles	d. Leather Jacket/Vest	d. Full-face, APR w/P100
e. Safety Glasses	e. Welding Gloves	e. Full-Face, APR w/Organic Vapor
f. Ear Plugs or Muffs	f. Impervious Gloves	f. SAR**
g. Double Hearing	g. Cloth Gloves	
	h. Cloth Hood	
	i. Hard Hat	
	j. Steel-Toed Shoes	

APR* = Air Purifying Respirator
SAR** = Supplied Air Respirator

Attachment (1)

WORKPLACE ASSESSMENTS AND RECOMMENDATIONS
NAVAL HOSPITAL CAMP LEJEUNE, INDUSTRIAL HYGIENE DEPARTMENT
PERIODIC INDUSTRIAL HYGIENE SURVEY OF THE
MCIEAST/MCB CAMP LEJEUNE G-4

SHOP, LOCATION: **SUPPLY MANAGEMENT DIVISION (SMD), BLDGs 967, 1212, 1301, 1316 & 1606**

DATE OF SURVEY: 9 June 2015

REFERENCES: (a) OPNAVINST 5100.23G
(b) MCO 5100.8
(c) 29 CFR 1910.1000
(d) 29 CFR 1910.132
(e) International Agency for Research on Cancer

ATTACHMENTS: (1) Personal Protective Equipment (PPE) Checklist

1. **INTRODUCTION:** The Supply Management Division's facilities surveyed are located at the following areas: Building 967, Building 1212, Building 1301, Building 1316 & Building 1606. The Fuel Farms are now operated by Hawthorne, a private contractor. Current Personnel assigned are: 6 active duty males, 2 active duty females, 26 civilian males and 13 civilian females.

2. **OPERATIONS**: The current work tasks, reported by staff and the potential or known health hazards associated with them, are summarized in the table below. Remarks concerning each task and other concerns follow the table.

TASK	HAZARD	WORKERS INVOLVED	DURATION & FREQUENCY	HAZARD CONTROLS	EXPOSURE ASSESSMENT RATIONALE*
Administrative Duties (Computer Use, etc.)	Repetitive Motion	All	30 Minutes to 6 Hours Daily	Training, Workstation Design, Breaks	Acceptable ***(Based on existing controls)***
Operating Fuel Trucks	Noise (R), Exhaust Fumes and Carbon Monoxide (R)	2	Rarely	Training, Frequency & Duration	Unacceptable **(Noise >85 dBA)**
Forklift & Club Car Operation (2 Diesel & 1 LP Gas)	Noise (R), Carbon Monoxide (R), Diesel Exhaust Particulates (C)	8	15 Minutes To 8 Hours Daily	Training, PPE, Ventilation	Acceptable ***(Based on existing controls)***
Painting	Toluene(R) & Xylene(R)	1-2	1 Hour Quarterly	Training, PPE, Natural Ventilation, Frequency & Duration	Acceptable ***(Based on existing controls)***

LEGEND:
* = Refer to Appendix B
C = Classified as a known or suspected human carcinogen per ACGIH (A1 & A2) or OSHA
R = Classified as a known reproductive hazard in Chapter 29 OPNAVINST 5100.23G

3. **ADMINISTRATIVE DUTIES/COMPUTER USE – (Repetitive Motion):**

OBSERVATION: Personnel use computers in performing administrative functions. The consistent use of computers and associated equipment can result in fatigue and Cumulative Trauma Disorders (CTD). The restrictions placed on personnel assigned to duties utilizing computers, due to prolonged sedentary positioning, is the major contributor to CTD. The basic design of workstations can contribute to poor posture that leads to complaints of back, neck, arm and leg pain.

RECOMMENDATIONS:

a. The goal of ergonomics is the control and ideally the prevention of CTDs. Body positioning is of basic importance with special attention focused on support of the hands and arms in a "neutral" position. The repetitive nature of work can be reduced by frequent stretch breaks and performing non-repetitive duties to vary the work. Complaints concerning CTDs should be given timely attention with the initial symptoms. The early detection and resolution of ergonomic problems can control or prevent potentially disabling injuries. The Occupational Health Clinic, 451-2181, should evaluate personnel experiencing repetitive motion discomfort that is suspected to be occupational.

b. The Ergonomics Program Training Handout, on page 10 of this report, is provided for supervisors to use in training personnel on how to help prevent and reduce CTDs and adjust their workstations. Employee education in the area of ergonomics is probably the single most effective way in dealing with physical and mental strain associated with computer usage. Training employees in the proper adjustment of their workstation may prevent occupational injuries and enhance productivity.

c. Instructions on back safety and proper lifting techniques should be incorporated to augment the ergonomic program, refer to page 11 of this report. Ergonomic awareness training should be conducted and be sure to document all training per references (a) and (b).

