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

IN REPLY REFER TO:
6260
Ser 14-092
20 Oct 14

From: Officer in Charge, Naval Branch Health Clinic, Albany, GA
To: Director, Marine Corps Community Services Division, Albany, GA

Subj: PERIODIC INDUSTRIAL HYGIENE SURVEY OF MARINE CORPS COMMUNITY SERVICES DIVISION

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

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

1. Per references (a) and (b) enclosures (1) and (2) are provided for your information.

2. Point of contact is Mr. John Sorenson, Industrial Hygienist at 639-7846.

R. M. BRISTOL

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

EXECUTIVE SUMMARY

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

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

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

The following issues were found during this survey:

Field Findings.

- It is recommended that the Auto Skill Shop personnel who enter the paint booth during operations be placed on the Respiratory Protection Program.

- The enrollment of bowling alley personnel on the HCP will be re-evaluated due to their new operations schedule.

PERIODIC INDUSTRIAL HYGIENE SURVEY
MARINE CORPS COMMUNITY SERVICES DIVISION
MARINE CORPS LOGISTICS BASE
ALBANY, GEORGIA
REPORT NUMBER: AL14016

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

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

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

2. Changes in Operations or Assessments. The bowling alley has been closed for normal community bowling. It does open twice per month for two hours of league bowling as well as for special occasion events, such as private parties. This is a significant decrease in operations and noise exposure. The movie theater has replaced the old film projector with a new digital projector.

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

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

5. Re-evaluation Schedule and Changes in the Workplace. Please retain this report on file. NBHC Industrial Hygiene will re-evaluate this division every 2 years. However, any significant change in the type of operations performed, new equipment acquired, workplace setting, or change in the kind or amount of chemicals used will result in a need for a re-evaluation of the affected area. The Industrial Hygiene Department should be notified of such changes, per references (a) and (b). For future reference, should any employee have a possible health-related concern that he/she believes may be related to the workplace, the employee should report the issue to the supervisor when it occurs and be evaluated by Occupational Medicine Services.

6. Hearing Protection Usage and Enforcement. Various operations in these work centers are noise hazardous and warrant the mandatory use of hearing protection. These operations are identified in attachment (2). Ensure that hearing protection use is strictly enforced throughout the work areas for personnel who perform operations or work in areas that are noise hazardous. Under DoD guidelines, single hearing protection is required when noise level exceed 85 dBA and double hearing protection is required during activities where noise exceeds 96 dBA. Hearing Protection Devices (HPDs) must be capable of attenuating work noise exposure below the 8-hour TWA of 85 dBA. Employees were observed to be wearing their HPDs during the IH survey walk through of the MCCS area.

7. Regulatory Compliance.

a. In accordance with OPNAVINST 5100.23G, Navy Safety and Occupational Health Program Manual, the Navy requires that each activity implement safety and health programs consistent with the Occupational Safety and Health Administration standards. The primary objective is to ensure a safe and healthful work environment for all Navy personnel.

b. It is important for the command to understand that some shops may have processes that are not in compliance with applicable regulations and that to achieve compliance with those applicable regulations where it has been determined that artisans and/or supervisory personnel may be subjected to airborne levels of stressors above the associated Permissible Exposure Limits (PELs), Threshold Limit Values (TLV), and/or Occupational Exposure Limits (OELs), administrative or engineering controls must first be determined and implemented whenever feasible. Only when such controls are not feasible to achieve full compliance, protective equipment or other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed in the applicable standard. It is recommended that the command continue to pursue the application of engineering and/or administrative controls where required.

EVALUATION SUMMARY
PERIODIC INDUSTRIAL HYGIENE SURVEY
MARINE CORPS COMMUNITY SERVICES DIVISION
MARINE CORPS LOGISTICS BASE, ALBANY, GEORGIA
REPORT NUMBER: AL14016

Reference Report
The reference "full format" report for this survey is 6260 ser 737 of 16 OCT 2012.

New or Significantly Modified Work Center Operations/Processes?
☐ No *significant* changes in operations/processes were identified. *
☒ The following changes were identified:
1. The bowling alley has significantly reduced its operation, and thus, the noise exposure to its employees.
2. The bowling alley ball shop is no longer in use. No more drilling or plugging bowling balls.
3. The Auto Skills Shop personnel who enter the paint booth during operation are recommended for Respiratory Protection Program.

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

Program Findings and Recommendations

1. Medical Surveillance Program Status. Attachment (4) provides a summary of current medical surveillance needs.
☐ No Medical Surveillance is Recommended.
☒ Medical Surveillance is Recommended.
☐ No Change in Medical Surveillance Recommendations.
☒ Medical Surveillance Recommendations have changed as follows:

Comments: Current medical surveillance recommendations are valid; these are limited to Bowling Alley personnel on the HCP and the Auto Skill Shop personnel on the Respirator Program for the employees who work in the paint booth. The requirement for the bowling alley personnel to be on the HCP will be re-evaluated.

