From: Commanding Officer, Naval Hospital Lemoore
To: Chief of Staff, Naval Postgraduate School, 1 University Circle, Monterey CA 93943

Subj: VENTILATION MEASUREMENTS, NAVAL POSTGRADUATE SCHOOL, MONTEREY, PHYSICS DEPARTMENT, BUILDING 245 NANOMEMS LABORATORY HOODS

Ref: (a) OPNAVINST 5100.23G, Chapter 8

Encl: (1) Industrial Hygiene Investigation Report
Encl: (1) Industrial Hygiene Ventilation Measurements Report

1. Ventilation measurements of the two Naval Postgraduate School, Physics Department’s Building 245 nanoMEMS Laboratory Clean Room laboratory hoods were conducted on 9 September 2014 by the Naval Hospital, Lemoore’s Monterey area Industrial Hygienist.

2. Results and recommendations are discussed in enclosure (1).

3. If further consultation on this report is needed, please contact S. Eric Thurston, Industrial Hygienist at COMM (831)656-1074, e-mail sethurst@nps.edu.

K. R. DAGHER
By direction

Copy to:
NPS Safe Offcr
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INDUSTRIAL HYGIENE SURVEY DATA

ACTIVITY: NPS Monterey ___________________ DATE: 9 Sep 2014

DEPARTMENT: Physics Dept, Bldg 245 ___________________ POC: Professor Grbovic

LOCATION: nanoMEMS Lab, Room 214 ___________________ IND. HYG.: Eric Thurston

OPERATION/PROCESS DESCRIPTION: Two high-tech laboratory flow hoods controlled by electronics located at their tops are present in the Watkins Hall, Room 214 10,000 level Clean Room. Adjustments to the flow rate of each hood were made through a limiting valve located immediately above each hood box for two purposes: (1) lower the flow to meet the recommended criterion range to minimize the possibility of toxics being pushed out of the hood into the operator’s breathing zone by an excessive air flow, and (2) minimize the possibility of test articles being inadvertently drawn in the ventilated slots on the rear walls of the hoods, once again caused by an excessive air flow. Adjustments were made until an average flow at the six measurement points met the criterion range and the flow at each point did not excessively exceed the criterion. Measurement results are summarized below:

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>SOURCE</th>
<th>MEASUREMENT</th>
<th>CRITERION</th>
<th>CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 214,</td>
<td>Flammables</td>
<td>90 fpm</td>
<td>80-100 fpm</td>
<td>Optimal</td>
</tr>
<tr>
<td>10,000 Level</td>
<td>Lab Hood</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room</td>
<td>Corrosives</td>
<td>98 fpm</td>
<td>80-100 fpm</td>
<td>Optimal</td>
</tr>
<tr>
<td></td>
<td>Lab Hood</td>
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</tbody>
</table>

DISCUSSION: The flow rates for both hoods now meet the criterion of 80 to 100 feet per minute (fpm) outlined in reference (a). No corrective action is necessary; if for some reason the flow rates of the hoods need to be increased, contact the Industrial Hygienist to conduct additional measurements. Otherwise, the next set of such measurements will be collected as part of the department’s 2015 two-year industrial hygiene survey.

Enclosure (1)
INDUSTRIAL HYGIENE SURVEY DATA

ACTIVITY: NPS Monterey  DATE:  9 Sep 2014

DEPARTMENT: Physics Dept, Bldg 245  POC: Professor Grbovic

LOCATION: nanoMEMS Lab, Room 214  IND. HYG.: Eric Thurston

REFERENCES:

(a) Industrial Ventilation: A Manual of Recommended Practice, 27th Edition, Chapter 13, Figure VS-35-01, page 13-49, ACGIH