4. **FUEL TRUCK OPERATION – (Noise):**

OBSERVATION: Previous monitoring has indicated that fuel truck operators and distribution workers are subject to hazardous noise, which exceeds the Navy Permissible Exposure Limit (PEL) as established in reference (a). However, at this time of the survey, G-4 personnel are not conducting the fuel truck operation due to the operation being conducted by the contractor, Hawthorne.

RECOMMENDATION: If G-4 personnel begin to conduct fuel truck operation again in the future, be sure to notify IH. Be sure hearing protection is worn by all fuel truck personnel.

5. **FUEL TRUCK OPERATION - (Fuel Vapors):**

OBSERVATION: Past monitoring (IH Report #10-110-33s dtd 1 Nov 10) of similarly exposed groups has indicated that fuel distribution workers exposures to gasoline, toluene or benzene vapor levels are acceptable and are not expected to exceed the PEL or Action Level (AL) per reference (c). The filling and refueling of vehicles presents a potential for splashes and spillage.

RECOMMENDATION: Adequate protective equipment such as goggles, face shields, protective gloves and clothing should be available and used when fueling vehicles. Spillage or splashing of fuel on the skin or in the eyes warrants washing or flushing of affected body areas at the earliest opportunity. Saturated clothing should be removed as soon as possible. To further reduce the potential for exposure to gasoline vapors, employees should stand in areas, which minimize vapor exposures.

NOTE: All plumbed emergency eyewash/shower stations were operating and maintained very well.

6. **FORKLIFT OPERATION – (Noise):**

OBSERVATION: Forklifts are utilized at most of the Issue Points and Property Warehouses up to 8 hours daily. Previous monitoring has shown that operators of diesel forklifts are subject to hazardous noise levels on an intermittent basis. Hearing Protective Devices were available at work sites.

RECOMMENDATION: Operators should be required to wear earplugs or muffs while operating the diesel forklift. They are not recommended for inclusion in the Hearing Conservation Program based on previous noise dosimetry of similarly exposed groups (SEGs).

7. **FORKLIFT OPERATION & CLUB CAR OPERATION – (Carbon Monoxide & Diesel Exhaust Particulates):**

OBSERVATIONS: Operation of diesel forklifts and the club car as well as propane forklifts result in the generation of hazardous carbon monoxide exhaust fumes. Also, diesel powered forklifts and the club car result in the generation of diesel exhaust particulates. The time of use varies from 15 minutes to a few hours and forklift operation may be necessary indoors.

RECOMMENDATIONS:

a. Considering the frequency of current forklift operations and large air volumes dilution at work locations exhaust fume contaminants are acceptable and are not expected to exceed the Permissible Exposure Limits (PEL) established

by reference (c). However, Hazard Communication training should explain the hazard potential.

b. Carbon Monoxide, a component of exhaust fumes, has been designated as a developmental reproductive hazard by reference (a). Also, be sure to inform personnel that the diesel exhaust particulates are considered a carcinogen by reference (e). Industrial Hygiene should be notified of any changes in forklift operations, which could result in higher concentrations such as more frequent use in poorly ventilated areas.

8. **FORKLIFT OPERATION - (Battery Acid):**

OBSERVATIONS:

a. Some of the forklifts used at self-service are electric which require a battery containing sulfuric acid solution (electrolytes). There is a battery charging station in the building.

b. An emergency eyewash device located in the charging area was operating satisfactorily. Personal Protective Equipment (PPE) such as gloves, aprons, goggles and face shields were available.

RECOMMENDATION: Those handling or maintaining batteries and electrolyte solutions should use appropriate PPE for protection of the eyes and exposed skin areas.

