

FISCAL OFFICE

County of Summit

Fuel Quality Testing Program

**Weights & Measures
Division**



History

- Currently only 4 states in the country, Ohio, Pennsylvania, Nebraska and Alaska do not have laws regarding the testing of fuel quality.
- There are existing laws for all Ohio counties to inspect all fuel stations to ensure accuracy of price per gallon and the quantity delivered at least once a year.
- There are no laws that provide requirements for the testing of the quality of regular fuel, diesel fuel, kerosene or to test for water in tanks and filters on the pump.

Introduction

- The intent of this law is for consumer protection regarding fuel quality. Since there are no fuel testing laws in Ohio, there is a need to educate the public regarding the choices of fuel that are available and what is best for their car. The station owners also need to be further educated regarding the dangers caused by the fuel problems discovered during our research.
- With over 15 million cars registered in the State of Ohio we are looking at this as a partnership between local government and consumers.
- Although some disturbing issues have been found with the quality of fuel samples, most can easily be corrected. Additives can be used and storage tanks can be pumped to expel any water that resides in them. These problems, if left untreated, can become very serious and expensive for everyone.

Introduction

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- Bacterial contamination in fuel is a new concern and is quickly becoming the fastest growing problem across the country. The damage it can do to an automobile, storage tanks and meters is significant. Fuel quality testing will help prevent costly repairs.
- The spill rims around the underground storage tanks were found to be excessively dirty at the stations we visited. The rims are designed to be kept free of dirt and debris. Otherwise, the possibility exists that waste material could be dropped into the tank.
- There is no federal, state or local law that addresses filters on fuel pumps, which is why testing laws should be necessary.

Testing

- DOCUMENTATION: *Bill of Lading* for fuel delivery. When the documentation is reviewed, it will indicate whether the fuel is conventional or ethanol extended. This information is needed to test the water levels in the underground storage tanks. The Bill of Lading will also show the distributor from where the fuel originated.
- OCTANE LEVEL: A *Zeltex Octane Analyzer* measures all grades of unleaded gasoline directly from the pump. Samples taken from the eight stations tested showed inconsistent results. Some examples for the inconsistent octane levels can include improper blending of octane levels, excessive water level in storage tanks and winter vs. summer fuel. NIST Handbook 130 refers to ASTM standards that prescribe, that in certain areas of the country, dates* as to when winter and summer fuel can be used.

*In Ohio "winter fuel" is used between November 1 and April 30.

Testing

(Continued)

- UNDERGROUND STORAGE TANKS: Test samples from the underground storage tanks showed where most of the problems begin. There are several types of equipment used to test for fuel quality. First used was the *Scully* water detector, which sounds an alarm if water is present. If the alarm sounds the next step is to use the "*stick and paste*" method to measure the level of water in the storage tank. One inch of water is allowed for conventional fuel but only $\frac{1}{4}$ inch is allowed for ethanol extended fuel. The last instrument that was used in the storage tank was the *Bacon Bomb*. It is attached to a chain and slowly lowered to the bottom of the tank and extracts a sample of fuel. Fiscal Office staff found water, cloudy and milky color, sediment and bacterial contamination in the tanks.
- SPILL RIM: Designed to catch any spillage as the truck driver is dispensing fuel into the storage tanks. These rims should be kept free of dirt and debris otherwise waste material could drop into the underground tanks.

Testing

(Continued)

- Samples that are taken from the pump have gone through a filter. If the filter on the fuel pump malfunctions, the possibility exists that sediment or contaminants could go into your fuel tank. Another advantage of fuel quality testing is the inspector can recommend the station replace the fuel pump filter.
- Summit County inspectors will be required to check for winter fuel versus summer fuel in storage tanks. NIST Handbook 130 refers to ASTM standards that prescribe, in areas of the country such as Ohio, dates as to when each type of fuel can be used.
- No jurisdiction in Ohio has the authority to check on the different types of fuel. There could possibly be winter fuel in the storage tanks during hot periods, which could cause vapor lock. Summer fuel, during cold periods, could cause engine-starting problems.
- By testing, unnecessary car expenditures can be avoided.

County Procedures

Step 1:

- Inspector will test underground storage tank with the *Scully Water Detection Device*
- An alarm will sound if water is present



County Procedures

(Continued)

Step 2:

- If water is present, the inspector will use the *Stick and Paste* method.



County Procedures

(Continued)

Step 3:

- The *Bacon Bomb* is then used to determine any other irregularities in the storage tank.

The "*Bacon Bomb*" is attached to a chain and slowly lowered to the bottom of the tank to extract a sample of fuel.



County Procedures

(Continued)

Step 4:

- Measure Octane Levels

A Zeltex Octane Analyzer measures all grades of unleaded gasoline directly from the pump.



Which fuel do you want?



**These samples were taken on March 31, 2004
in Summit County, Ohio**

Violations

- Missing Octane Level Label:
If an Octane level label is missing from the pump, each button at each pump is considered a separate violation.
- Documentation not available:
The station must have the proper documentation (Bill of Lading) on-site for one year.
- Improper Octane Sale:
Example, selling 89 Octane gasoline for 92 Octane price
- Storage tanks:
Water in tanks exceeding $\frac{1}{4}$ inch for Ethanol and 1 inch for conventional fuel. Incorrect octane level in the tanks.

Citations and/or fines could be assessed against pumps, hoses, and/or storage tanks.

Summary

The Fiscal Officer's Fuel Quality Testing Program has benefited everyone in Summit County since 2005.

It is our hope that the State Legislature will follow Summit County's lead and address this issue statewide, allowing the other 87 county auditors to implement fuel quality testing in their respective counties.