



UNITED STATES GENERAL ACCOUNTING OFFICE  
WASHINGTON, D.C. 20548

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HUMAN RESOURCES  
DIVISION

DEC 24 1980

The Honorable Eula Bingham  
Assistant Secretary for Occupational  
Safety and Health  
Department of Labor



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Dear Ms. Bingham:

Subject: Some Work Done by OSHA Maintenance  
and Calibration Laboratory Appears  
Unnecessary (HRD-81-40)

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We visited the Occupational Safety and Health Administration's (OSHA's) Maintenance and Calibration Laboratory (Laboratory) in Cincinnati, Ohio, as part of our review of inspections and consultations by OSHA and State industrial hygienists. We plan to report separately on the adequacy of industrial hygiene inspections and consultations. This report deals with equipment calibration and maintenance operations at the Laboratory.

Based on our limited work at the Laboratory, it appears that some work done there was unnecessary. Laboratory officials were unable to provide objective bases for the calibration and maintenance frequencies established for equipment used by industrial hygienists.

BACKGROUND

The Laboratory maintains, calibrates, repairs, and tests hazard detection equipment. As of February 1980, the Laboratory had 25 employees. It calibrated and/or repaired about 30,000 pieces of equipment a year.

Our work at the Laboratory included interviewing officials, reviewing procedures, and examining workload reports. Because workload data was not always consistently reported, the periods covered by some statistics cited in this report vary.

We also talked <sup>LG 81 326</sup> with officials of the Mine Safety and Health Administration (MSHA) and the Department of Health and Human Services' Bureau of Radiological Health about their maintenance and calibration practices.

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## SOME WORK APPEARS UNNECESSARY

For some equipment, calibration at the Laboratory appeared to duplicate industrial hygienists' calibration. Laboratory officials could give us no objective bases for the intervals established for sending equipment to the Laboratory. They said most intervals were established some time ago based on the judgment of people working on the equipment. MSHA, which often used the same or similar equipment, did either no, or less frequent, centralized calibration for many items. In February 1980, we were told that a quality control officer, who was hired in January 1980, would be responsible for determining a more scientific basis for calibration intervals.

### Pumps

OSHA requires that air sampling pumps be sent to the Laboratory every 3 years. According to Laboratory officials, Laboratory calibration was similar to that done by the industrial hygienists. Industrial hygienists are required to calibrate air sampling pumps before and after each day of use. Thus, a pump calibrated by an industrial hygienist could be sent for calibration again by the Laboratory. Conversely, a pump received from the Laboratory would be recalibrated by the industrial hygienist before using it. The Laboratory also replaces battery packs on pumps. However, a technician working on pumps said that industrial hygienists could also easily replace battery packs.

MSHA used pumps that were similar to OSHA's. MSHA, however, did not calibrate these pumps at a centralized location. Instead, calibration done at field offices sufficed. Battery packs were replaced, if necessary, in the field offices.

About 71 percent of the instruments worked on at the Laboratory during February to August 1979 required no repair work. Air sampling pumps represented 32 percent of the instruments worked on at the Laboratory during October 1978 to August 1979.

### Sound equipment

OSHA and MSHA used different intervals for laboratory calibration of acoustical calibrators. OSHA Laboratory officials said that the basis for their 6-month interval was subjective engineering judgment. MSHA requires calibration annually. An MSHA official, a noise expert, said that his group compared the readings of the calibrators when they were checked after 6 months and after 1 year and found that the difference between them (about one-tenth of a decibel) was not significant.

Eleven percent of the instruments calibrated at the Laboratory during September 1978 to August 1979 were acoustical calibrators. About 95 percent of the calibrators did not require repair during that period.

OSHA required annual calibration of sound level meters. The acting branch chief in charge of sound instrument calibration said that the Laboratory duplicated the calibration done by industrial hygienists on most sound level meters. Sound level meters accounted for 6 percent of the instruments handled by the Laboratory during September 1978 to August 1979. About 82 percent of the sound level meters worked on during that period were not repaired.

MSHA used many of the same types of sound level meters as OSHA. The mine inspectors calibrated them whenever they used them, as did OSHA's industrial hygienists. However, MSHA did not have them calibrated by a laboratory in addition to the field calibration.

#### Other equipment

Both OSHA and MSHA also used oxygen meters and both agencies had their field personnel calibrate them. In addition, OSHA required that they also be sent to the Laboratory for calibration. MSHA did not require that oxygen meters be sent to a central laboratory. This was only done if repairs were necessary.

Some other equipment was calibrated at OSHA at the same frequency as at other agencies. Both OSHA and MSHA calibrated audio dosimeters centrally once a year. Both OSHA and MSHA calibrated at least some anemometers every 6 months. Both OSHA and the Bureau of Radiological Health calibrated microwave testing equipment annually. In some cases the Bureau calibrated it every 6 months. However, except for MSHA's study of the calibration intervals for acoustical calibrators, officials at all three agencies said that calibration intervals were generally selected intuitively or based on judgment.

#### CONCLUSIONS AND RECOMMENDATIONS

There are no objective bases for the frequencies established for sending equipment to the Laboratory for calibration. Further, the calibration done at the Laboratory appears to duplicate the calibration done by the industrial hygienists each time they use the equipment. Also, it appears that battery packs could be replaced in the field offices.

Therefore, we recommend that OSHA determine whether equipment calibrated by the industrial hygienists also needs to be

calibrated by the Laboratory. For equipment that requires Laboratory calibration, OSHA should determine calibration intervals on scientific bases. OSHA should also allow industrial hygienists to perform minor tasks such as replacing battery packs.

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We would appreciate receiving your comments on any actions you take or plan.

We appreciate the courtesy and cooperation extended by your staff to our representatives during the review.

Sincerely yours,

*Robert F. Hughes*  
Robert F. Hughes  
Group Director