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 at the bowling alley and during lawn maintenance operations is a developmental reproductive hazard. There are no female employees at the bowling alley. The Sports field marking paint contains a small amount of Toluene, also a reproductive hazard. It is recommended that, whenever possible, the shop reduce, minimize, and/or eliminate the reproductive health hazards and associated personnel exposures.

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 Conservation Program (HCP) is recommended for all Bowling Alley employees. This will be re-evaluated due to changes in work schedule. Lawn maintenance personnel are also recommended for HCP enrollment.

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: The recommendation for enrollment in the Respirator Protection Program remains for the Auto Skill Shop personnel that enter the paint booth during operations remains in effect.

6. Ventilation:
Are ventilation systems used to control workplace exposures? ☒ Y ☐ N
Are the systems effective and operating properly? ☒ Y ☐ N ☐ N/A

Comments: The Auto Skills Shop has large garage doors that are kept open, vehicles face exhaust towards door, the ceilings are high, and there is an overhead exhaust ventilation system. Recent measurements provide data that all exhaust vents pull an average of 149 CFPM. Their auto paint booth is also ventilated. The bowling alley ball shop (drilling and plugging bowling balls) is no longer in use.

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:

8. Other Applicable Programs:
☐ Lead Control
☐ Asbestos Control
☐ Carcinogens
☐ Other

Comments:

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

Additional Comments:

The recommendation that the Auto Skill Shop personnel who enter the paint booth during operations be placed on the Respiratory Protection Program continues to be in effect.

Participation of bowling alley personnel on the HCP will be re-evaluated due to their new operations schedule.

INDIVIDUAL HAZARD ASSESSMENT	DATE: 30 September 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: Bowling Alley	POC: WILLIAM HOLLOWAY PHONE: 229-639-5233 TOTAL PERSONNEL: 1 MALE: 1 FEMALE: 0

SHOP OPERATIONS: Operation of Bowling Alley for the recreational purposes of base personnel. Most of the employee's time is spent doing customer service and cashier at the front desk. When the ball return or pin-setting equipment jams or malfunctions they go into the back room to clear the machines, this is when they become exposed to high noise levels and wear PPE. They no longer use a small hand held grinder to drill holes into bowling balls. The Bowling Alley has significantly reduced their hours of operations to 2 hours, 2 nights per month and private parties by reservation only.

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
NOISE: Most of their time is spent at the front desk where noise is not a hazard. Sound level measurements were taken behind the pin-setting machines and shop area. Levels were found to peak above Navy Occupational standards (spikes up to 91 dBA).	2 hours, twice per month. 2 or 3 minutes at a time, 4 or 5 times per night, 2 nights per month. (30 min/mth Max)	1	PPE: Ear plugs and Muffs	Acceptable, Employees do enter noise hazard areas infrequently for short periods of time. Hearing protection is recommended during these entries. **Noise is a (developmental) reproductive hazard.** Time limit of 91 dBA is 2 hours.

DOHRES Processes:

Bowling Alley Operations and Maintenance
Customer Service

USE THE FOLLOWING EXPOSURE ASSESSMENT DEFINITIONS:

ACCEPTABLE – One where the IH will not expect the SEG to be exposed above the selected OEL.
UNCERTAIN – Additional data needs to be collected to clarify the exposure assessment. The IH should make an interim exposure assessment based on observation of the process and/or professional judgment.
UNACCEPTABLE – One where the IH will expect the SEG to be exposed above the selected OEL.
SKIN – The material poses a skin absorption hazard.
REPRODUCTIVE HAZARD – The material is a Navy-Recognized Reproductive Hazard.
CARCINOGEN – The material contains > 0.1% of an OSHA, ACGIH, IARC, or NTP-recognized carcinogen

NOTE: "EXPOSED" refers to **"POTENTIAL EXPOSURE"** and does not take PPE, such as respiratory protection or hearing protection, into account.

INDIVIDUAL HAZARD ASSESSMENT	DATE: 30 Sept 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: Gymnasium and Fitness Center	POC: GYSGT. ASHLEY PHONE: 229-639-7724 TOTAL PERSONNEL: 10 MALE: 6 FEMALE: 4
SHOP OPERATIONS: The Gymnasium and Fitness Center employees operate the exercise facilities that are used by base personnel. These employees check out sports equipment, perform minor repairs to the fitness equipment, paint field stripping on sports fields, and keep the area neat and clean. Most of the employee's time is spent away from their desks.	

