From: Officer in Charge, Naval Medical Administrative Unit, Monterey
To: Commanding Officer, Naval Postgraduate School, Monterey,
    1 University Circle, Monterey CA 93943-5100

Subj: PERIODIC INDUSTRIAL HYGIENE SURVEY OF NAVAL POSTGRADUATE SCHOOL,
       MONTEREY, SYSTEMS MANAGEMENT DEPARTMENT

Ref: (a) OPNAVINST 5100.23E, Section 0803.a

Encl: (1) Industrial Hygiene Survey Report ET-0046

1. As required by reference (a), a periodic industrial hygiene survey of the Naval Postgraduate School, Monterey, Systems Management Department was conducted on 14 February 2000 by the Naval Medical Administrative Unit, Monterey Industrial Hygienist. The survey report ET-0046 is forwarded as enclosure (1).

2. Due to the size and complexity of your command, separate reports will be issued as surveys of individual areas are completed to ensure the timeliness of the information. This survey is a service provided under the overall Occupational Health Program. It is not an inspection report but is designed to assist your Command's Occupational Safety and Health Program by identifying and evaluating actual and potential occupational health hazards and the status of their controls.

3. The Navy Oversight Inspection Unit and other inspection teams rely on these surveys and the corrective actions taken as indicators of an aggressive and comprehensive Navy Occupational Safety and Health (NAVOSH) Program. Since no findings were noted and corrective actions are unnecessary, a response to this survey is unnecessary.

4. Further clarification or consultation with respect to this report is available from Eric Thurston at commercial (831) 656-2793.

S.E. THURSTON
By direction

Copy to:
Industrial Hygiene Department, NAVHOSP Lemoore
Administrative Support Department, NAVHOSP Lemoore
Army Medical Clinic, POM/DLI, Occ Med Div
NAVAL MEDICAL ADMINISTRATIVE UNIT, MONTEREY
INDUSTRIAL HYGIENE SURVEY
of
NAVAL POSTGRADUATE SCHOOL, MONTEREY
SYSTEMS MANAGEMENT DEPARTMENT
SURVEY #ET-0046
14 February 2000

Survey Conducted By: Eric Thurston,
Industrial Hygienist
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EXECUTIVE SUMMARY

There are no findings and no corrective actions are necessary. The department will not require a resurvey until 2004 unless major changes in the workplace occur before that time.

Specific details of these findings can be found in sections II and III of this report. The cooperation of your staff, especially Sue McElderry, was greatly appreciated.
COMMON ABBREVIATIONS AND GLOSSARY

(The following abbreviations may be used in this report)

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>ACM</td>
<td>Asbestos Containing Material.</td>
</tr>
<tr>
<td>AL</td>
<td>Action Level. Normally ½ PEL. Exposure level at which air sampling, employee training, medical surveillance are required.</td>
</tr>
<tr>
<td>ANSI</td>
<td>American National Standards Institute. A national consensus standards developing organization.</td>
</tr>
<tr>
<td>Ceiling</td>
<td>A toxic material exposure level which cannot be exceeded for any length of time.</td>
</tr>
<tr>
<td>CFM</td>
<td>Cubic feet per minute. Air flow rate.</td>
</tr>
<tr>
<td>dBA</td>
<td>A sound level reading in decibels as measured on the A-weighted network of a sound level meter.</td>
</tr>
<tr>
<td>EL</td>
<td>Excursion Limit. Is a concentration limit which cannot be exceeded at any time.</td>
</tr>
<tr>
<td>EPA</td>
<td>Environmental Protection Agency.</td>
</tr>
<tr>
<td>f/cc</td>
<td>Fibers per cubic centimeter. A means for expressing airborne asbestos fiber concentrations.</td>
</tr>
<tr>
<td>FPM</td>
<td>Feet per minute.</td>
</tr>
<tr>
<td>HAZCOM</td>
<td>Hazard communication. A system for training employees about job hazards through the use of chemical inventories, MSDSs, labels, and personnel training.</td>
</tr>
<tr>
<td>HCP</td>
<td>Hearing Conservation Program. A program to prevent hearing loss from exposure to noise through the use of hearing protection, training, and medical surveillance.</td>
</tr>
<tr>
<td>HEPA</td>
<td>High-efficiency particulate air filter. A filter capable of trapping and retaining 99.97% of 0.3 micron diameter, or larger, particles.</td>
</tr>
<tr>
<td>HM</td>
<td>Hazardous material. A material which is a physical or health hazard per 29 CFR 1910.1200.</td>
</tr>
<tr>
<td>HW</td>
<td>Hazardous waste. Any discarded or abandoned hazardous substance as defined in 40 CFR 261.</td>
</tr>
<tr>
<td>LEV</td>
<td>Local exhaust ventilation. Exhaust system at source of contamination.</td>
</tr>
<tr>
<td>mg/m³</td>
<td>Milligrams per cubic meter of air. A means for expressing concentrations of dust and metal fumes in air.</td>
</tr>
<tr>
<td>MMVF</td>
<td>Man made vitreous fibers. (Fiberglass, mineral wool, ceramics)</td>
</tr>
<tr>
<td>MSAL</td>
<td>Medical Surveillance Action Level. A concentration of an air contaminant at which medical surveillance examinations must be provided to exposed personnel.</td>
</tr>
<tr>
<td>MSDS</td>
<td>Material Safety Data Sheet. A form used by manufacturers to communicate to users the chemical and physical properties of their products.</td>
</tr>
<tr>
<td>NAVOSH</td>
<td>Navy Occupational Safety and Health</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Association</td>
</tr>
<tr>
<td>NIOSH</td>
<td>National Institute for Occupational Safety and Health. Recommends safety and health standards for OSHA.</td>
</tr>
<tr>
<td>NPEL</td>
<td>Navy Permissible Exposure Limit.</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration.</td>
</tr>
<tr>
<td>OV</td>
<td>Organic vapors.</td>
</tr>
<tr>
<td>PCB</td>
<td>Polychlorinated Biphenyl</td>
</tr>
</tbody>
</table>
### COMMON ABBREVIATIONS AND GLOSSARY

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PEL</strong></td>
<td>Permissible Exposure Limit. The maximum permissible allowable exposure level of a toxic chemical or harmful physical agent (normally averaged over 8 hours) to which an employee may be exposed.</td>
</tr>
<tr>
<td><strong>PPE</strong></td>
<td>Personal Protective Equipment. Clothing or devices furnished to protect employees in performance of work in potentially hazardous areas or conditions.</td>
</tr>
<tr>
<td><strong>ppm</strong></td>
<td>Parts per million. A means for expressing the concentration of gases and vapors in air.</td>
</tr>
<tr>
<td><strong>RFR</strong></td>
<td>Radiofrequency/Microwave Radiation.</td>
</tr>
<tr>
<td><strong>RPPM</strong></td>
<td>Respiratory Protection Program Manager.</td>
</tr>
<tr>
<td><strong>SCBA</strong></td>
<td>Self Contained Breathing Apparatus.</td>
</tr>
<tr>
<td><strong>SOP</strong></td>
<td>Standard Operating Procedures.</td>
</tr>
<tr>
<td><strong>STEL</strong></td>
<td>Short term exposure limit. A 15 minute time weighted average exposure which should not be exceeded at any time during a workday.</td>
</tr>
<tr>
<td><strong>Stressor</strong></td>
<td>Potential Hazard (e.g. Noise, Chemicals, Dusts)</td>
</tr>
<tr>
<td><strong>TLV</strong></td>
<td>Threshold Limit Value. Established by ACGIH as levels of airborne contaminants or physical hazards under which it is believed workers may be exposed on a day after day basis without adverse effect.</td>
</tr>
<tr>
<td><strong>TWA</strong></td>
<td>Time Weighted Average. A method for averaging varying concentrations over a specified period of time (usually 8 hours).</td>
</tr>
<tr>
<td><strong>WC</strong></td>
<td>Work Center</td>
</tr>
<tr>
<td><strong>WMP</strong></td>
<td>Workplace Monitoring Program. A program to evaluate workplace health hazards through surveys and exposure measurement.</td>
</tr>
</tbody>
</table>
SECTION I
INTRODUCTION