9. **PAINTING – (Toluene & Xylene):**

OBSERVATION: Personnel occasionally perform spot painting operations on different equipment in their shop. These paints contain reproductive hazards such as toluene and xylene. Based on the duration and frequency of the painting as well as previous sampling during similar operations, airborne exposures to the solvents are acceptable and are not anticipated to be in excess of the Permissible Exposure Limits (PEL) or Action Level (AL) during routine operations per reference (d). (IH Report #96-39-50b dtd 27 Aug 96)

RECOMMENDATIONS:

a. Per reference (a), Chapter 29, personnel should continue to be informed about reproductive hazards that they are exposed to during operations. This training can be conducted as a part of the annual Hazard Communication program training. Industrial Hygiene Department personnel can provide assistance in ensuring personnel receive this training. Ensure all products are listed on the chemical inventory and SDSs are maintained per reference (e).

b. Be sure to conduct all painting outdoors.

PERSONAL PROTECTIVE EQUIPMENT (PPE): A PPE checklist has been provided as Attachment (1). A copy should be posted in the appropriate work area and all recommendations followed. It should be insured that training in the use and maintenance of PPE is provided per reference (d).

MEDICAL SURVEILLANCE RECOMMENDED:

a. According to MCO 6260.3, all active duty Marine Corps personnel must be included in the command's Hearing Conservation Program (HCP). Supervisors should ensure that personnel assigned to the program receive (1) annual audiograms, (2) hearing protection and (3) training in Hearing Conservation.

b. According to Hearing Conservation Program BO6260.4D, dated 08 December 2008, an Occupational Exposure Registry (OER) is to be submitted semi-annually (June and December) **for the civilians assigned to the program** to the Hearing Conservation Division, Occupational Health, NHCL. Send OERs to **kyle.h.shepard.mil@mail.mil**.

PERSONAL PROTECTIVE EQUIPMENT
CHECKLIST

Command: G-4 Ind. Hyg: Brian Loconto
Shop: Supply Management Division Telephone: 449-9673
Date: 9 June 15

WORKTASK	EYE AND HEARING PROTECTION	CLOTHING AND HAND PROTECTION	RESPIRATORY PROTECTION
Operating Forklift	f		
Operating Fuel Truck	f		
Fueling/ Refueling	a or b	b, f	
Handling Electrolyte	a or b	c, f	
Painting	a	f	

EYE AND HEARING PROTECTION	CLOTHING AND HAND PROTECTION	RESPIRATORY PROTECTION
a. Chemical Goggles	a. Tyvek Coveralls	a. ½ Face, APR* w/P100
b. Face Shield	b. Cloth Coveralls	b. ½ Face, APR w/Organic Vapor
c. Welding Helmet	c. Rubber Apron	c. ½ Face, APR w/Organic Vapor & Pre-Filter
d. Welding Goggles	d. Leather Jacket/Vest	d. Full-Face, APR w/P100
e. Safety Glasses	e. Welding Gloves	e. Full-Face, APR Organic Vapor
f. Ear-Plugs or Muffs	f. Impervious Gloves	f. SAR**
g. Double Hearing	g. Cloth Gloves	
	h. Cloth Hood	
	i. Helmet	

APR* = Air Purifying Respirator
SAR** = Supplied Air Respirator

Attachment (1)

WORKPLACE ASSESSMENTS AND RECOMMENDATIONS
NAVAL HOSPITAL CAMP LEJEUNE, INDUSTRIAL HYGIENE DEPARTMENT
PERIODIC INDUSTRIAL HYGIENE SURVEY OF THE
MCIEAST/MCB CAMP LEJEUNE G-4

SHOP, LOCATION: **MOTOR TRANSPORT DIVISION,**
BLDGs 1407, 1408, 1502, 1504 & AS-118

DATE OF SURVEY: 9 June & 30 June, 2015

REFERENCES: (a) OPNAVINST 5100.23G
(b) MCO 5100.8
(c) 29 CFR 1910.1000 (1989-1992 Standards)
(d) Industrial Ventilation Manual, ACGIH, 27TH edition
(e) International Agency for Research on Cancer

ATTACHENT: (1) Ventilation Summary Sheet

1. **INTRODUCTION:** The Base Motor Transport Division's facility surveyed was located at building 1502. The daily operations of Base Motor Transport Division are presently accomplished by Phoenix Management, a civilian contractor. All other functions are administrative in nature. Personnel consist of 7 civilian males and 5 civilian females.

2. **OPERATIONS:** The current work tasks reported by the staff and the potential or known health hazards associated with them are summarized in the Table below. Discussion of each task follows the table.