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
Noise:	Full shift, every day	10	None	Acceptable, Noise hazards were not observed during IH walkthrough, nor mentioned during employee interviews.
Rec. Issue; heavy lifting of recreation equipment (tents and inflatable "moon walks")	1-2 hrs per week	3	Eng. Control; floor jack, dollies, and forklifts	Acceptable when Engineering Controls are used. Recommend training of proper lifting techniques. **Heavy lifting is a Navy recognized reproductive hazard.**
Laundry, towel washing is done at both Thompson Gym and Daniels Fitness Center. "All, Stain Lifter Oxi" detergent	2 hours per day, Rotated among employees	10	Washing Machine	Acceptable, Machine washing detergent is poured into machine and not handled by employees.
Painting field strips on sports fields: Serstripe Paint; Aliphatic Hydrocarbons Hexane Toluene	Variable, estimated to be a total of 3 hours per week, spread out during the week.	3	Sprayer is on wheel extended 2 feet out in front of operator's feet. Open outdoors natural ventilation.	Acceptable due to open outdoor natural ventilation. **Toluene is a Navy recognized reproductive hazard**
Pool Operations; Health Center employees do test Cl levels, but all chemicals are added to the pool by I&E personnel. The pool has been converted to and NaCl electrode system which greatly reduces the amount of chemicals required.	Daily for 10 minutes	12 extra lifeguards are hired for 14 weeks in the summer.	Administrative Control, I&E personnel handle all chemicals. Engineering Control, Salt system reduces amount of chemicals requires to sanitize the water.	Acceptable; Administrative controls, I&E personnel handle all chemicals

INDIVIDUAL HAZARD ASSESSMENT	DATE: 30 Sept 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: Gymnasium and Fitness Center	POC: GYSGT. ASHLEY PHONE: 229-639-7724 TOTAL PERSONNEL: 10 MALE: 6 FEMALE: 4
SHOP OPERATIONS: The Gymnasium and Fitness Center employees operate the exercise facilities that are used by base personnel. These employees check out sports equipment, perform minor repairs to the fitness equipment, paint field stripping on sports fields, and keep the area neat and clean. Most of the employee's time is spent away from their desks.	

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
DOEHRS Processes: Fitness Center Equipment Maintenance Issue Equipment Pool Operation				

USE THE FOLLOWING EXPOSURE ASSESSMENT DEFINITIONS:

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SKIN – The material poses a skin absorption hazard.
REPRODUCTIVE HAZARD – The material is a Navy-Recognized Reproductive Hazard.
CARCINOGEN – The material contains > 0.1% of an OSHA, ACGIH, IARC, or NTP-recognized carcinogen

NOTE: "EXPOSED" refers to **"POTENTIAL EXPOSURE"** and does not take PPE, such as respiratory protection or hearing protection, into account.

INDIVIDUAL HAZARD ASSESSMENT	DATE: 30 September 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: Library/Marine and Family Education Center BLDG 7122	POC: AMOS TOOKES PHONE: 229-639-5242 TOTAL PERSONNEL: 4 MALE: 1 FEMALE: 3
SHOP OPERATIONS: Employees in the MCCS librarians carry out administrative tasks in an office setting. The Library employees operate the base library. The Education Center employees do administrative work.	

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
Noise: No noise hazards were observed during visit or mentioned during interviews.	Daily, full shift, 8 hours per day	4	None	Acceptable: No significant health hazards were observed during the IH walk through of the Library and Office Areas.
Ergonomics:	Daily, full shift, 8 hours per day	4	Ergonomically adjustable furniture and employee training	Acceptable; no problems were observed or mentioned during employee interviews.

DOEHRS Processes:
Administrative Tasks
Check out Materials

USE THE FOLLOWING EXPOSURE ASSESSMENT DEFINITIONS:

ACCEPTABLE – One where the IH will not expect the SEG to be exposed above the selected OEL.
UNCERTAIN – Additional data needs to be collected to clarify the exposure assessment. The IH should make an interim exposure assessment based on observation of the process and/or professional judgment.
UNACCEPTABLE – One where the IH will expect the SEG to be exposed above the selected OEL.
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INDIVIDUAL HAZARD ASSESSMENT	DATE: 30 September 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: MCCS Administrative Office Areas BLDG 3600	POC: DEBBRA BOUYER PHONE: 229-639-5242 TOTAL PERSONNEL: 11 MALE: 1 FEMALE: 10
SHOP OPERATIONS: Employees in the MCCS Office Area carry out administrative tasks in an office setting.	

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
Noise: No noise hazards were observed during visit or mentioned during interviews.	Daily, full shift, 8 hours per day	11	None	Acceptable: No significant health hazards were observed during the IH walk through of the Library and Office Areas.
Ergonomics:	Daily, full shift, 8 hours per day	11	Ergonomically adjustable furniture and employee training	Acceptable; no problems were observed or mentioned during employee interviews.

DOEHRS Processes:
Administrative Tasks

USE THE FOLLOWING EXPOSURE ASSESSMENT DEFINITIONS:

ACCEPTABLE – One where the IH will not expect the SEG to be exposed above the selected OEL.
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INDIVIDUAL HAZARD ASSESSMENT	DATE: 30 September 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: Wood Shop	POC: AL MCRARY PHONE: 229-639-6201 TOTAL PERSONNEL: 5 MALE: 4 FEMALE: 1
SHOP OPERATIONS: This shop works with several power tools, yard equipment as well as wood working equipment. Noise is a particular hazard when operating these power tools. Tools are all marked with noise hazard warning stickers and signs are posted inside of the shop.	

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
Noise: Various tools and equipment used by shop patrons create noise levels above Navy Occupational Standards. Table Saw I (Delta) 84 dBA, 90 while cutting. Table Saw II (Ridgid) 81 dBA, 93 while cutting. Table Saw III (Ridgid) 84 dBA, 88 while cutting. Band Saw (Delta) 82 dBA, 89 while cutting.	Power tools are used sporadically, as needed. Typically in the recent past their use has been estimated to be less than 30 minutes once per month.	5	PPE: Ear muffs or plugs	Acceptable, based on the shortness of exposure, hearing protection is recommended when using power tools. **Noise is a (developmental) reproductive hazard.**
Ergonomics:	30 minutes per month	5	None	Acceptable: this shop is used too infrequently to cause any ergonomic problems.

DOHRES Processes:

Drilling
Wood Cutting

USE THE FOLLOWING EXPOSURE ASSESSMENT DEFINITIONS:

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UNACCEPTABLE – One where the IH will expect the SEG to be exposed above the selected OEL.
SKIN – The material poses a skin absorption hazard.
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INDIVIDUAL HAZARD ASSESSMENT	DATE: 03 OCT 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: Auto Skills Shop	POC: Mel Scoggins, PHONE: 229-639-5226 TOTAL PERSONNEL: 4 MALE: 4 FEMALE: 0
SHOP OPERATIONS: Employees of this shop operate a garage for base personnel to use to make repairs on their own personal automobiles. Nearly all of the automotive repair work done in this shop is done by its patrons, not the shop's employees. Employees check out tools, monitor safety, and assist their customers. They do wear hearing protection when a customer uses loud power tools.	

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
Noise: Various tools used by shop patrons create noise levels above Navy Occupational Standards.	Intermittently for 2 to 4 hr/day Everyday	4	Distance PPE: Ear muffs or plugs	Acceptable based on the shortness of exposure and distance, hearing protection is recommended when using power tools and high RPM engine testing. These employees do not use these tools, they stand back while the patrons use the tools. **Noise is a (developmental) reproductive hazard.**
Parts washing/degreasing: Safety Kleen solvent; Petroleum distillates	10 minutes, every day, mostly patron use with occasional employee assistance.	4	Safety glasses, (or face shields or goggles), butyl rubber or neoprene gloves.	Acceptable, based upon patron use of material. Employees should avoid skin contact with the solvents.
Brake Repair: Possible exposure to asbestos brake shoes.	Est. once per week for 15 minutes, mostly patron use with occasional employee assistance.	4	Engineering Control: use of wet methods to prevent airborne fibers.	Acceptable due to engineering controls, wet methods. The vast majority of automotive brakes are asbestos free. **Asbestos is a carcinogenic material.**
Oils/Greases/Lubricants	10 minutes/day Everyday, mostly patron use with occasional employee assistance..	4	PPE: Chemical gloves and goggles	Acceptable: No significant hazard due to that these products do not contact the skin. It is the patrons not the shop employees that perform the operations.
Anti-Freeze (Ethylene Glycol)	1 hr/week Not every week, mostly patron use with occasional employee assistance.	4	Goggles	Acceptable: No significant hazard due to that these products do not contact the skin. It is the patrons not the shop employees that perform the operations.

INDIVIDUAL HAZARD ASSESSMENT	DATE: 03 OCT 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: Auto Skills Shop	POC: Mel Scoggins, PHONE: 229-639-5226 TOTAL PERSONNEL: 4 MALE: 4 FEMALE: 0
SHOP OPERATIONS: Employees of this shop operate a garage for base personnel to use to make repairs on their own personal automobiles. Nearly all of the automotive repair work done in this shop is done by its patrons, not the shop's employees. Employees check out tools, monitor safety, and assist their customers. They do wear hearing protection when a customer uses loud power tools.	

