MEMORANDUM

From: Monterey Area Industrial Hygienist
To: Occupational Safety, Health, and Environmental Director, Naval Postgraduate School

Subj: VENTILATION SURVEY RESULTS

Encl: (1) Industrial Hygiene Ventilation Survey Report

1. Ventilation measurements of the Mechanical and Aeronautical Engineering Department’s Building 217 Rocket Propulsion and Combustion Lab’s laboratory chemical hood were conducted on 28 September 2017 by the Monterey area Industrial Hygienist.

2. Due to a backup in survey report, it may be some time before the signed report is issued by Naval Hospital, Lemoore. The enclosed serves as an interim report until that report version is available for distribution.

3. The measured air flow rate of the hood is optimal with the sash open no more than 13 inches as in the past. Details are provided in enclosure (1), the ventilation survey report.

4. Further clarification or consultation with respect to this report is available from S. Eric Thurston, Industrial Hygienist at COMM (831) 656-1074, e-mail sethurst@nps.edu.

S.E. THURSTON
INDUSTRIAL HYGIENE SURVEY DATA

ACTIVITY: NPS Monterey  
DATE: 28 September 2017

DEPARTMENT: MAE Dept, Rocket Prop/Comb Lab  
POC: Robert Wright

LOCATION: Bldg 217  
IND. HYG.: Eric Thurston

OPERATION/PROCESS DESCRIPTION: Process control ventilation is used to control chemical exposures while mixing: (1) experiment powders, and (2) plasticizer/lubricant with other chemical products inside a chemical fume hood.

<table>
<thead>
<tr>
<th>MEASURED FACE VELOCITY, fpm</th>
<th>SASH HEIGHT, inches</th>
<th>DESIGN CRITERION, fpm</th>
<th>CONDITION</th>
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<tr>
<td>93</td>
<td>13</td>
<td>80-100</td>
<td>Optimal</td>
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RESULTS: The hood’s ventilation exhaust flow rate meets the criterion of 80 to 100 feet per minute (fpm) if the sash is opened no more than 13 inches as in the recent past. Several years ago when the Industrial Hygienist identified a deficient flow rate with measurements taken the usual way (with the hood’s sash fully open), the Lab’s former Aerospace Technician (no longer employed at the Lab) indicated that funds were not available to perform any maintenance on the system or have it redesigned. With that in mind, the Industrial Hygienist determined that an optimal flow rate could be achieved with the sash open 11 inches, with subsequent measurement surveys identifying the height of the sash opening where optimal flow was achieved ranging from 11 to 15 inches. Markings were added to the hood’s frame after the first set of such measurements to indicate where the sash height was 13 inches, the midpoint of the above height range, so that operators would be aware no to open it more than this height.

RECOMMENDATIONS: (1) Perform processes with the hood’s sash opened no more than 13 inches, or (2) contact the local Public Works Department to first determine if the flow can be increased by performing maintenance on the current system, e.g., tightening any loose pulleys on the system’s fan. If such work is performed, contact the Industrial Hygienist to remeasure the system once maintenance is complete. If those measurement results do not achieve the goal of meeting the flow rate design criterion with the sash fully open, then the department could contact the same Public Works group to determine if installing a new fan in the existing hood would by engineering calculations enable achievement of the design criterion, or if installation of an entirely new hood system would be necessary to do so.

REFERENCE: