MS-12
P8

CARDINAL CUSHING GENERAL HOSPITAL
235 NORTH PEARL STREET, BROCKTON, MASSACHUSETTS 02401 (617) 588-4000

August 17, 1984

John E. Glenn, Ph.D., Chief
Nuclear Materials, Section B
Division of Engineering and
Technical Program
Region 1
631 Park Avenue
King of Prussia, PA 19406

Dear Sir:

In reply to your letter dated July 23, 1984, the additional information you requested is listed below. Our NRC Number is 20-12828-01, Docket Number is 030-01953 and Control Number is 02438.

Item 1, Question: You state that exhaust air from your charcoal trapping system will be collected weekly in a bag and monitored for Xenon-133 using your Gamma Camera. Please confirm these measurements will be made with the collimator off and describe your method for determining a significant increase in cpm (calibration, calculations, etc.).

Item 1, Reply: In reference to page 95 in our application we state that we would test our trapping system every three (3) months. These measurements will be made with the collimator off. Our method of determining a significant increase in cpm will be made if cpm is 2 times background. These readings will be done for one minute counts and will be recorded and compared with previous readings.

Item 2, Question: In Item 21 the air flow volume is stated as 1000 cubic feet per minute. Is this a measured value?

Item 2, Reply: Enclosed please see a letter from our Health Physicist, Dr. Frank P. Castronovo, Jr., Ph.D., dated August 13, 1984.

Item 3, Question: Item 21 states all exhaust ventilation systems will be checked twice a year to confirm continued efficiency. Please indicate the method to be used in measuring the efficiency of the exhaust ventilation systems.

Item 3, Reply: We will check our ventilation system twice a year. Once a year it will be checked by a calibrated velocity meter (Alnor Velometer, Jr., Alnor Instrument Company, Niles, IL, Ft/min). The second check will be made

by the placement of a quantitative velometer (Dwyer Instrument, Michigan City, IL). In addition a quantitative velometer will be installed and visually monitored daily in our Hot Lab. Please see enclosed information sheet regarding #480 air velocity meter.

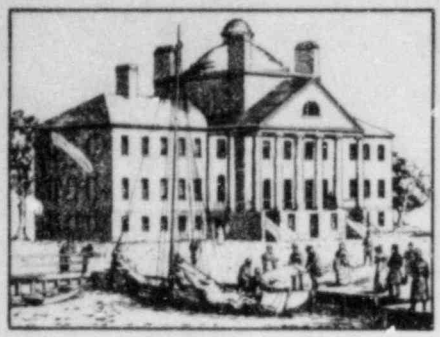
If further information is needed, we will be happy to furnish it.

Sincerely,

Robert J. Jepsen, Jr.
Administrator

jei

Enclosures



MASSACHUSETTS GENERAL HOSPITAL

EDWARD W. WEBSTER, Ph.D.
Director
FRANK P. CASTRONOVO, JR., Ph.D.
Radiation Safety Officer

RADIATION SAFETY OFFICE

Boston, 02114
Telephone (617) 726-8328

Cable Address "Massgenral"

August 13, 1984

Frank L. Speranzo, CNMT
Nuclear Medicine
Cardinal Cushing General Hospital
235 North Pearl Street
Brockton, MA 02401

Dear Mr. Speranzo:

On 7 August 1984, I measured the flow rate of air through the hot lab hood, the GE Scan Room duct, and the Ohio Nuclear Scan Room duct. The instrument I used for these measurements was a velometer which was calibrated by the Harvard University Health Services this year. The specifics of the velometer are as follows: Alnor Velometer Jr., Alnor Instrument Company, Niles, IL; Units: ft/min.

The results of these measurements follow:

1. Hot Lab hood

   a. 31" opening (maximum) - 825 ft^3/min

   b. 18" opening (usual placement) - 1524 ft^3/min

2. Ohio Nuclear Scan Room

   a. 1,016.75 ft^3/min

3. GE Scan Room

   a. > 2,750 ft^3/min

   b. The ft/min value measured with the velometer was greater than the maximum scale.

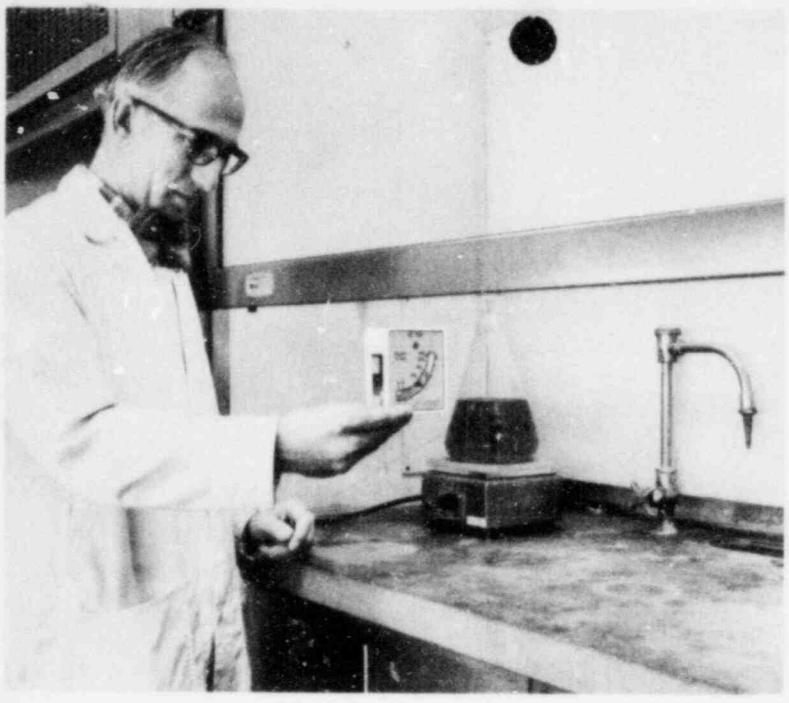
All scan areas are above your minimum value of 1,000 ft^3/min, and the hood is also in this category provided the sash remains at 18".

In addition, the placement of a "quantitative" velometer (Dwyer Instrument, Michigan City, IL) in your hood provides constant surveillance of air flow.

Sincerely,

Frank P. Castronovo Jr

Frank P. Castronovo, Jr., Ph.D.



Bulletin H-14

INSTRUCTIONS for No. 480 VANEOMETER™ AIR VELOCITY METER

Use a Vaneometer to measure velocity of air flow into laboratory fume hoods and...

...at paint spray booths to determine when to change filters. Or wherever needed to meet OSHA standards of ventilation for smoke, dust or fume removal.

Use this sensitive new Dwyer Vaneometer™ to measure low air velocities–at low cost.

THE PROBLEM: How can you insure that OSHA, EPA and other safety ventilation requirements are met—at paint spray booths and at fume, smoke and dust exhaust hoods—in the plant, laboratory or restaurant? To do this, you need to measure low air velocities—from 25 to 400 feet per minute.*

Until now, instruments for this purpose have been complex and costly—from four to ten times the modest price of this unit.

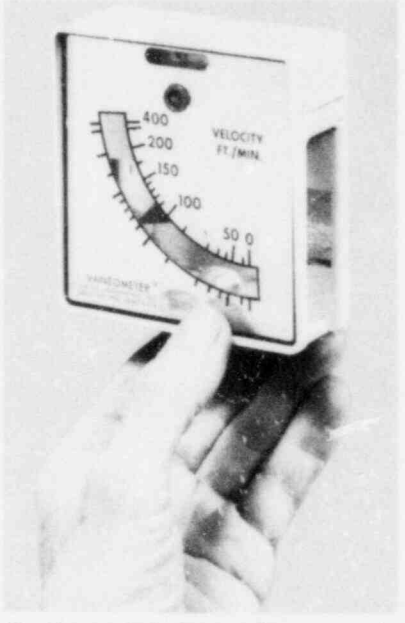
SOLUTION: The new Dwyer Vaneometer™. It's pocket-size and light in weight—only four ounces. So it's handy to carry from one work station to another to make spot checks of air flow.* And it's easy to use—for untrained personnel. Just hold meter parallel to air flow—the pendulum vane/pointer indicates air velocity in feet per minute on a large, easy-to-read scale.

It can be hand held—or permanently mounted if continuous monitoring of face velocity is desired. A versatile steel mounting bracket and operating instructions are included. It's sensitive and accurate to ±10% of full scale. The Vaneometer has a bubble level and scale visible on both sides.

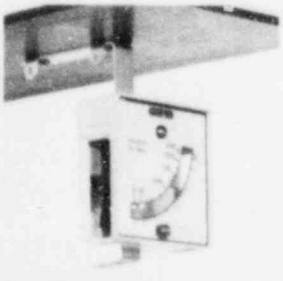
With housing of tough ABS plastic, it is durable and easy to clean with soap and water. The polyester vane can be cleaned with lacquer thinner. A spare vane is provided.

The Vaneometer is a tested, practical instrument for daily use—sensibly designed by Dwyer—"The Low Pressure People". Try one—and judge for yourself.

*For horizontal air flows only at this time. +Metric scales are available. Range: 0 to 2.0 meters per second.

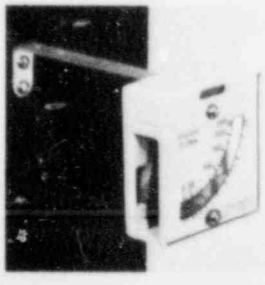


The Vaneometer's large scales are easy to read. Both sides have factory calibrated scales. Recessed bubble level at top helps insure accurate readings.



A versatile steel mounting bracket is included.

Left—Shows overhead mounting of Vaneometer for continuous monitoring.



The same bracket permits wall mounting. Bolts, nuts and screws are included.

How to Operate Meter

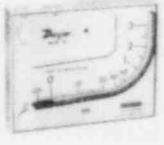
To install vane, pull vane holder from end of Vaneometer. Carefully remove vane from plastic bag and cardboard envelope. (Two vanes are enclosed, one is a spare.) Hang the vane by the wire in the two slots provided in the vane holder, then re-install the vane holder in the meter. Either side of vane may face the air flow. The meter is now ready to take readings. It is precalibrated. If vane becomes damaged, it is easily replaced with spare vane.

The Vaneometer is accurate to ±5% of full scale from bottom of scale to 100 FPM and ±10% from 100 FPM to top of scale.

For permanent mounting with bracket, Vaneometer should be located at least 6 inches from wall or side of duct. For accurate readings be sure to keep meter level at all times.

To determine face velocity, take the average of six readings. Readings should be taken at the center of six equal sections, three across top and three across the bottom.

When conditions are such that the Vaneometer cannot be permanently mounted, it may be more practical to install a Dwyer Mark II differential pressure manometer and calibrate it to indicate a dirty filter condition. To calibrate a Dwyer Mark II No. 25 Manometer with the Vaneometer, first follow Mark II installation instructions, (Bulletin D-58 included with the gage). install new filters, start spray booth fan, note and record manometer reading and face velocity. Block-off filter media until face velocity reaches 100 feet per minute or conforms to OSHA, EPA or governing agency. Record and mark this point on the manometer, then replace filters at this point.



MARK II MANOMETER

For replacement Vanes, order Part No. A390, package of two.

DWYER INSTRUMENTS, INC., P.O. BOX 373, MICHIGAN CITY, INDIANA 46360, U.S.A., Phone: (219) 872-9141