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
Shop clean-up. General purpose detergents. And "gojo" hand cleaner	30 mins per day, every day.	4	butyl rubber or neoprene gloves	Acceptable: Due to noncontact with detergent. Detergent is poured directly into mop bucket and a mop is used to prevent skin contact while cleaning floors.
AC Freon reclamation during AC repairs.	Est. 30 mins per day, daily. Dictated by customer needs.	4	Freon is bled directly into recycle container.	Acceptable due to closed process.
Paint spray booth. Patrons bring different paints, each has different ingredients. Air flow (cross section) measures to be; 62.3ft^3/min.	Customer use only Booth has not been used for last 6 months	2	PPE: gloves, coveralls, and respirator.	Acceptable; due to low frequency of operations, employees outside of booth during spraying, and acceptable air flow rate inside booth. ACGIH recommended air flow rate for paint booth with HVLP sprayer is 60 ACFM/ft^2.
Running engines inside of garage: Exhaust emissions Ventilation controlled by exhaust vents that hook up to tail pipes. The mean flow rate of the 6 vents is 149.8 ft^3/min, with all outlets open.	Intermittently, adds up to 1 hour per day, Daily	4	Eng.Control: Ventilation system attached directly to exhaust pipe. Cars face inward with tail pipes aimed towards the garage doors.	Acceptable due to Engineering controls and natural ventilation of large garage doors which are normally open except when prohibited by weather.
Ergonomics: Staff performs motions such as bending, twisting, lifting and reaching. Not repetitively, as each customer will need different procedures.	4-6 hours per day, daily	4	Lifting equipment is available, and used.	Acceptable, no ergonomic issues were mentioned employee interviews.

DOHRES Processes:
Auto Repair

INDIVIDUAL HAZARD ASSESSMENT	DATE: 03 OCT 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: Auto Skills Shop	POC: Mel Scoggins, PHONE: 229-639-5226 TOTAL PERSONNEL: 4 MALE: 4 FEMALE: 0

SHOP OPERATIONS: Employees of this shop operate a garage for base personnel to use to make repairs on their own personal automobiles. Nearly all of the automotive repair work done in this shop is done by its patrons, not the shop's employees. Employees check out tools, monitor safety, and assist their customers. They do wear hearing protection when a customer uses loud power tools.

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
Oil Changes Paint and Body Work Shop Clean Up Wheel Alignment				

USE THE FOLLOWING EXPOSURE ASSESSMENT DEFINITIONS:

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NOTE: "EXPOSED" refers to **"POTENTIAL EXPOSURE"** and does not take PPE, such as respiratory protection or hearing protection, into account.

INDIVIDUAL HAZARD ASSESSMENT	DATE: 02 October 2014
RECORDED BY: JOHN SORENSON SIGNATURE: COMMAND: MCLB, MCCS SHOP NAME: Marine and Family Team Building Center: Child Development Center (CDC) and Teen Center	POC: PAULA CASERIO PHONE: 229-639-5767 TOTAL PERSONNEL: 55 MALE: 0 FEMALE: 55
SHOP OPERATIONS: The Child Development Center employees care for dependent children of base personnel during the daytime hours. They watch the children play, organize learning activities, cook meals, clean the facility, and carry out administrative tasks. No significant health hazards were observed during the IH walk through of the Child Development Center.	

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
Noise, No noise hazards were observed during visit. Crying children did come up during the interviews. SEG data on crying children has been established as 73-80 dBA.	Intermittent throughout the day, adding up to an estimated total of up to about 1 hour per day.	55	None	Acceptable, there are no noise hazards present at the CDC or Youth Center.
Laundry, washing is done at the CDC. "All, Stain Lifter Oxi" detergent	Approx. 15-20 loads per day, Rotated among employees	50	Washing Machine	Acceptable, Machine washing detergent is poured into machine and not handled by employees.
Cleaning solutions Household cleaners are used in each classroom, and weak (10%) bleach solutions are made up each day.	1 hr/day, everyday	50	PPE: Rubber or nitrile gloves	Acceptable, cleaning solutions are weak, mostly household cleaners.
Bloodborne Pathogens: Bodily fluids and blood from dirty diapers and bloody noses or other childish outlets.	Diper changed occur roughly 20 times per day. Minor bleeding also occurs once or twice per day.	55	Universal Precautions, training, Biohazard bags and rubber, vinyl, neoprene, or nitrile gloves.	Acceptable based upon training, Universal Precautions, and PPE. All CDC employees are recommended for the Blood Borne Pathogen Program.
Dish washing: Clean-force Detergent D21 Clean-force Rinse Additive D22	4 hours per day, every day	2	Engineering Control: Both liquids are automatically dispensed from their containers directly into the dish washing machine.	Acceptable due to auto-dispenser engineering control.

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HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
Cooking: Heat Stress	6 hours per day, every day	2	Engineering Control: Vent hood above the grill and stove pull smoke and heat out of kitchen, Also portable supplemental AC unit located in kitchen.	Acceptable due to engineering controls. A more powerful fan motor should be placed into the vent hood above the grill and stove to increase pulling power and further improve heat stress control.
Ergonomics: Staff performs motions such as bending, twisting, lifting and reaching. These motions can be repetitive at times.	Full shift, 8 hours, every day	55	None	Acceptable; employees did not indicate any problems during interviews.

DOHRES Processes:

Child Care
Cleaning and Sanitation
Cooking
Diaper Changing
Laundry
Playground Supervision

INDIVIDUAL HAZARD ASSESSMENT	DATE: 02 October 2014
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HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT

USE THE FOLLOWING EXPOSURE ASSESSMENT DEFINITIONS:

ACCEPTABLE – One where the IH will not expect the SEG to be exposed above the selected OEL.
UNCERTAIN – Additional data needs to be collected to clarify the exposure assessment. The IH should make an interim exposure assessment based on observation of the process and/or professional judgment.
UNACCEPTABLE – One where the IH will expect the SEG to be exposed above the selected OEL.
SKIN – The material poses a skin absorption hazard.
REPRODUCTIVE HAZARD – The material is a Navy-Recognized Reproductive Hazard.
CARCINOGEN – The material contains > 0.1% of an OSHA, ACGIH, IARC, or NTP-recognized carcinogen

NOTE: "EXPOSED" refers to **"POTENTIAL EXPOSURE"** and does not take PPE, such as respiratory protection or hearing protection, into account.

INDIVIDUAL HAZARD ASSESSMENT	DATE: 02 Oct 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: Kitchen	POC: CRAIG PRUETT PHONE: 229-639-6236 TOTAL PERSONNEL:17 MALE: 3 FEFMALE: 14
SHOP OPERATIONS: This kitchen prepares meals for the base restaurant as well as for the bowling alley snack bar. Although the bowling alley has closed the snake bar remains open for food service. Employees use cleaning products such as bleaches, stainless steel cleaners, oven cleaners, floor cleaners, and ammonia solutions.	

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
Noise; No noise hazard was observed during IH survey visit. Potential noise making appliances were seen but not operated.	8 hours per day, every day.	17	None	Uncertain, SLM readings of kitchen appliances has been added to the EMP.
Cleaning Chemicals Weak bleach solution (10%) ECOLAB, Oasis 133 degreaser (daily for 30 min) 2% SODIUM DODECYLBENZENE SULFONATE	 2 hrs/day, Everyday 30 min per day, daily	17	PPE: Rubber Gloves	ACCEPTABLE, cleaners that are used are weak, household type cleaning solutions and adequate natural ventilation. No known effect of skin contact.
Cleaning Oven Oven Cleaner, aerosol Puritan Serv Inc..	30-60 mins once per week	17	PPE: Butyl Rubber Gloves	Acceptable, based upon low frequency of operation.
Dish washing; Jet-Dry (11817) dishwasher detergent Solitaire Detergent (10884) Pantastic (12971) for cleaning pots and pans	 Daily (no contact) 1-2 hours per day, daily	17	Impervious vinyl gloves	Acceptable due to auto-dispenser eliminates contact with detergents . Dishwashing duties rotate among the employees to eliminate repetitive ergonomic motions. Each person washes dishes 1 or 2 times per week.

INDIVIDUAL HAZARD ASSESSMENT	DATE: 02 Oct 2014
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HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
Floor Cleaning: Wash-n-Walk no rinse floor cleaner alcohols, c12-16, ethoxylated amines, c10-16-alkyldimethyl, n-oxides	1 hour per day, daily	17	Engineering Controls: Use with mop. PPE: vinyl gloves	Acceptable, used as diluted solution with mop. (no contact)
Kitchen Environment Heat Stress	8 hours per day, every day	17	Engineering Control: Supplemental AC unit in kitchen	Acceptable: Employee interviews indicate that heat stress in not an issue in this kitchen, with the supplemental AC unit.

DOHRES Processes:

Cooking
Dish Washing
Food Service
Sanitizing

USE THE FOLLOWING EXPOSURE ASSESSMENT DEFINITIONS:

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INDIVIDUAL HAZARD ASSESSMENT	DATE: 01 OCT 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: MC Exchange	POC: SGT. ADAMS PHONE: 229-888-6801 TOTAL PERSONNEL: 24 MALE: 7 FEFMALE: 17
SHOP OPERATIONS: Operation of retail store for base personnel, their families, and retired military personnel. Employee's duties include stocking shelves, receiving merchandise, assisting customers, and cashiering. Daily cleaning has been contracted out to a cleaning service.	

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT (1)
Noise: No noise hazards were observed during visit or mentioned during interviews. The computer server generates a noise level of 80-82 dBA. The desks across the room receive a residual background noise of 65-68 dBA. Although this level is below the Navy health hazard standard it is considered to be a nuisance to the employees exposed to it all day.	Daily, full shift, 8 hours per day	11	None	Acceptable: No significant health hazards were observed during the IH walk through of the Library and Office Areas.
Receiving and moving merchandise: Heavy Lifting	Daily	30	Eng. Controls: Pallet jacks, carts and other mechanical lifting devices are used.	Acceptable due to Engineering Controls. **Heavy Lifting is a Navy recognized reproductive hazard.**
Balloon inflation and sales Helium gas	Variable, customer dependent, estimate 30 minutes one time per week.	2 (ITT Personnel)	None	Acceptable due to Adequate natural ventilation.
Ergonomics:	8 hours per day every day	24	Education and training. Desk bound employees all have ergonomically adjustable work stations.	Acceptable, no repetitive motions or complaints during interviews.