The Naval Postgraduate School, Monterey, Systems Management Department provides instruction in information technology management and procurement management. Work consists of teaching, computer work, and administrative support.

If an operation has been overlooked or significant changes made which are believed to put personnel at serious risk, the industrial hygienist should be contacted, and an evaluation requested.

REPORT ORGANIZATION

Reference: (a) OPNAVINST 5100.23E, Section 0803.f

Section I - contains the background information associated with this report and the schedule for follow-up surveys.

Section II - addresses the status of the command's occupational health programs and hazards specific to individual codes. This section contains a short overview of each program's status and then a listing (Finding, Recommendation, Reference) of specific problems found in the program. Findings are identified by "Finding Numbers" such as "ET-0046-A, ET-0046-B, etc.".

Section III - Contains industrial hygiene assessments of specific work areas. These assessments address the status of workplace hazards and required control procedures. Any deficient conditions or recommended improvements in specific work areas are addressed here and are also identified by "Finding Numbers" such as "ET-0046-1, ET-0046-2, etc.".

Section IV - contains the results of all the sampling/monitoring data conducted in support of this survey. This appendix is arranged in a tabular format showing the date, location, operation sampled, results and the applicable standard.

Section V - identifies the occupational health medical surveillance requirements for each work area based on survey findings.

Section VI - details the sampling required to be conducted for OSHA or NAVOSH regulated stressors or stressors which have been found to result in personnel exposures equal to or in excess of the MSAL. Unless otherwise noted, sampling will be performed by Bureau of Medicine and Surgery (BUMED) industrial hygienists.

Appendix A - contains the OPNAV 5100/14 forms which are required by reference (a). These forms detail the occupational exposures of employees by work center or functional group.

Appendix B - is a copy of the Change In Operation Notification form, which should be filled out whenever a major operational change occurs. By returning the completed forms to the industrial hygienist, all new operations can be evaluated as required by reference (a). This form can be copied as needed for your use.
SURVEY SCHEDULE

References:  (a) OPNAVINST 5100.23E, Chapter 8, Sections 0803.b and c
(b) OPNAVINST 5100.23E, Chapter 8, Paragraph 0803.g

In accordance with reference (a), each workplace must be thoroughly evaluated to identify and quantify potential occupational hazards. To document these evaluations, an initial comprehensive (baseline) survey is needed, followed by periodic updated surveys. Reference (b) requires workplaces with recognized potential health hazards to be evaluated annually, and other workplaces to be evaluated periodically. Medical surveillance recommendations and a workplace monitoring plan are developed from the findings of these surveys. Any comments or suggestions regarding these survey schedules should be forwarded to the industrial hygienist via your Safety Office. The year of the last survey appears after each work center listing.

WORKPLACE SURVEY SCHEDULE

<table>
<thead>
<tr>
<th>Annual Required</th>
<th>2 Year Schedule</th>
<th>4 Year Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>None</td>
<td>Systems Management (2000)</td>
</tr>
</tbody>
</table>

Change of Operations Notification:

Reference (b) requires an industrial hygiene re-evaluation when workplace changes occur. Please notify the industrial hygienist via your Safety Office whenever major changes occur in a workplace. Examples of major changes include:

- Exposure times have changed.
- New types of equipment are used.
- New chemical/chemical product usage.
- New operations are performed.
- Increase in major chemical usage.
- Changes in exhaust ventilation.