TASK	HAZARD	WORKERS INVOLVED	DURATION & FREQUENCY	HAZARD CONTROLS	EXPOSURE ASSESSMENT RATIONALE*
Administrative Duties (Computer Use, etc.)	Repetitive Motion	All	6-8 Hours Daily	Training, Breaks	Acceptable ***(Based on existing controls)***
Engine Operation	Exhaust Fumes, Diesel Exhaust Particulates (C) & Carbon Monoxide (R)	All	30 Minutes Daily	PPE, Training, Ventilation	Acceptable ***(Based on existing controls)***

LEGEND:
* = Refer to Appendix B
C = Classified as a known or suspected human carcinogen per ACGIH (A1 & A2) or OSHA
R = Classified as a known reproductive hazard in Chapter 29 OPNAVINST 5100.23G

3. **ADMINISTRATIVE DUTIES/COMPUTER USE – (Repetitive Motion):**

OBSERVATION: Personnel use computers in performing administrative functions. The consistent use of computers and associated equipment can result in fatigue and Cumulative Trauma Disorders (CTD). The restrictions placed on personnel assigned to duties utilizing computers, due to prolonged sedentary

positioning, is the major contributor to CTD. The basic design of workstations can contribute to poor posture that leads to complaints of back, neck, arm and leg pain.

RECOMMENDATIONS:

a. The goal of ergonomics is the control and ideally the prevention of CTDs. Body positioning is of basic importance with special attention focused on support of the hands and arms in a "neutral" position. The repetitive nature of work can be reduced by frequent stretch breaks and performing non-repetitive duties to vary the work. Complaints concerning CTDs should be given timely attention with the initial symptoms. The early detection and resolution of ergonomic problems can control or prevent potentially disabling injuries. The Occupational Health Clinic, 451-2181, should evaluate personnel experiencing repetitive motion discomfort that is suspected to be occupational.

b. The Ergonomics Program Training Handout, on page 10 of this report, is provided for supervisors to use in training personnel on how to help prevent and reduce CTDs and adjust their workstations. Employee education in the area of ergonomics is probably the single most effective way in dealing with physical and mental strain associated with computer usage. Training employees in the proper adjustment of their workstation may prevent occupational injuries and enhance productivity.

c. Instructions on back safety and proper lifting techniques should be incorporated to augment the Ergonomic Program, refer to page 11 of this report. Ergonomic awareness training should be conducted and be sure to document all training per references (a) and (b).

4. **VEHICLE ENGINE OPERATION – (Carbon Monoxide):**

OBSERVATIONS: Engines may be operated for maintenance purposes in Building 1502. Personnel offices are adjacent to maintenance section on Building 1502. The primary control available to prevent a buildup of carbon monoxide, diesel exhaust particulates and exhaust fumes is an overhead exhaust system with flexible hose attachments in each maintenance bay. The hose vents are designed to be fitted over vehicle exhaust pipes. Measurement air velocities at the hose exhaust vents were measured, see attachment (1), and the majority were greater than 200 Cubic Foot Per Minute (CFM) which is within specifications per reference (d).

RECOMMENDATION: Considering the garage volumes, ceiling heights, potential for cross breezes, pedestal fans, the proper use of exhaust systems and present work routines, exposures to fume contaminants, diesel exhaust particulates and carbon monoxide are acceptable and are not expected to exceed the Action Level (AL) or Permissible Exposure Limit (PEL) per reference (c). However, carbon monoxide, a component of exhaust

fumes has been designated as a reproductive hazard by reference (a) and education of personnel to minimize their exposure to exhaust fumes is recommended. Also, be sure to inform personnel that the diesel exhaust particulates are considered a carcinogen by reference (e).

5. **MOLD:**

OBSERVATION: Mold has accumulated on the ceiling in the Janitor's closet as well as on the ceiling in a couple of the bay areas. The ceilings that have mold growth are between the heights of 13-30 feet.

RECOMMENDATIONS: The mold should be cleaned off of the ceiling immediately. Due to the ceiling height and fall protection being required it is ultimately recommended that the work should be conducted by an outside contractor.

PERSONAL PROTECTIVE EQUIPMENT (PPE): None is recommended for this division.

MEDICAL SURVEILLANCE RECOMMENDED: Personnel are not recommended for inclusion in any Medical Surveillance Programs at this time.

VENTILATION SUMMARY SHEET

The following table presents the Drop Down Ventilation System of Base Motor Transport, Building 1502 on June 30, 2015.

LOCATION	DUCT DIAMETER (INCHES)	MEASURED AIR EXHAUST FLOW RATE (CFM)*	RECOMMENDED AIR EXHAUST FLOW RATE (CFM)*	STANDARD
Main Bay Area, Front Side – Vent # 1	7	447	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Front Side – Vent # 2	7	331	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Front Side – Vent # 3	7	347	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Front Side – Vent # 4	7	470	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Front Side – Vent # 5	7	513	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Front Side – Vent # 6	7	Not in Use (Tied up)	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Front Side – Vent # 7	7	Not in Use (Tied up)	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Front Side – Vent # 8	7	541	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Back Side – Vent # 1	7	417	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Back Side – Vent # 2	7	438	200	ACGIH Industrial Ventilation VS-85-01

Attachment (1)

LOCATION	DUCT DIAMETER (INCHES)	MEASURED AIR EXHAUST FLOW RATE (CFM)*	RECOMMENDED AIR EXHAUST FLOW RATE (CFM)*	STANDARD
Main Bay Area, Back Side – Vent # 3	7	429	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Back Side – Vent # 4	7	410	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Back Side – Vent # 5	7	488	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Back Side – Vent # 6	7	488	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Back Side – Vent # 7	7	478	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Back Side – Vent # 8	7	829	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Back Side – Vent # 9	7	427	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Back Side – Vent # 10	7	407	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Back Side – Vent # 11	7	359	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Back Side – Vent # 12	7	413	200	ACGIH Industrial Ventilation VS-85-01
Main Bay Area, Back Side – Vent # 13	7	368	200	ACGIH Industrial Ventilation VS-85-01

LOCATION	DUCT DIAMETER (INCHES)	MEASURED AIR EXHAUST FLOW RATE (CFM)*	RECOMMENDED AIR EXHAUST FLOW RATE (CFM)*	STANDARD
Main Bay Area, Back Side – Vent # 14	7	Not in Use (Tied up)	200	ACGIH Industrial Ventilation VS-85-01
Forklift Bay Area, Vent # 1	7	460	200	ACGIH Industrial Ventilation VS-85-01
Forklift Bay Area, Vent # 2	7	500	200	ACGIH Industrial Ventilation VS-85-01
Forklift Bay Area, Vent # 3	7	472	200	ACGIH Industrial Ventilation VS-85-01
Forklift Bay Area, Vent # 4	7	496	200	ACGIH Industrial Ventilation VS-85-01
Back Corner, Vent # 1	7	390	200	ACGIH Industrial Ventilation VS-85-01
Back Corner, Vent # 2	7	320	200	ACGIH Industrial Ventilation VS-85-01

CFM = Cubic Foot Per Minute

Attachment (1) cont’

WORKPLACE ASSESSMENTS AND RECOMMENDATIONS
NAVAL HOSPITAL CAMP LEJEUNE, INDUSTRIAL HYGIENE DEPARTMENT
PERIODIC INDUSTRIAL HYGIENE SURVEY OF THE
MCIEAST/MCB CAMP LEJEUNE G-4

SHOP/LOCATIONS: **FOOD SERVICE DIVISION, BLDG 914**

DATE OF SURVEY: 9 June 2015

REFERENCES: (a) OPNAVINST 5100.23G
(b) MCO 5100.8
(c) 29 CFR 1910.132
(d) 29 CFR 1910.1000(1989-92 Stds.)
(e) International Agency for Research on Cancer

ATTACHMENTS: (1) Personnel Protective Equipment (PPE) Checklist

1. **INTRODUCTION:** Food Service offices and warehouse were surveyed. Current personnel assigned are: 15 military males, 9 military females, 8 civilian males and 1 civilian female.

2. **OPERATIONS**: The current work tasks and the potential or known health hazards associated with them are presented in the table below. A discussion of each task follows the table.

TASK	HAZARD	WORKERS INVOLVED	DURATION & FREQUENCY	HAZARD CONTROLS	EXPOSURE ASSESSMENT RATIONALE*
Administrative Duties (Computer Use, etc.)/Lifting	Repetitive Motion	All	4-8 Hours Daily	Training, Breaks	Acceptable ***(Based on existing controls)***
Forklift Operations (2 Diesel)	Carbon Monoxide (R), Diesel Exhaust Particulates (C)	4	30 Minutes – 1 Hour Daily	Limited Duration/ Frequency, Natural Ventilation	Acceptable ***(Based on existing controls)***

LEGEND:
* = Refer to Appendix B
C = Classified as a known or suspected human carcinogen per ACGIH (A1 & A2) or OSHA
R = Classified as a known reproductive hazard in Chapter 29 OPNAVINST 5100.23G

3. **ADMINISTRATIVE DUTIES/COMPUTER USE – (Repetitive Motion):**

OBSERVATION: Personnel use computers in performing administrative functions. The consistent use of computers and associated equipment can result in fatigue and Cumulative Trauma Disorders (CTD). The restrictions placed on personnel assigned to duties utilizing computers, due to prolonged sedentary positioning, is the major contributor to CTD. The basic design of workstations can contribute to poor posture that leads to complaints of back, neck, arm and leg pain.

RECOMMENDATIONS:

a. The goal of ergonomics is the control and ideally the prevention of CTDs. Body positioning is of basic importance with special attention focused on support of the hands and arms in a “neutral” position. The repetitive nature of work can be reduced by frequent stretch breaks and performing non-repetitive duties to vary the work. Complaints concerning CTDs should be given timely attention with the initial symptoms. The early detection and resolution of ergonomic problems can control or prevent potentially disabling injuries. The Occupational Health Clinic, 451-2181, should evaluate personnel experiencing repetitive motion discomfort that is suspected to be occupational.

b. The Ergonomics Program Training Handout, on page 10 of this report, is provided for supervisors to use in training personnel on how to help prevent and reduce CTDs and adjust their workstations. Employee education in the area of ergonomics is probably the single most effective way in dealing with physical and mental strain associated with computer usage. Training employees in the proper adjustment of their workstation may prevent occupational injuries and enhance productivity.

c. Instructions on back safety and proper lifting techniques should be incorporated to augment the ergonomic program, refer to page 11 of this report. Ergonomic awareness training should be conducted and be sure to document all training per references (a) and (b).

4. **FORKLIFT OPERATION – (Noise, Diesel Exhaust Particulates and Carbon Monoxide):**

OBSERVATIONS: Warehousing food in Building 914 requires the use of diesel-powered forklifts which produces hazardous noise above the Navy Permissible Exposure Limit (PEL) of 85 dB(A). Operation of diesel forklifts result in the generation of carbon monoxide and diesel exhaust particulates as well as hazardous exhaust fumes.

RECOMMENDATIONS:

a. Forklift operators inside the warehouse should wear plugs or muffs when operating the forklifts. Personnel are not recommended for inclusion in the Hearing Conservation Program (HCP).

b. It should be noted that Carbon Monoxide, a component of exhaust fumes has been designated as a developmental reproductive hazard in reference (a). Also, be sure to inform personnel that the diesel exhaust particulates are considered a carcinogen by reference (e). Due to frequency and duration of use, as well as good cross ventilation with open bay doors and pedestal fans, exposures to carbon monoxide are acceptable and

are not anticipated to be in excess of the PEL per reference (d).

c. Due to safety and health concerns for employees, Industrial Hygiene recommends that diesel-powered forklifts used in the Food Warehouse, Building 914, be replaced with propane forklifts. Propane burns more completely with fewer emissions than diesel fuel. However, it is important to ensure there is adequate ventilation when using any combustion engine (diesel or propane) indoors, such as in warehouses or garages. Breathing harmful levels of combustion gases, such as carbon monoxide, carbon dioxide, and nitrogen oxides can be harmful to your health.

NOTE: Although the mess halls are operated by the contractor SODEXO, sound level measurements (IH Report #14-119-7s dtd 30 May 14) were taken in all sculleries and pot shack areas. All personnel assigned to work in the scullery and pot shack areas should be required to wear the appropriate hearing protection.

PERSONAL PROTECTIVE EQUIPMENT (PPE): A PPE checklist has been provided as Attachment (1). A copy should be posted in the appropriate work area and all recommendations followed. It should be insured that training in the use and maintenance of PPE is provided per reference (c).

MEDICAL SURVEILLANCE RECOMMENDED: Personnel are not recommended for inclusion in any Medical Surveillance Programs at this time.

PERSONAL PROTECTIVE EQUIPMENT
CHECKLIST

Command: G-4 Ind. Hyg: Brian Loconto
Shop: Food Service Division Telephone: 449-9673
Date: 9 June 15

WORKTASK	EYE AND HEARING PROTECTION	CLOTHING AND HAND PROTECTION	RESPIRATORY PROTECTION
Forklift Operator	f		

EYE AND HEARING PROTECTION	CLOTHING AND HAND PROTECTION	RESPIRATORY PROTECTION
a. Chemical Goggles	a. Tyvek Coveralls	a. ½ Face, APR* w/P100
b. Face Shield	b. Cloth Coveralls	b. ½ Face, APR w/Organic Vapor
c. Welding Helmet	c. Rubber Apron	c. ½ Face, APR w/Organic Vapor & Pre-Filter
d. Welding Goggles	d. Leather Jacket/Vest	d. Full-Face APR, w/P100
e. Safety Glasses	e. Welding Gloves	e. Full-Face APR, w/Organic Vapor
f. Ear Plugs or Muffs	f. Impervious Gloves	f. SAR**
g. Double Hearing	g. Cloth Gloves	
	h. Cloth hood	
	i. Helmet	

APR* = Air Purifying Respirator
SAR** = Supplied Air Respirator

Attachment (1)

WORKPLACE ASSESSMENTS AND RECOMMENDATIONS
NAVAL HOSPITAL CAMP LEJEUNE, INDUSTRIAL HYGIENE DEPARTMENT
PERIODIC INDUSTRIAL HYGIENE SURVEY OF THE
MCIEAST/MCB CAMP LEJEUNE G-4

SHOP/LOCATIONS: **OPERATIONS & PLANS DIVISION, BLDG 914**

DATE OF SURVEY: 9 June 2015

REFERENCES: (a) OPNAVINST 5100.23G
(b) MCO 5100.8

1. **INTRODUCTION**: The works of the above division are administrative in nature. It is mainly entering data into the computer, exchanging information electronically and managing the associated correspondence. Typically the Operations Branch organizes Logistical Support. Current Personnel assigned are: 2 active duty males, 3 active duty females and 6 civilian males.

2. **OPERATIONS**: The current work tasks and the potential or known health hazards associated with them are presented in the table below. A discussion of each task follows the table.

TASK	HAZARD	WORKERS INVOLVED	DURATION & FREQUENCY	HAZARD CONTROLS	EXPOSURE ASSESSMENT RATIONALE*
Administrative Duties (Computer Use, etc.)	Repetitive Motion	All	6-8 Hours Daily	Training, Breaks	Acceptable (***Based on existing controls***)

LEGEND:
* = Refer to Appendix B
C = Classified as a known or suspected human carcinogen per ACGIH (A1 & A2) or OSHA
R = Classified as a known reproductive hazard in Chapter 29 OPNAVINST 5100.23G

3. **ADMINISTRATIVE DUTIES/COMPUTER USE – (Repetitive Motion):**

OBSERVATION: Personnel use computers in performing administrative functions. The consistent use of computers and associated equipment can result in fatigue and Cumulative Trauma Disorders (CTD). The restrictions placed on personnel assigned to duties utilizing computers, due to prolonged sedentary positioning, is the major contributor to CTD. The basic design of workstations can contribute to poor posture that leads to complaints of back, neck, arm and leg pain.

RECOMMENDATIONS:

a. The goal of ergonomics is the control and ideally the prevention of CTDs. Body positioning is of basic importance with special attention focused on support of the hands and arms in a “neutral” position. The repetitive nature of work can be reduced by frequent stretch breaks and performing non-repetitive duties to vary the work. Complaints concerning CTDs should be given timely attention with the initial symptoms. The early detection and resolution of ergonomic problems can control or

prevent potentially disabling injuries. The Occupational Health Clinic, 451-2181, should evaluate personnel experiencing repetitive motion discomfort that is suspected to be occupational.

b. The Ergonomics Program Training Handout, on page 10 of this report, is provided for supervisors to use in training personnel on how to help prevent and reduce CTDs and adjust their workstations. Employee education in the area of ergonomics is probably the single most effective way in dealing with physical and mental strain associated with computer usage. Training employees in the proper adjustment of their workstation may prevent occupational injuries and enhance productivity.

c. Instructions on back safety and proper lifting techniques should be incorporated to augment the ergonomic program, refer to page 11 of this report. Ergonomic awareness training should be conducted and be sure to document all training per references (a) and (b).

PERSONAL PROTECTIVE EQUIPMENT (PPE): None is recommended for this division.

MEDICAL SURVEILLANCE RECOMMENDED: Personnel are not recommended for inclusion in any Medical Surveillance Programs at this time.

WORKPLACE MONITORING PLAN

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WORKPLACE INFORMATION

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ORGANIZATION: MCIEAST/MCB Camp Lejeune G-4

SHOP/WORK CENTER: All

LOCATION: All

SUPERVISOR: Mr. Brian Vincent III		**PHONE:** 451-9464
# OF WORKERS: 190	**MALE:** 130	**FEMALE:** 60

SHOP OPERATIONS: Administration, Food Service Warehouses, Fuel Depot, Supply, and Traffic Management.

POTENTIAL HAZARD	INTERMITTENT OR CONTINUOUS	WORKERS INVOLVED	CONTROLS
Noise	I	Heavy Equipment Operators, Warehouse, Fuel Depots	Plugs And Muffs, Training
Exhaust, CO Fumes	I	Warehouse, Motor T, Lot 201	PPE, Training, Ventilation

EXPOSURE ASSESSMENT

Are employees potentially exposed to toxic chemicals or harmful physical agents? Yes __X__ No____

No requires rationale:

SIGNED: Brian J. Loconto **TITLE: Industrial Hygienist**	**DATE: 17 July 2015**

MONITORING PLAN

POTENTIAL HAZARD	NUMBER OF MEASUREMENTS	METHOD OF MEASUREMENT [1]	LOCATION OF MEASUREMENT [2]	FREQUENCY	MAN-HOURS (PER YEAR)
Ventilation (Motor-T)	5-10 per supply vent or exhaust to adequately measure air flow	DR	SZ	Every 2 Years	4
Noise dosimetry-Crane Operators/ Blockers/ Bracers	12	PD	SZ	Every 5 years (2015)	40

Use the following codes:

DR-Direct Reading Instrument
IT-Indicator Tube
AT-Adsorption Tube (Charcoal)
B/I-Bubbler/Impinger
F-Filter
PD-Personal Dosimeter
O-Other

Use the following codes:

GA-General Area
BZ-Breathing Zone
SZ-Source Zone
O-Other (Specify)

OCCUPATIONAL EXPOSURE REGISTRY

COMMAND: G-4 **UIC-RUC:** 93170___
SHOP/WORK CENTER: All personnel assigned as Blocker/Bracer CJC 4602, Crane Operator CJC 8725 and Motor Vehicle Operator CJC WG-5703 should be enrolled in the Hearing Conservation Program.
IH REPORT_NO: 15-143-7a **DOCUMENTED EXPOSURE:** NOISE – Personnel listed above_are exposed to hazardous noise on a regular basis. (Based on 8-Hr. TWA). Personnel listed should be enrolled in the assigned_medical surveillance program. ***Safety Officer should complete OER and E-mail_copy to Hearing Conservation Division (HCD), Occupational Health Department, NHCL at kyle.h.shepard.mil@mail.mil.***
PROGRAMS ASSIGNED: HEARING CONSERVATION PROGRAM
DATE OF ROSTER: ___July 2015

NAME (Last, First, MI)	RATE/RANK	SSN (LAST FOUR)	MOS and level of exposure (dBA/dBP)
			>85
			>85
			>85
			>85
			>85
			>85
			>85
			>85
			>85
			>85
			>85
			>85
			>85
			>85

Appendix (A)

*EXPOSURE ASSESSMENT RATIONALE
1. "ACCEPTABLE" – An exposure profile for a worker, or a group of workers who are similarly exposed (SEG) where the level of health risk is acceptable (below occupational exposure limits) or "under control" applying risk management and professional judgment using available industrial hygiene data. Routine monitoring *maybe* required to ensure the exposure profile remains acceptable. **2. "UNACCEPTABLE"** – An exposure profile that is poorly controlled or uncontrolled in which a significant risk for the development of occupational illness is associated with a worker, or a group of workers who are similarly exposed (SEG) regardless of use of PPE; the probability of adverse health effects is significant; or there is evidence of adverse health effects associated with exposure to a hazard (i.e., exceeds an occupational exposure limit, etc.) Unacceptable exposures will require control measures and medical surveillance. **3. "UNCERTAIN"** – Exposure profiles that lack definitive detail to make clear decisions. Exposure judgment is either made with limited or not enough industrial hygiene data to support a "acceptable" or "unacceptable" assessment at this point. For chemical, biological, or physical exposures with occupational exposure levels having this assessment will need baseline or added monitoring and will be included in a Workplace Monitoring Plan. Some form of control, medical surveillance, or both may be recommended. NOTE: An exposure profile is a characterization of the day-to-day variability of exposures of a SEG. A qualitative exposure profile may be based on professional judgment, whereas a quantitative exposure profile is based on statistics and includes measures of central tendency and measures of variability.

Appendix (B)