DOHRES Processes:

Receiving Merchandise
Selling
Unpacking and Shelving

INDIVIDUAL HAZARD ASSESSMENT	DATE: 01 OCT 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: MC Exchange	POC: SGT. ADAMS PHONE: 229-888-6801 TOTAL PERSONNEL: 24 MALE: 7 FEMALE: 17
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HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT (1)

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INDIVIDUAL HAZARD ASSESSMENT	DATE: 2 OCT 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: MCCS Custodians	POC: AL MCRARY PHONE: 229-639-6201 TOTAL PERSONNEL: 4 MALE: 3 FEMALE: 1
SHOP OPERATIONS: These employees travel from site to site cleaning all MCCS facilities. They strip and wax floors, carry cleaning equipment, and use various household cleaning solutions. One employee performs lawn maintenance.	

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT (1)
Noise: No noise hazards were observed during visit or mentioned during interviews.	Daily, full shift, 8 hours per day	4	None	Acceptable: No significant health hazards were observed during the IH walk through.
Lawn Mower	6 hours, Daily	1	PPE: ear plugs or muffs	Unacceptable, based upon SEG data from I&E Division. **Noise is a Navy recognized reproductive hazard.**
Cleaning: Cleaning chemicals: Windex, Tough Duty spray cleaner (Ethol Ethoxylate) Gojo Dawn Dish Soap, Spartan Glass Cleaner (Alyyl Polyglycoside)	Daily, entire shift.	5	PPE: Rubber gloves and aprons are provided as required	Acceptable: Chemicals used present minimal health risk. Floors are stripped with heat stripper, chemical strippers are not used.
Ergonomics:	Daily, full shift, 8 hours per day	15	Ergonomically adjustable furniture and employee training	Acceptable; no problems were observed or mentioned during employee interviews.

DOHRES Processes:

Cleaning
Vacuuming
Lawn Maintenance

INDIVIDUAL HAZARD ASSESSMENT	DATE: 2 OCT 2014
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: MCCS Custodians	POC: AL MCRARY PHONE: 229-639-6201 TOTAL PERSONNEL: 4 MALE: 3 FEMALE: 1
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HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT (1)

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INDIVIDUAL HAZARD ASSESSMENT	DATE: 10 OCT 2012
RECORDED BY: JOHN SORENSON SIGNATURE:  COMMAND: MCLB, MCCS SHOP NAME: MCCS Administrative Office, BLDG 3600	POC: ALISHA ENFINGER PHONE: 639-7259 TOTAL PERSONNEL: 4 MALE: 3 FEMALE: 1
SHOP OPERATIONS: Workers in these offices conduct meetings, write, approve and process paper work. They operate computers, copy machines, facsimile machines and other standard office equipment. All copying machine and printer ink is installed in cartridges to prevent the possibility of human contact with ink and toner.	

HEALTH HAZARDOUS STRESSORS AND ASSOCIATED OPERATIONS	DURATION / FREQUENCY OF EXPOSURE	NO. OF WORKERS	CONTROLS	EXPOSURE ASSESSMENT
Noise No noise hazards were observed nor mentioned during employee interviews.	8 hours per day, every day	4	None	Acceptable, no noise hazards exist in this area.
Ergonomics:	8 hours per day, every day	4	Ergonomically adjustable work stations, education and training.	Acceptable due to Ergonomically adjustable work stations, education and training.

DOHRES Processes:
Administrative Tasks

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NOTE: "EXPOSED" refers to **"POTENTIAL EXPOSURE"** and does not take PPE, such as respiratory protection or hearing protection, into account.

AL14016 MCCS Division	P.O.C: Alisha Enfinger, 639-7259	SURVEY PERIOD: 2014-2015 BY IH: John Sorenson ASSIGNED TO IHT: Kori Jowhar

WORKPLACE MONITORING PLAN

OPERATION AND STRESSOR TO BE MONITORED	# Samples Remaining to Categorize Exposure	I METHOD	II AREA	III FREQ*	IV MAN-HOURS
A. SLM readings of various kitchen appliances in the Base Restaurant and CDC kitchens. **Rationale: D** **PRIORITY: 4**	6-12	DR	SZ	6	3
Action:					
B. Noise Dosimetry of bowling alley personnel on league bowling nights. **Rationale: C** **PRIORITY: 2**	2	PD	HZ	One Time, to evaluate reduced operations	9
Action:					
C. **Rationale:** **PRIORITY:**					
Action:					
D. **Rationale:** **PRIORITY:**					
Action:					
Monitoring Plan Completion Reviewed By: John Sorenson			**TOTAL HOURS:**		

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

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

SAMPLING RATIONALE:

(A) Fulfill regulatory sampling requirements.
(B) Collect sufficient data to allow statistically valid exposure assessments.

(C) Track workplace exposures to determine trends.
(D) Validate professional judgments of unchanged exposure assessments.

PRIORITY CATEGORIES:

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

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

PERIODIC INDUSTRIAL HYGIENE SURVEY
MARINE CORPS COMMUNITY SERVICES DIVISION
MARINE CORPS LOGISTICS BASE
ALBANY, GEORGIA
REPORT NUMBER: AL14016

Industrial Hygienist: John Sorenson — Survey Period 2014-1015

Shop	Hazard	Controls	Medical Evaluation	Code	Comments
MCCS Custodians	Noise	Ear plugs or muffs	Hearing Conservation Program	503	Lawn more operator

ADDITIONAL NON-EXPOSURE BASED MEDICAL SCREENING

CDC employees are recommended for the Blood Borne Pathogen Program

CODE REFERENCE: 1.*Medical Surveillance Procedures Manual and Medical Matrix, latest edition*

Comment Explanations:

2. For Noise Only: Use only those types listed in appendix 18-A of OPNAVINST 5100.23G, or for where a valid waiver has been granted. Participate in the Hearing Conservation Program. As per OPNAVINST 5100.23G to include:
a. The use of PPE
b. The labeling of noise hazardous non-combatant equipment.
c. Annual Training
Annual Audiometric evaluation.

3. For Respirator Use Only: Participate in the Respiratory Protection Program. As per OPNAVINST 5100.23G to include:
a. The use of PPE
b. Fit Testing
c. Appropriate medical surveillance
d. Annual Training

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

GLOSSARY OF TERMS

AABA: **A**mbient **A**ir **B**reathing **A**pparatus. 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®: **A**merican **C**onference of **G**overnmental **I**ndustrial **H**ygienist 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: **A**uthorized **U**ser **L**ist: A listing of chemicals whose use is authorized by for a department, shop or other entity.

BBP: **B**lood-**B**orne **P**athogen: 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
$\mu g/m^3$	Micrograms per cubic meter	Unit of airborne concentration for gases, vapors, fumes, and/or dusts
PPM	Parts per million (air)	Unit of airborne concentration for vapors or gases
Fibers/cc or f/cc	Fibers per cubic centimeter	A unit of measure for fibrous airborne particulates such as asbestos fibers.
Mppcf	Millions of particles per cubic foot	A unit used for airborne dusts based on particle counts & which has virtually been eliminated from routine use.

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

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

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

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

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

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

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

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

AND / OR

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

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

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

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

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

(a) Has a flashpoint below 200^{o}F (93.3^{o}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/m^3 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 **C**onservation **P**rogram – Such programs typically include: monitoring, audiometric testing, hearing protectors, training, and recordkeeping requirements.

IHFOM: The Navy **I**ndustrial **H**ygiene **F**ield **O**perations **M**anual 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 **E**xhaust **V**entilation – 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 **C**ellulose **E**ster membrane filters – a type of sampling media used to collect specific particulates as a part of Industrial Hygiene evaluation.

Micrograms per cubic meter (µg /cu.m. or **µg/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 (mg /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 **S**urveillance **A**ction **L**evel; 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: **N**avy **E**nvironmental **H**ealth **C**enter

NIOSH: The **N**ational **I**nstitute for **O**ccupational **S**afety and **H**ealth 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 **N**ational **O**ceanic and **A**tmospheric **A**dministration is a federal agency focused on the condition of the oceans and the atmosphere.

NOEL: **N**avy **O**ccupational **E**xposure **L**imit

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

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

OEL: *See **O**ccupational **E**xposure **L**imit*

OSHA: **(a)** **O**ccupational **S**afety and **H**ealth **A**ct, or
(b) **O**ccupational **S**afety and **H**ealth **A**dministration, 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: **P**ermissible **E**xposure **L**imit – 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: **P**ersonal **P**rotective **E**quipment – *See Protective Clothing and Protective Equipment*.

ppb: **P**arts **P**er **B**illion - 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: **P**arts **P**er **M**illion – 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: **P**oly **V**inyl **C**hloride 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: **R**espiratory **P**rotection **P**rogram

SCBA: A type of Positive pressure respirator, **S**elf-**C**ontained **B**reathing **A**pparatus – a form of respiratory protection which relies on bottled breathing air (worn by the user) as the source of air

to be breathed by the wearer. Most typically, these devices are equipped with a full face mask which also serves to protect the wearer's face and eyes from incident splash and or gas/vapor contact.

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

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

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

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

TLV-C: *See Ceiling Limit - TLV*

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

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

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

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

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