A "CHANGE OF OPERATIONS NOTIFICATION" form is provided in Appendix B and can be used for this purpose. Copy the form as needed for your use.
SECTION II
NAVY OCCUPATIONAL SAFETY AND HEALTH

PROGRAM REVIEWS

The following programs are not required to be maintained by the Naval Postgraduate School, Monterey, Systems Management Department because these hazards are not present:

- Asbestos Control
- Bloodborne Pathogens Control
- Hazardous Material Control
- Hearing Conservation
- Lead Control
- Manmade Vitreous Fibers Control
- Polychlorinated Biphenyls (PCB’s) Control
- Process Control Ventilation
- Reproductive Hazard Control
- Respiratory Protection

ERGONOMICS PROGRAM

Reference:  (a) OPNAVINST 5100.23E, Chapter 23, paragraph 2304a
(b) OPNAVINST 5100.23E, Chapter 23, paragraph 2306a

Repetitive tasks in this department are limited to use of desktop computers. Repetitive stress injuries have not occurred. Ergonomic evaluations of all work stations required by reference (a) and office ergonomics training required by reference (b) will be performed by one of the Safety Office safety specialists in the future.

Recommendations:  None. Provided for your information and records.
SECTION III

INDUSTRIAL HYGIENE ASSESSMENTS
FUNCTION: This department provides instruction in information technology management and procurement management. Work consists of teaching, computer work, and administrative support. Most of the rooms are offices or classrooms.

INDUSTRIAL HYGIENE ASSESSMENT

There are no operations that potentially expose personnel to hazardous occupational stressors.

The following operations will not expose personnel to hazardous occupational stressors in excess of established health standards:

Ergonomics during desktop computer use. No repetitive stress injuries or problems from use of computers have occurred.

There are no operations that potentially expose personnel to stressors identified by OPNAVINST 5100.23E, Chapter 29, Appendix 29-A as reproductive hazards.

RECOMMENDATIONS: None.

FINDINGS: None.
SECTION VI
INDUSTRIAL HYGIENE SURVEY DATA

This Section contains the sampling/monitoring conducted in support of this survey. It should be noted that the measured levels of chemical and physical hazards are compared to the standards without regard to any personal protective equipment that may be worn or the protection afforded by it. The goal of the NAVOSH Program 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 OSHA, NIOSH, or by other appropriate Naval instructions. When such 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 are held by the Naval Medical Admin Unit, Monterey Bay industrial hygienist.

No new data was collected in support of this survey.
SECTION V

MEDICAL SURVEILLANCE MATRIX

The Medical Surveillance Matrix is provided to assist commands in assigning personnel to required medical surveillance. Medical surveillance for a work group must be based on exposure levels at or above the MSAL and exposure frequency of ten days per quarter or thirty days per year or as required by regulations or instruction.
SECTION VI

WORKPLACE MONITORING PROGRAM

The attached Workplace Monitoring Plan presents stressors and/or systems which need to be evaluated periodically during the coming year. Items included on the plan are based on regulations, professional knowledge and information obtained from supervisors. The plan should be reviewed to ensure operational information is correct. The industrial hygienist will have to be contacted when operations are scheduled so your Command's sampling can be completed. Changes or deletions of operations should also be communicated to the industrial hygienist so that the Workplace Monitoring Plan can be amended.

Naval Postgraduate School, Monterey
National Security Affairs Department

WORKPLACE MONITORING PLAN

Date prepared: 15 February 2000

<table>
<thead>
<tr>
<th>LOCATION/JOB</th>
<th>STRESSOR</th>
<th>MEAS. REQUIRED</th>
<th>MEAS. METHOD</th>
<th>MEASURING FREQUENCY</th>
<th>MAN HRS. PER YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>None required.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Air samples for each chemical stressor will be collected using sampling methods listed in the Industrial Hygiene Sampling Guide for Consolidated Industrial Hygiene Laboratories, Navy Environmental Health Center Technical Manual NEHC-TM6290.91-2, Revision B, March 1999. Asbestos monitoring will include EL and area sampling.

