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*Air Quality in the Regional Transit Bus Barns: Legal but Irritating
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THE ROCHESTER COMMITTEE FOR SCIENTIFIC INFORMATION
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Legal but Irritating
by
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Summary

The air in the bus barns of the Regional Transit Service on East Main Street met the legal standards for indoor carbon monoxide concentration in December 1979. Even so, some workers complained about eye, nose and throat irritation. The Transit Service heeded their complaints and installed better ventilation systems. Some of their crew are still uncomfortable.

The Transit barns are not covered by the Occupational Safety and Health Act. Even if they were, there is nothing in the current state and federal health regulations that would have forced even the improvement voluntarily made by the Transit Service.

The Problem

A Regional Transit bus driver reported to RCSI that early in the morning the air in the barns on East Main Street is dense with exhaust fumes which are irritating to nose and throat and make eyes water. The condition is worst in winter when the buses have to idle in the barns for 20 minutes or so before they are ready to start their routes. The need for a long idling period is characteristic of diesel engines, and there are over 200 warming up in the three barns on an average morning. In addition to describing the discomfort, the driver asked about the possibility of a high carbon monoxide level and pointed out that the effects of the gases might be damaging to the mechanics in the service garages who were in attendance all day.

Carbon Monoxide in the Bus Barns

At the request of RCSI, on December 14, 1979 the Monroe County Department of Health Bureau of Air Resources used a Draeger sampling kit to check the level of carbon monoxide in the bus barns. The time was chosen carefully. It was cold so the buses had to go through a full warming procedure, and it was between 5:15 and 7:00a.m. so most buses were still present. The Health Department estimates that about 250 buses were releasing emissions. The maximum reading was 100 ppm (roughly 110 mg/cu meter of air) carbon monoxide. After the buses left for the day, the readings went down to well below 50 ppm (1).

How Much Carbon Monoxide is Dangerous?

The Occupational Safety and Health Act (OSHA) has a standard for both long and short term exposure to carbon monoxide. Standards for controlled substances are written to "prevent irritation, chronic or irreversible tissue change and a degree of narcosis that will increase accident proneness or reduce work efficiency" (1). The carbon monoxide exposure limit for a working day is 50 ppm, but an exposure of 400 ppm is permitted for 15 minute periods separated from each other by at least an hour. Only four such exposures are permitted in any given 8 hour period. These standards are calculated to prevent the buildup of carboxyhemoglobin in the blood to levels known to impair judgement and endanger life. The bus barns are therefore within OSHA limits.

It is worth noting that although the barns complied with OSHA limits, the atmosphere in the barns was not regulated by any law. The Regional Transit Service is a government organization and not subject to regulation under OSHA (2).* The Clean Air Act regulates the pollutants in ambient air which is interpreted to mean outside air. It does not apply to air within buildings, and bus barns are buildings. The Health Department, therefore, would not have had legal authority to force correction of the problem. Our request for testing was honored because the Bureau of Air Resources decides on an individual basis whether it thinks a health problem may exist and whether they might be able to help. The Regional Transit Service told us that even though they are not regulated by OSHA, they do try to meet its standards.

Is Carbon Monoxide Causing the Irritation of Eyes, Noses and Throats?

The Health Department report noted that the engineer and sanitarian from the Bureau of Air Resources developed watering eyes and nose and throat irritation while standing among the large group of idling buses in order to take the measurements. They described it as comparable to the sensation experienced during a traffic jam at Four Corners on a day when the air is still.

Carbon monoxide was not the culprit. The problems could have been caused by emission of hydrocarbons from the exhaust pipes. They might also have been caused by the nitrogen oxides and sulfur oxides discharged in and/or formed from diesel exhaust. OSHA allows for the regulation of annoying substances such as hydrocarbons from exhaust. However, testing for individual hydrocarbons is difficult and time consuming without special equipment such as a mass spectrophotometer. The Health Department felt that the tests were outside their province at the moment.

* *As this Bulletin was going to press, President Carter signed an Executive Order requiring federal agencies to comply with the same Occupational Safety and Health standards that private employers must meet (Chemical & Engineering News, March 10, 1980). This Order has no effect on state agencies; each state must make its own decisions. Some states apply OSHA-like regulations to their workers; others do not. New York is one state that does not.*

Improving the Situation

Even before the Health Department visit, the transit service was working to fix the problem. A letter to the Health Department dated December 27 (3) confirmed that the Regional Transit Service had awarded two service contracts, one to overhaul the exhaust system in the barns and the other to fix the exhaust system in the shop. By the time RCSI checked back on March 10, 1980, the two ventilation improvement projects were completed. In service garage "A" two exhaust fans have been installed - capable of moving 30,000 cubic feet of air a minute. In the overhaul shop pipes now fit over the tail pipe exhausts and are vented directly to the outside, while further vents in the ducts of the room have been added to remove any extra exhaust.

Reaction of the Drivers to Improvements

The fact that some people are more sensitive than others to pollutants is well known and RCSI was not surprised to learn from recent questioning of personnel at the Regional Transit System's garages that irritation of throat and eyes continues for some while for others it has never been a problem.

The Role of OSHA in Controlling Some Annoying Problems

This case illustrates conditions which still prevail in small enterprises where noxious chemicals of many kinds can be found in the air of the work place. In this case the employer has voluntarily improved working conditions to some degree. We note that even if the barns had been covered by federal and state health regulations nothing in the current laws would have forced this improvement. We have seen many published claims that the OSHA regulations are burdensome and detailed. This case history would indicate that OSHA regulations have not reached a considerable part of the problem.

The question of when discomfort at work should be considered a health problem is still open. There are precedents for setting the exposure levels of workers to chemicals on the basis of worker discomfort. If such standards were developed, emissions in garages might have to be more strictly controlled than they are at present when only carbon monoxide is considered.

References

- (1) letters from Michael A. Koral, Director of the Bureau of Air Resources to Olga Berg, of the Rochester Committee for Scientific Information, January 8, 1980 and April 1980.
- (2) Public Law 91-596, Occupational Safety and Health Act of 1970, December 29, 1970
- (3) letter from John A. Garrity, General Manager of the Regional Transit Service, to Michael Koral of the Monroe County Health Department, December 27, 1979