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VOC250730801

Category: 25 – Gasoline Tank Trucks

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

DATE: JUL 30 1980

SUBJECT: Leaks From Gasoline Tank Trucks

FROM: G. T. Helms, Chief
Control Programs Operations Branch (MD-15)

TO: Barbara Ikalainen
Air Programs Branch, Region I

As requested in your note of May 29, 1980 addressed to Tom Williams, we have reviewed the letter dated May 2, 1980 from Kenneth A. Hagg, Acting Director, Division of Air Quality Control, The Commonwealth of Massachusetts, to Merrill Hohman, Director, Air and Hazardous Materials Division, EPA Region I. Specifically, more information was requested on leaks from gasoline tank trucks (and vapor collection systems). Our comments in the order the questions were presented in the letter are as follows:

1. Amount of VOC Emission Reduction Expected Per Tank as a Result of Implementing the Regulations

Tests conducted by EPA in the development of the bulk gasoline terminal CTG indicated that approximately 30 percent of the VOC vapors were lost from the tank trucks. In these instances, there was no leak-tight test program for the trucks. Subsequent tests at terminals where a tank truck leak-tight test program was in effect indicated that approximately ten percent of VOC emissions were vented from the trucks.

2. Number of Affected Facilities

There are an estimated 85,000 tank trucks in gasoline service in the United States. There is no way of knowing how many of the tank trucks are in nonattainment areas at any one time.

3. Uncontrolled Emissions From This Category Nationwide

A rough estimate of nationwide uncontrolled emissions is as follows:

Assumptions:	Avg. tank truck capacity - 8,500 gallons	Total number of tank trucks - 85,000 trucks (50% in operation)
	Operating days - 300 days/year	Loads per day - 1 tank truck load/day
Emission factor:	Splash loading - 12 lbs/10(3) gallons loaded	

$$8,500 \frac{\text{gals}}{\text{tank truck}} \times 42,500 \text{ tank trucks} \times 300 \frac{\text{operating days}}{\text{year}} \times 1 \frac{\text{load}}{\text{day}} \times 12 \frac{\text{lbs}}{1,000 \text{ gals transferred}}$$

Estimated nationwide emissions = 600,000 tons/year

As a check, gasoline consumption in the U.S. approximates 6.5 million barrels per day (270,000,000 gallons/day). Assuming all gasoline loaded into tank trucks (emission factor splash loading - 12 lbs/10(3) gallons loaded) and 365 days per year operation. Uncontrolled VOC emissions approximate 600,000 tons/year.

4. VOC Range Per Facility

Typical bulk gasoline terminals have a gasoline throughput of 250,000 gallons per day. Uncontrolled VOC emissions, assuming splash loadings are as follows:

$$250,000 \frac{\text{gals}}{\text{day}} \times 12 \frac{\text{lbs}}{1,000 \text{ gals}} = 3,000 \frac{\text{lbs}}{\text{day}}$$

5. How Long After Testing is the "Leak-Tight" Condition Expected to Exist

How long a tank truck will remain controlling vapors in a leak-tight manner is unknown, but with a proper maintenance program, some tanks have shown leak-tightness maintained for over four months.

6. Projected Cost to Train Personnel in Proper Testing Technique

The cost to train personnel in proper testing techniques is unknown. Any estimate would be subjective.

6a. Expected Loss to Industry From Tank Truck Downtime

At a recent NAPTAC meeting, it was suggested that a truck may be tied up for 24 hours; however, actual testing would only take 1 to 2 hours.

6b. Physical Cost for the Test Itself

Annual recertification of trucks to a leak-tight condition would cost \$130-\$180.

I have attached several documents that will provide additional information related to tank truck leaks, controls, and tests. The first document entitled "Evaluation of Vapor Leaks and Development of Monitoring Procedures for Gasoline Tank Trucks and Vapor Piping," EPA-450/3-79-018, dated April 1978, provided the support information for the CTG document entitled "Control of Volatile Organic Compound Leaks From Gasoline Tank Trucks and Vapor Collection System," EPA-450/2-78-051, December 1978.

The second document entitled "Survey of Gasoline Tank Trucks and Rail Cars," EPA-450/3-79-004, March 1979, provides information on tank truck population.

It is hoped that this will meet your present need. Please contact Bill Polglase (FTS 629-5251) or Tom Williams (FTS 629-5226) should you have any questions.

2 Attachments (not attached)