1: Use the following codes to indicate sampler and sampling location:

**SAMPLER:**
- DR-direct reading instrument
- DT-detector tube
- AT-adsorption tube
- IM-impinger/bubbler
- FI-filter
- ND-noise dosimeter
- PD-personal dosimeter
- OT-other (specify)

**SAMPLING LOCATION:**
- GA-general area
- BZ-breathing zone
- HZ-hearing zone
- SZ-source zone
- OT-other (specify)
Reference: (a) OPNAVINST 5100.23E, paragraph 0803.f

This appendix contains the OPNAV 5100/14 forms which are required by reference (a). These forms detail the occupational exposures of employees by work center or functional group. These forms are used to develop the workplace monitoring program in Section VI. They also describe the type of work done in each area and can be used to verify that all work areas were included in the survey.
WORKPLACE INFORMATION

Activity: NPS Monterey  Supervisor: Reuben Harris  Phone: (831)656-2777
Bldg#: 330, Glasgow Hall  Shop: Systems Management Department

Total Personnel: 85  Male: 69  Female: 16

Shop Operation: This department provides instruction in information technology management and procurement management. Work consists of teaching, computer work, and administrative support. Most of the rooms are offices or classrooms.

<table>
<thead>
<tr>
<th>Potential Hazard</th>
<th>Inter or Cont.</th>
<th># Workers Exposed</th>
<th>Exposure &gt; MSAL?</th>
<th>Controls in Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ergonomics, computer use</td>
<td>Daily, up to 8 hours</td>
<td>85</td>
<td>No</td>
<td>None</td>
</tr>
<tr>
<td>* Reproductive hazard (See I. H. assessment)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If no exposure > MSAL, provide rationale: No repetitive stress injuries or problems have occurred from use of desktop computers.

Signature/Title: S.E. Thurston, Industrial Hygienist  Date: 14 February 2000

MONITORING PLAN

Stressor to be Sampled | # of Meas. Required | * Measure. Method | **Measure. Location | Frequency per Yr. | Man Hrs. per Yr.
None | | | | |

<table>
<thead>
<tr>
<th>Engineering Controls in Use</th>
</tr>
</thead>
</table>
None | | | |

* Use the following Codes:  ** Use the following Codes:
DR-direct reading instrument  GA-general area
DT-detector tube  BZ-breathing zone
AT-adsorption tube  HZ-hearing zone
IM-impinger/bubbler  SZ-source zone
FI-filter  OT-other (specify)
PD-personal dosimeter
ND-noise dosimeter
OT-other (specify)
APPENDIX B
CHANGE OF OPERATION NOTIFICATION

Please use this form to notify the industrial hygienist of any changes to operations conducted by your department. The notification form may be copied as needed. The completed forms can be returned to:

NAVAL POSTGRADUATE SCHOOL, MONTEREY
CODE 0223, SAFETY OFFICE (ATTN: INDUSTRIAL HYGIENIST)
1 UNIVERSITY CIRCLE
MONTEREY CA 93943

FOREMAN/SUPERVISOR:                                            EXT:
BLDG:          COMMAND/SHOP: NPS Monterey, Systems Management Department
               WORK AREA:
SURVEY REPORT:  ET-0046

INSTRUCTIONS TO FOREMAN/SUPERVISOR:

The industrial hygiene survey evaluated the potential hazards to your employees based on the operations existing at the time. When your operations change, the potential hazards can also change, and these new conditions must be evaluated. Please contact the industrial hygienist if any of the following occur:

   a. Exposure times have changed.
   b. New operations are performed.
   c. New types of equipment are used.
   d. An increase in major chemical usage.
   e. New chemicals or chemical products are used.
   f. A change in existing exhaust ventilation.

List any changes below.

Date Forwarded: