



# Weights and Measures Services Division

## Maintaining Equity in the Marketplace

*Michelle Wilson*  
*Associate Director*



# Division Mandates

The Weights and Measures Services Division is charged with:

- Protecting the integrity of Arizona's marketplace by ensuring that equity and accuracy are preserved in weighing or measuring for commercial purposes.
- Protecting air quality through the enforcement of two air quality programs:
  - Cleaner-Burning Gasoline
  - Gasoline station vapor recovery

# Who We Are

- 4 Full Time Program Office Staff
- 1 Position Licensing Division
- 1 Position I.T. Division
- 17 Field Staff (includes 3 Team Leads)
- 2 Metrology Lab Staff
  
- Total = 25 positions
  
- Budget = \$2.359 MM

# A little history...

Measurements were not consistent, making it difficult to verify equity.



Cubit – first known measurement, length of the forearm from point of elbow to end of middle finger. About 20 inches.



Barley corn – 1300's – three barley corns taken from the center of ear placed end to end equals an inch.



Yard – 1100's– The distance from the point of King Henry I nose to the end of this thumb.

# In the U.S.

From the beginning, the importance of weights and measures was well known:

- 1787 – US Constitution, Article 1 Section 8, Congress shall have power "To coin Money, regulate the Value thereof, and of foreign Coin, and fix the Standard of Weights and Measures".
- 1790 – George Washington State of the Union Address "Uniformity in the currency, weights, and measures of the United States is an object of great importance, and will, I am persuaded, be duly attended to."
- 1799 – John Adams signs first U.S. weights and measures law.

Your day comes down to trust...

That you are getting what you pay for...



And ability to comparison shop...with the wide selection of available goods.



# What we do...Commercial Devices

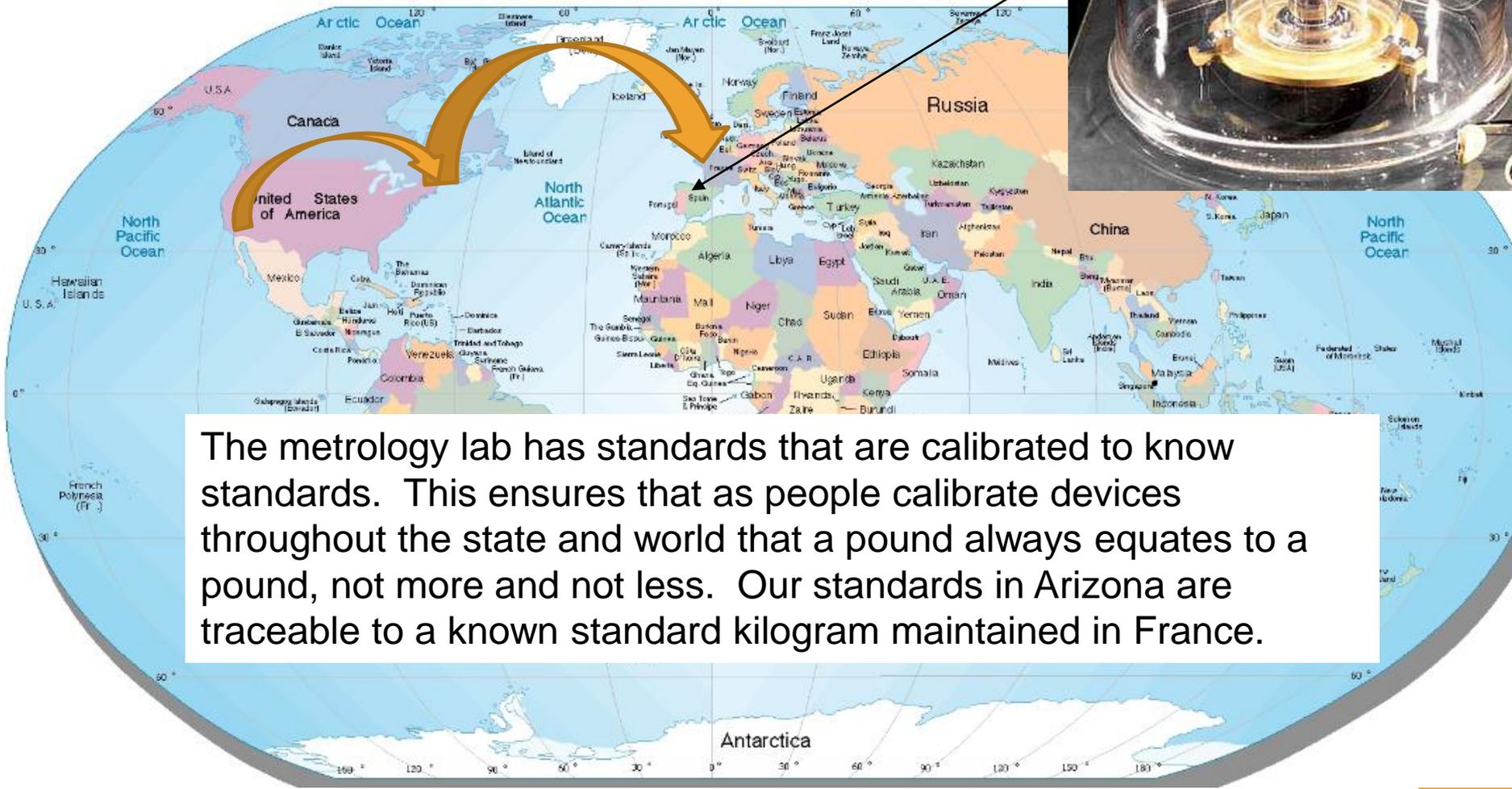
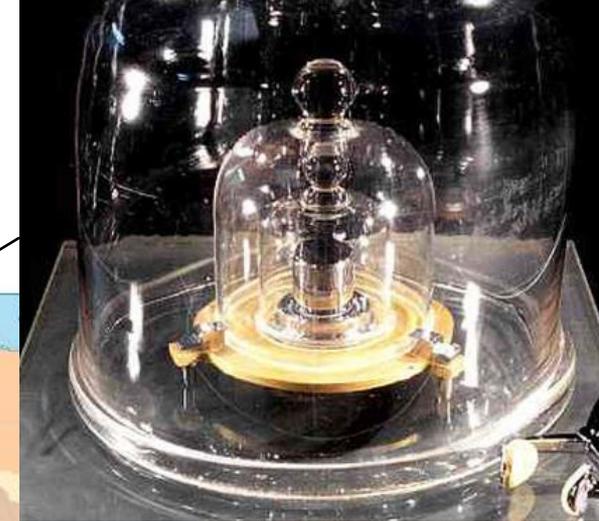


## Other programs:

- Price posting/UPC
- Packaging
- Skimmers
- Fuel quality
- Weighmaster
- Motor oil\*
- Transmission fluid\*
- Antifreeze\*

\*Authority available, but not performed or not performed on regular basis

# Metrology Laboratory



The metrology lab has standards that are calibrated to know standards. This ensures that as people calibrate devices throughout the state and world that a pound always equates to a pound, not more and not less. Our standards in Arizona are traceable to a known standard kilogram maintained in France.

The State Metrologist verifies that standards used to check the accuracy of scales, fuel devices and other test measures are accurate.





These are volume standards used to check fuel small and large volume fuel dispensers.

# We Conduct Many Types of Inspections

## Skimming Devices

- Credit card identify theft at gas station pumps

## Scales

- Grocery/Butcher
- Sand & Gravel
- Recycler
- Mail services
- Livestock
- Truck stop
- Jewelers
- “We buy gold”

## Meters

- Fuel dispensers
- Diesel Exhaust Fluid
- Water (not home water meters)
- CNG
- LNG

## Fuel Quality

- Gasoline
- Diesel
- Biodiesel
- Biodiesel blends
- Ethanol Flex Fuel
- Racing Fuel
- Emerging Fuels

## UPC / Price Posting

- Any business that uses price code scanning equipment
- Any retail business that sells merchandise

## RSA / RSR

- Ensure licensed service agencies and technicians are conducting proper calibrations and proper repair of non-compliant equipment

## Vapor Recovery

- Randomly witness annual test to ensure vapor-tight
- Unannounced inspections

## Packaging

- Any packaged good meets method of sale:
  - Cereal
  - Pet food
  - Toothpaste
  - Meats
  - Cheese
  - And So On.....

## Weighmaster

- Licensed to issue 3<sup>rd</sup> party weight tickets
  - Used to confirm transaction weight
  - On-road truck weight limits

## Counting

- Coin Machines

## Linear

- Fabric
- Ropes
- Chains

## Timing

- Car wash
- Air machines
- Laundry mats
- Parking meters

## Propane

- Bulk sales
- Container sales
- Master meters for propane delivery trucks

# At the grocery store...

We verify prices are posted and they scan correctly



<u>BAKERY</u>	
AN 9 GRAIN BREAD	3.99
<u>DELI</u>	
ND HONEY CURED HAM	2.54
TOI TURKEY	7.06
<u>GROCERY</u>	
DAN BPK ACTVIA ST/BL	4.49
EGGLND LG WHT EGG	3.59
<u>MEAT</u>	
ANG TOP RD LND BRL	5.49
<u>PRODUCE</u>	
TOTE GALA APPLES	
4.80 1b @ 0.99/ 1b	4.75
BANANAS	
2.18 1b @ 0.39/ 1b	0.85
GREEN CUCUMBERS	
2 @ 2 FOR 1.00	1.00
BULK GARLIC	0.49
RED TOMATOES ON VINE	
1.33 1b @ 1.59/ 1b	2.11
YELLOW ONIONS	
0.37 1b @ 1.49/ 1b	0.55
YELLOW ONIONS	
1.26 1b @ 1.49/ 1b	1.88
GREEN BELL PEPPERS	
0.63 1b @ 1.49/ 1b	0.94
<u>SEAFOOD</u>	
FRESH TILAPIA FILLET	4.13
TOTAL TAX	0.00
16 BALANCE DUE	43.86



# At the gas station...

We check that the meter is accurate, fuel quality meets specifications.



# Gas stations, cont....

we also check that prices and consumer postings are correct



**51% – 83%  
ETHANOL**

**USE ONLY IN  
FLEX-FUEL VEHICLES**

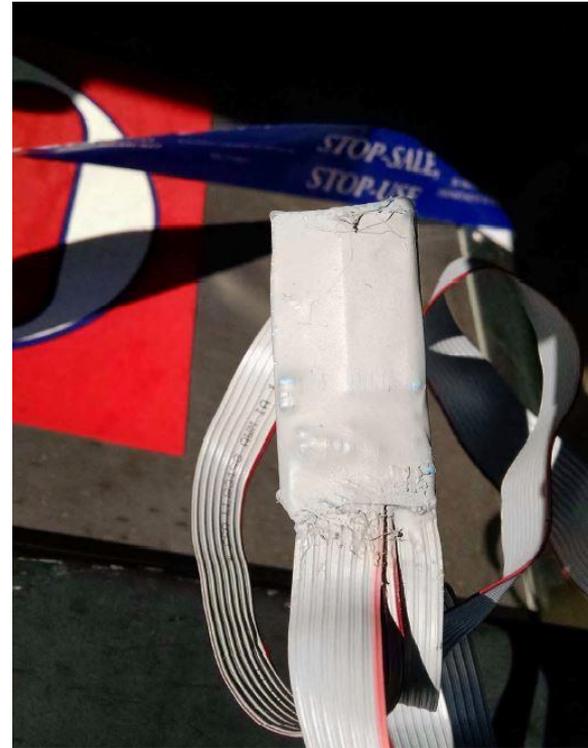
**MAY HARM OTHER ENGINES**



# Skimming devices...

Skimmers may be installed by criminals in the wiring inside of the dispenser. These devices are used to steal consumer bank card information.

When at gas stations, we inspect for skimming devices and work with law enforcement when these devices are identified.



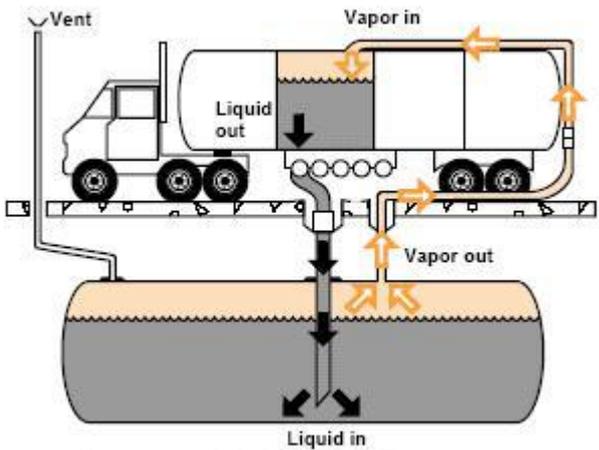
# High-flow diesel...

This is a 100-gallon prover used to check the calibration on high flow diesel pumps used at truck stops.

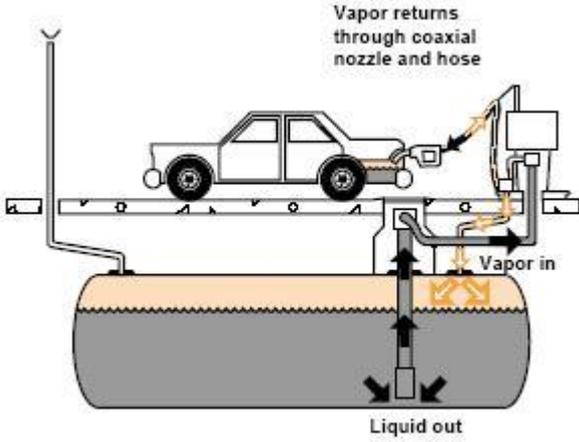


# Vapor recovery program

We oversee testing and check that vapor recovery equipment used at gas stations is working properly. This equipment is used to prevent air pollutants entering the atmosphere to protect air quality.



Stage I Vapor Recovery

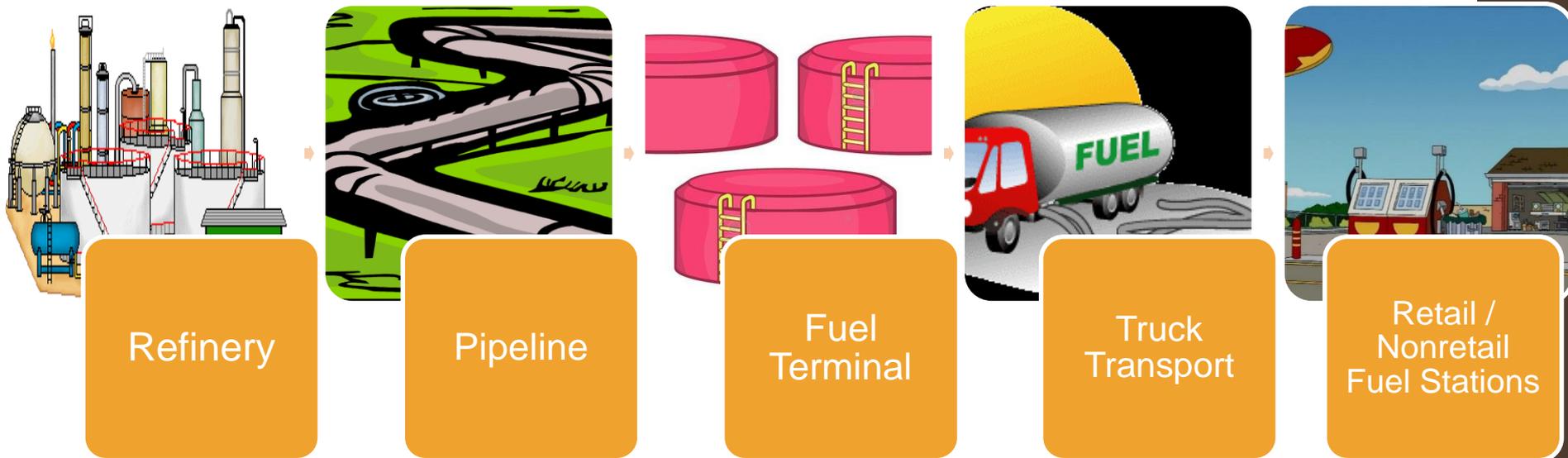


Stage II Vapor Recovery  
(Equipment Removal By 9/30/18)



# Cleaner-Burning Gasoline

There is a specialty gasoline formulation used in Maricopa County and surrounding areas to protect air quality. We enforce requirements to ensure the gasoline meets requirements from production at the refinery all the way to sales at the retail stations.

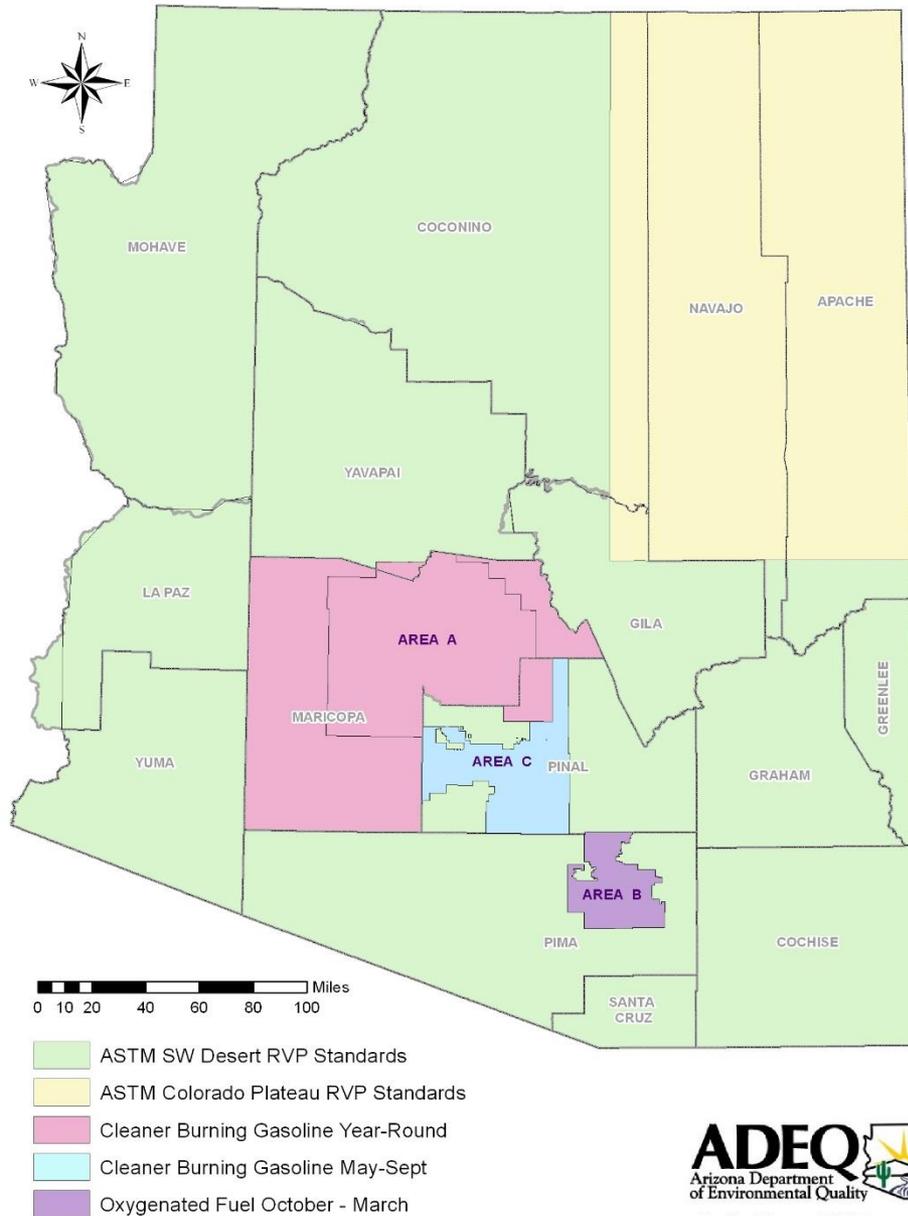


PROGRAM GOAL =



# Gasoline Standards in Arizona

Different gasoline formulations apply to different areas within the state.



Revised August 2007  
Revised August 2012  
Author: N. Caroli

# Large scales...

Large scales such as those used at truck stops, recycling facilities, livestock, and other industrial applications are checked to verify accuracy using a commercial truck special equipment that carries 22,000 pounds.



# Large scales...

A special motorized cart is used to place the weights on the large scale truck on the scale.



# Large scales...

For some scales, large cranes need to be used to load the weights onto the scale for testing.



# Packaging...



Packages must be labeled with the weight or volume of product that may be checked to ensure consumers are getting the correct amount of product.



# Package testing....

Investigators checking packages of shrimp to verify the correct weight



# Propane...

A special truck with 20- and 100-gallon provers is used to verify that meters used to dispense propane are calibrated correctly.

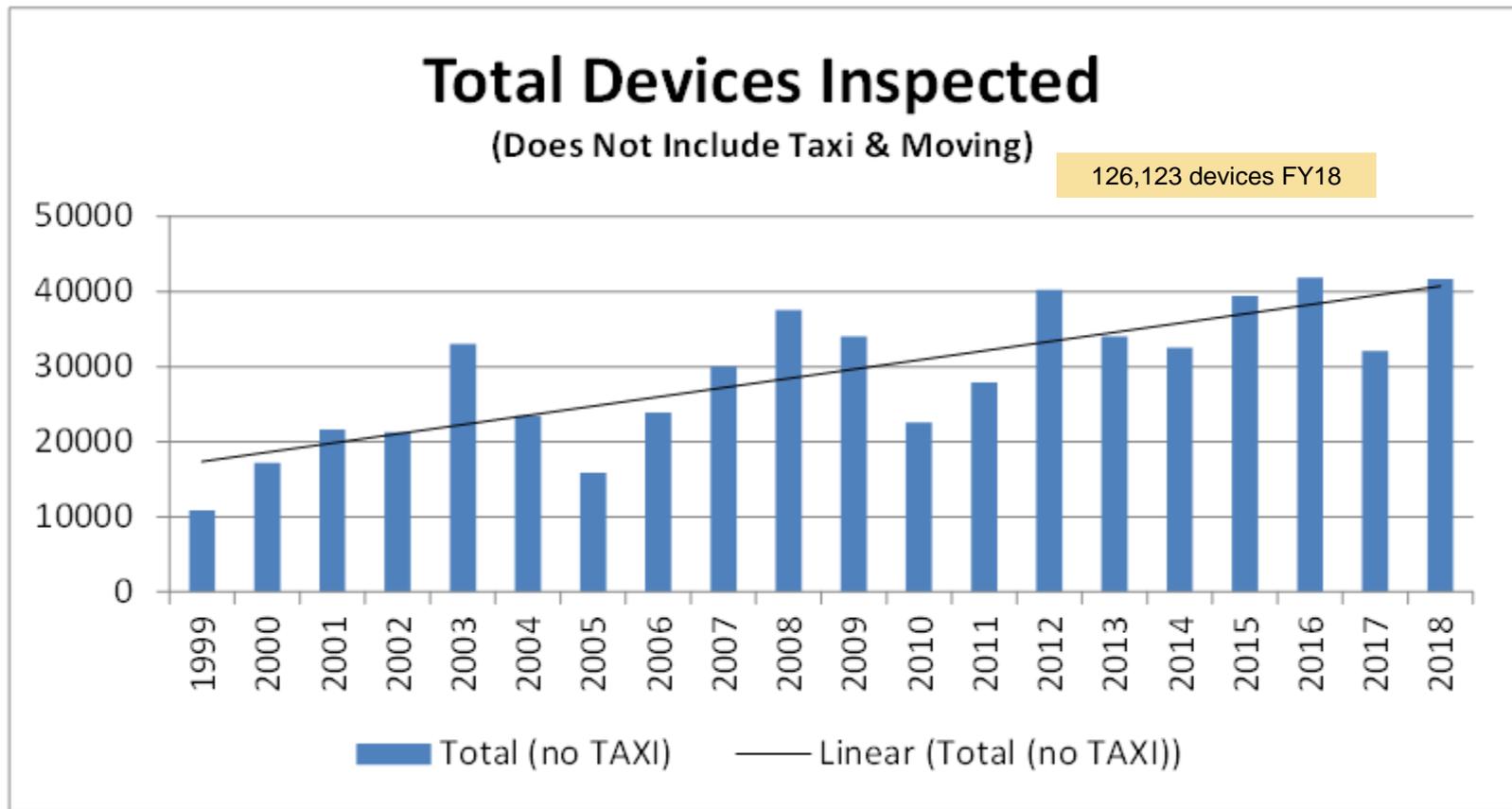


# Liquid measuring devices...

Testing water dispensing meters to verify the correct amount of water is dispensed.

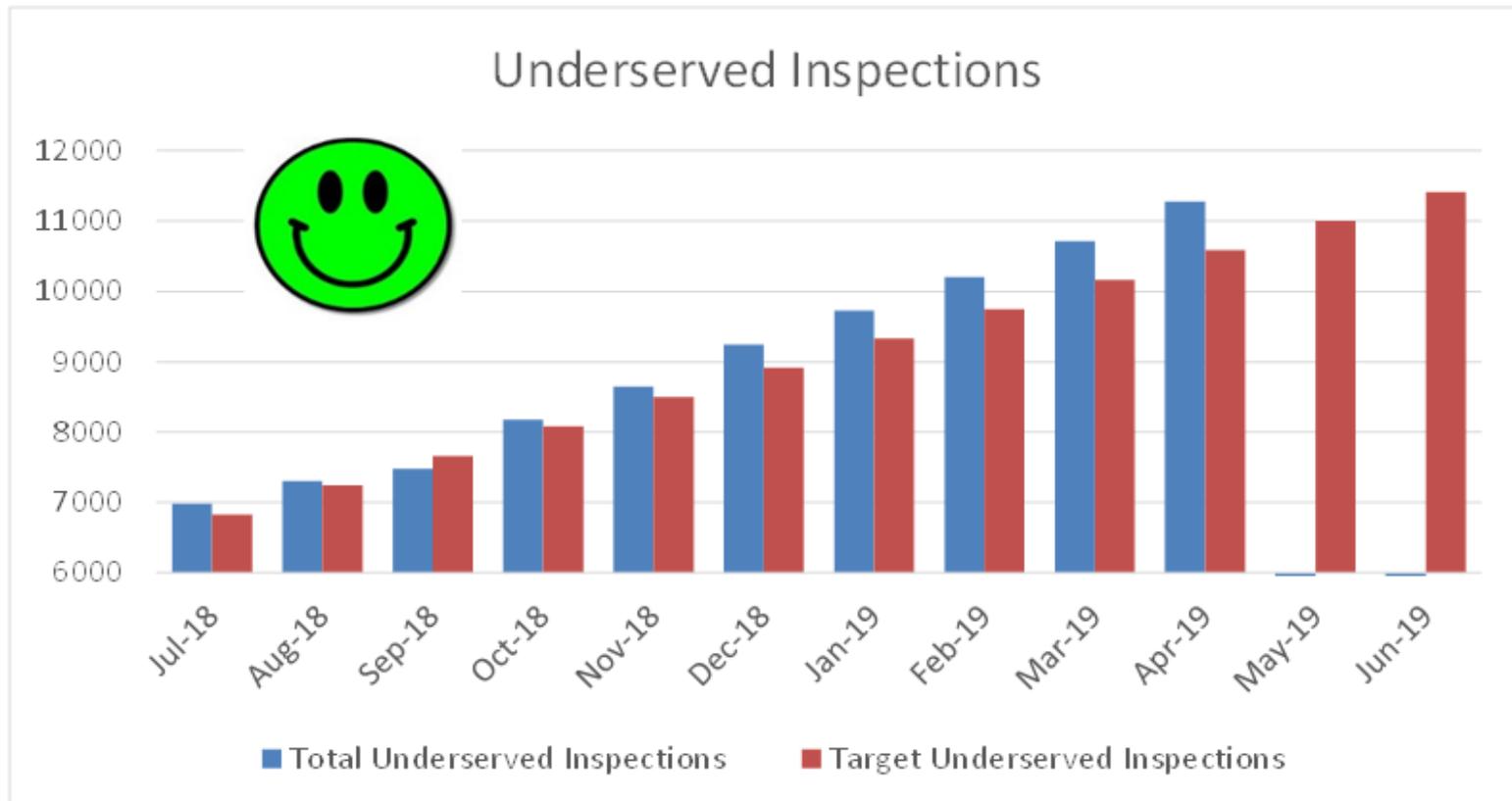


# Inspections Performed Counted by Device

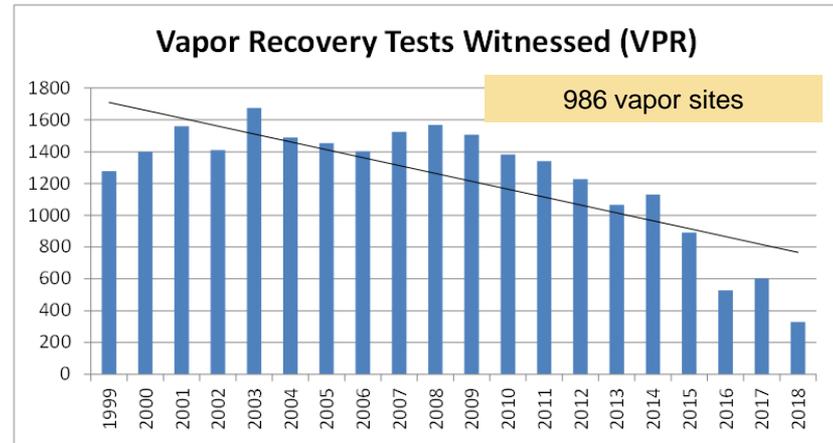
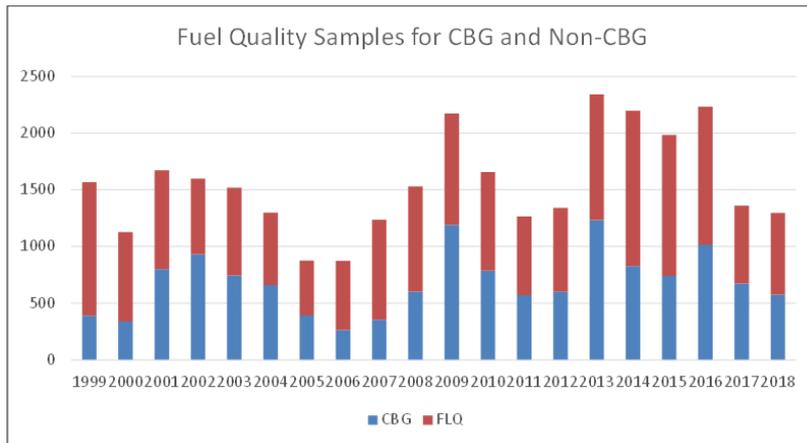
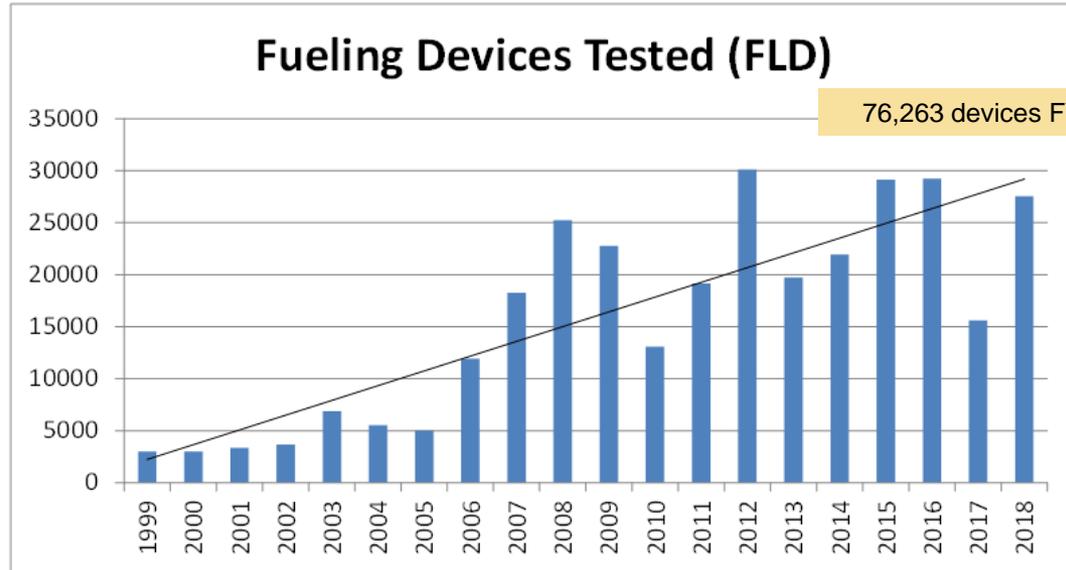


# Governor's Management System Goal

- Includes High Flow Diesel, Packaging, Liquid Measuring Devices, Large Scale, Propane, Weighmaster, other

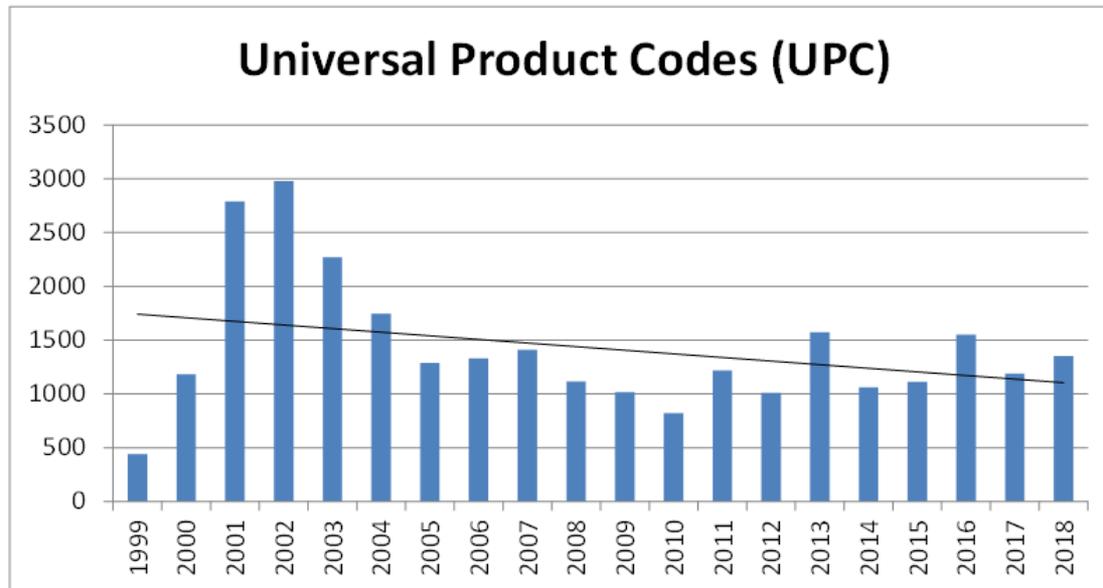
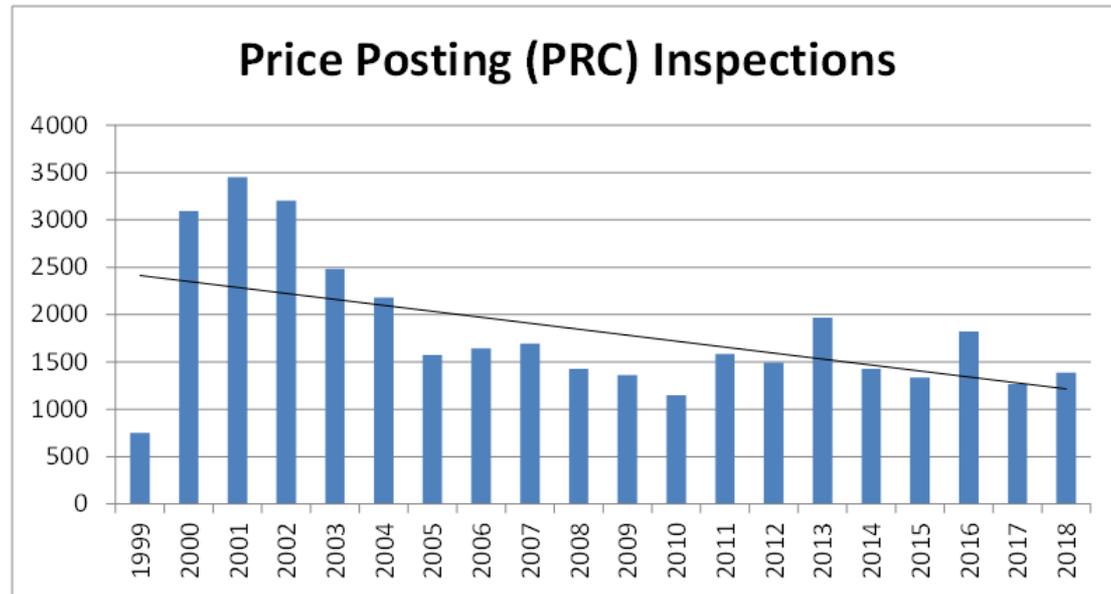


# Fueling

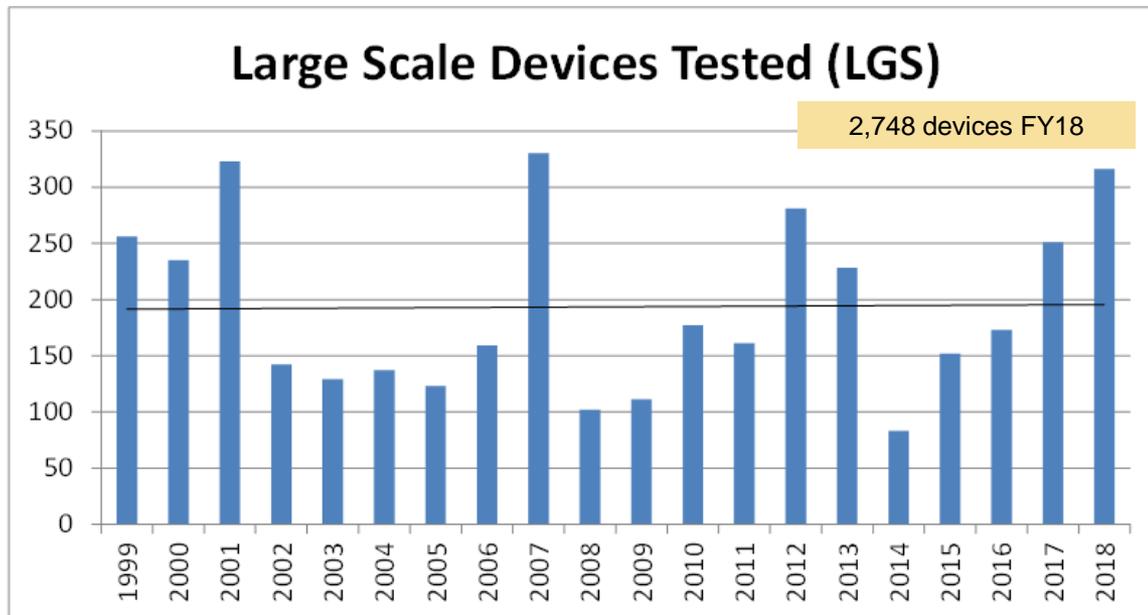
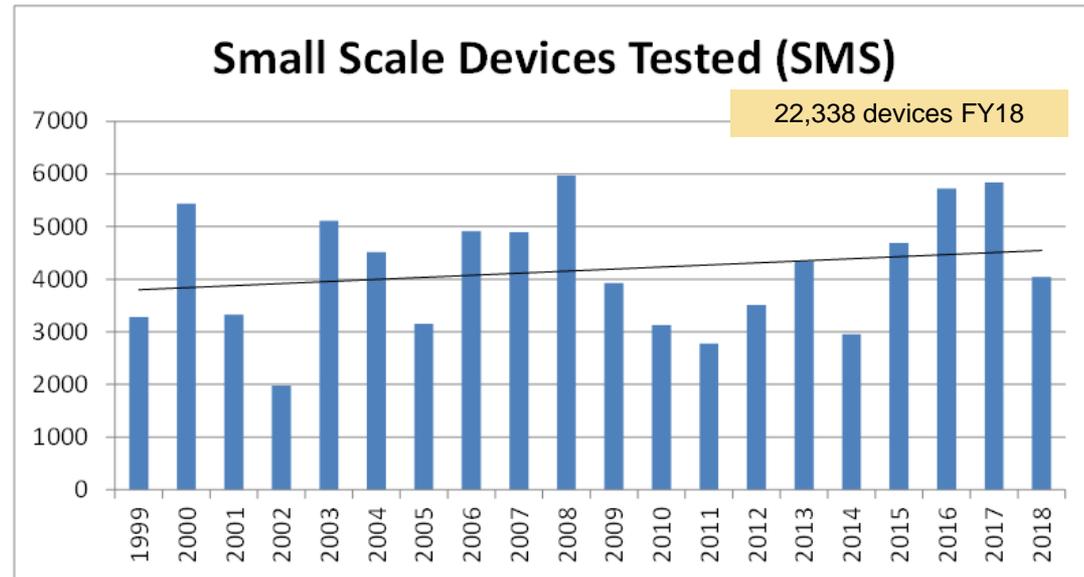


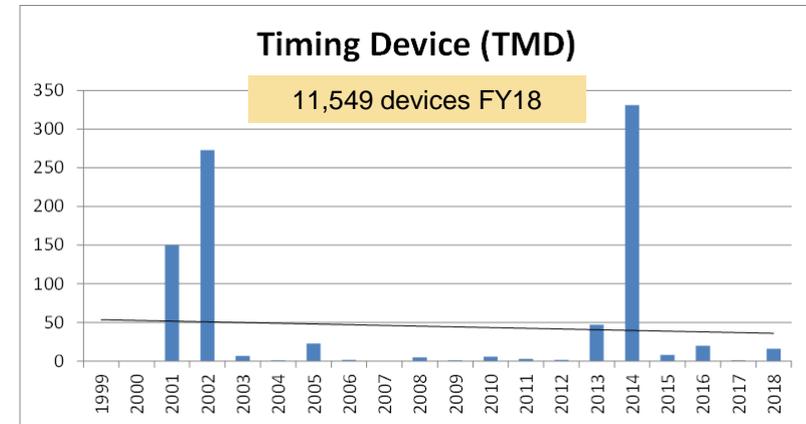
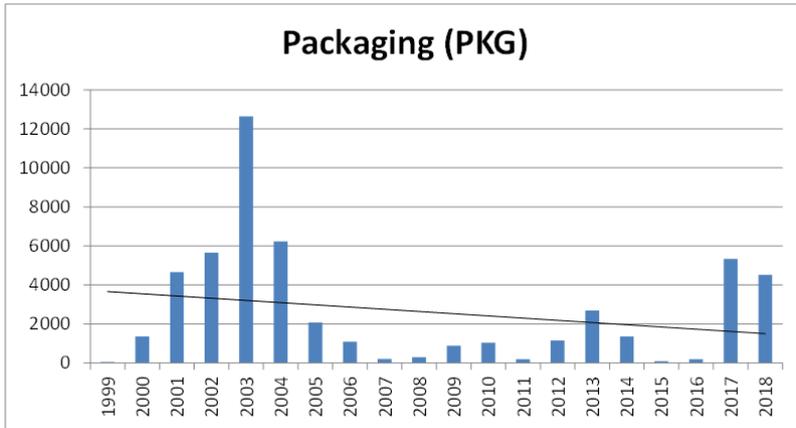
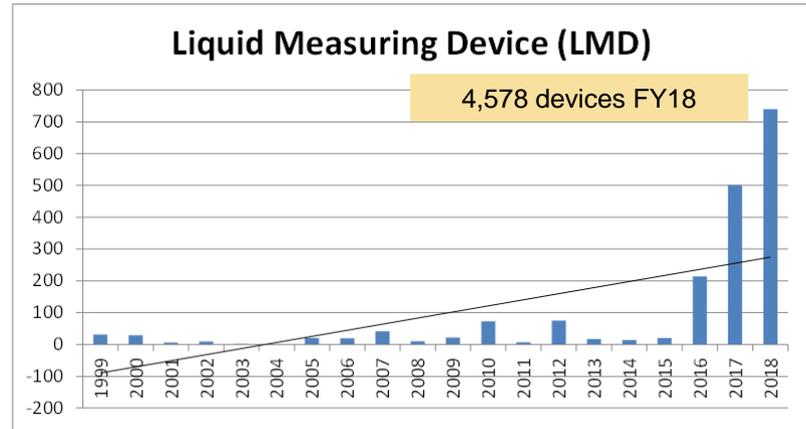
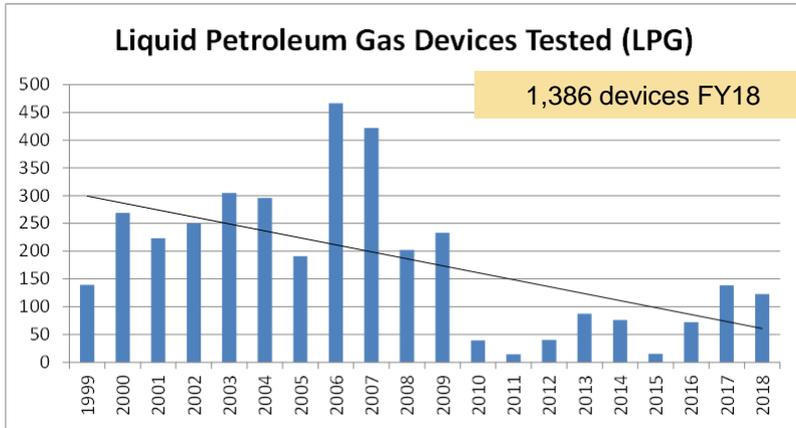
Does not include vapor decommissioning tests done 2016 through 2018

# Retail

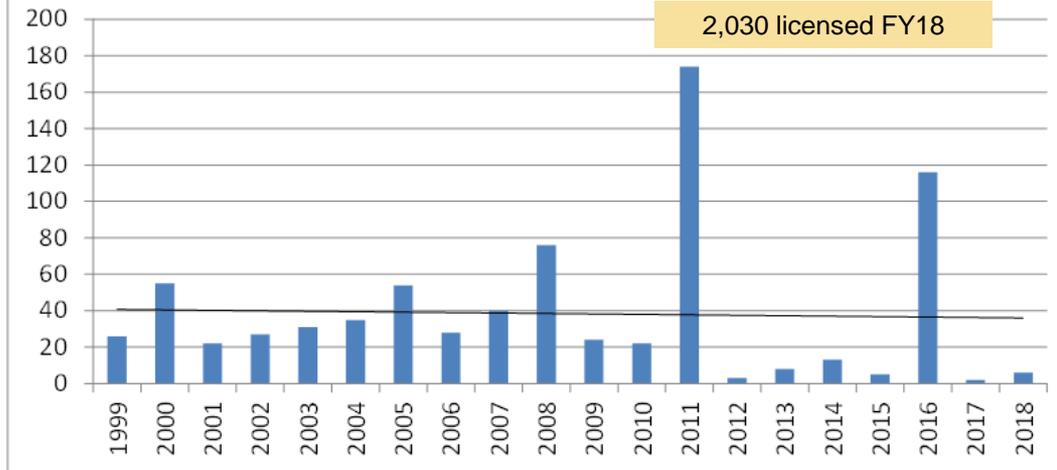


# Scales

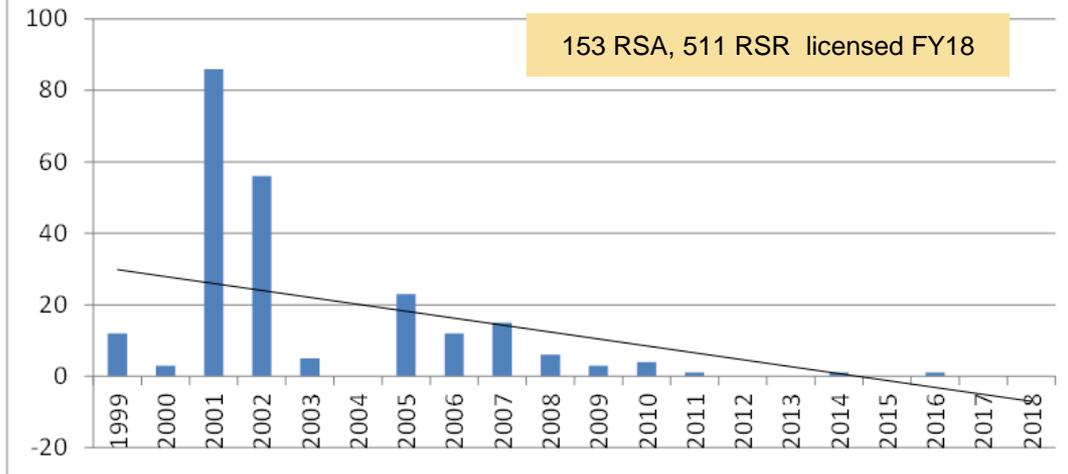




## Weighmaster (WMA)

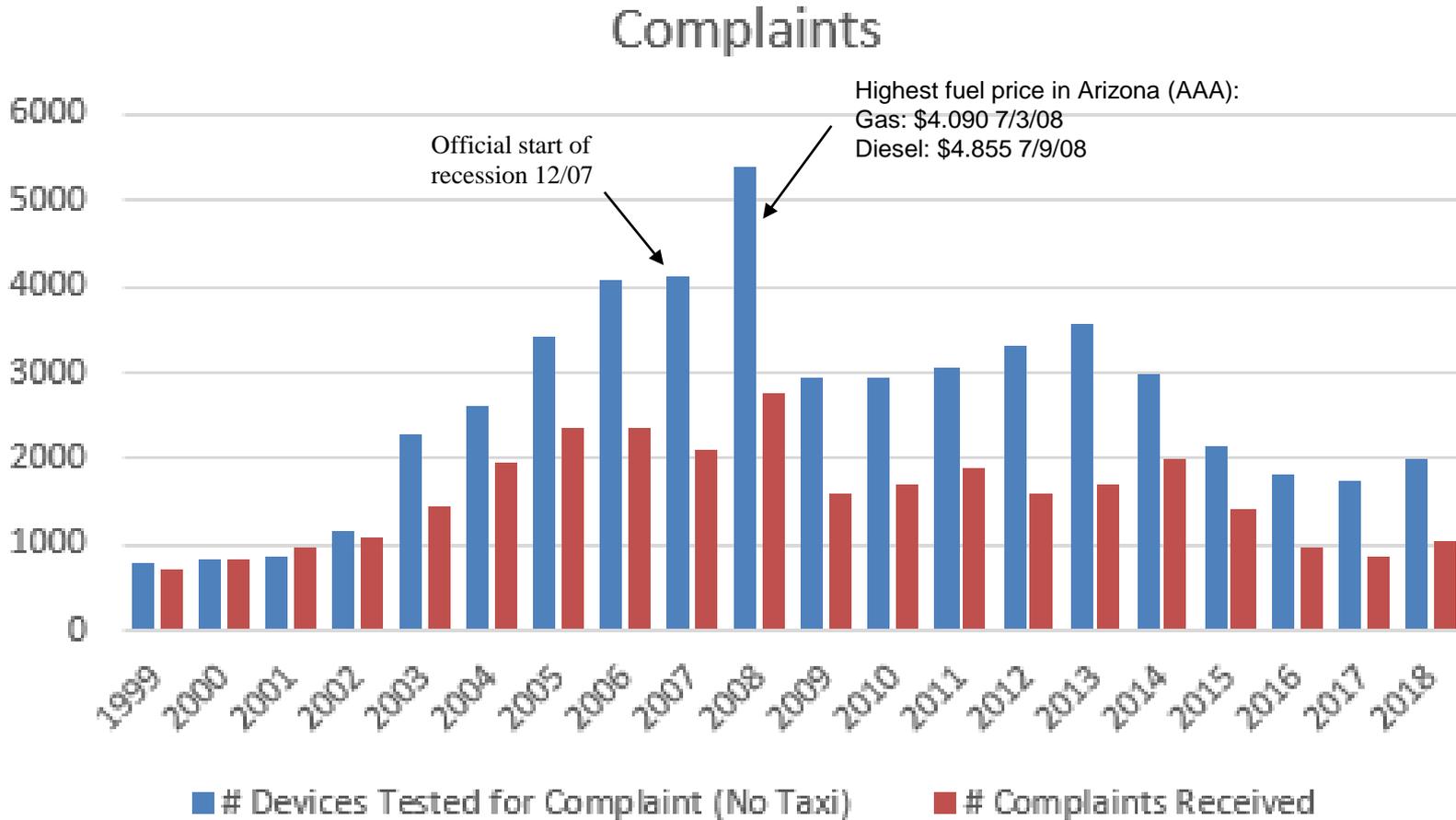


## Registered Service Agent (RSA)



# Complaints

About ½ of our complaints are related to fuel dispensers. As the price of fuel increases, so do our number of complaints.



# Weights and Measures Week

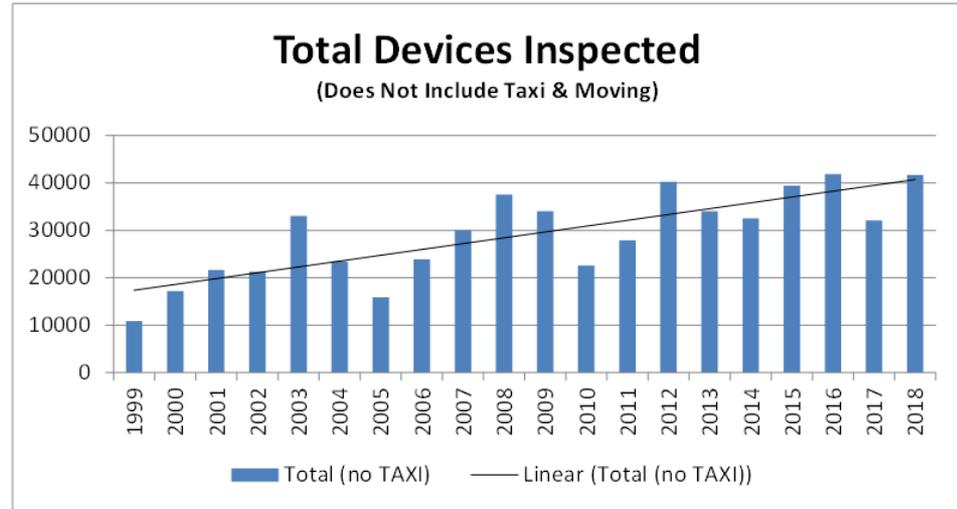


Each year we celebrate the signing of the first weights and measures law in 1799 by coordinating field trips with schools to grocery stores. Over 500 kids learn how to apply math and science in their everyday lives.

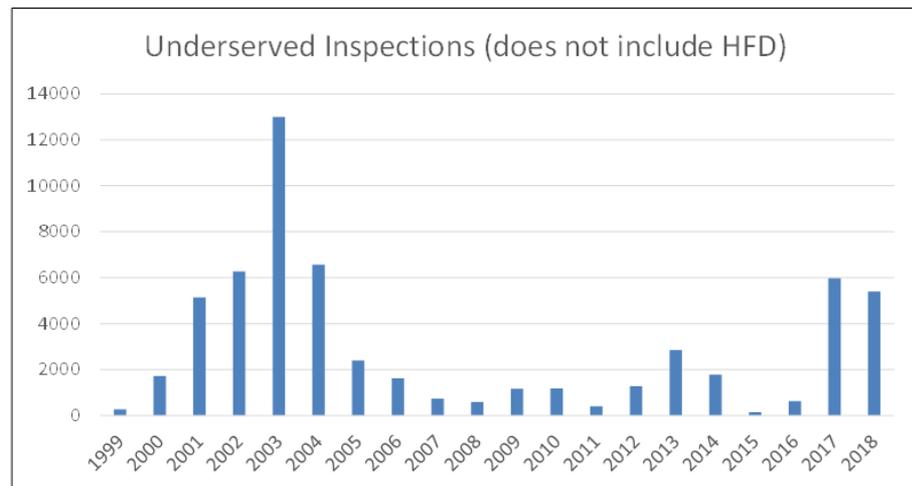


# 2018 Accomplishments

- 2<sup>nd</sup> Highest # of Device Inspections



- Underserved inspections significantly increased

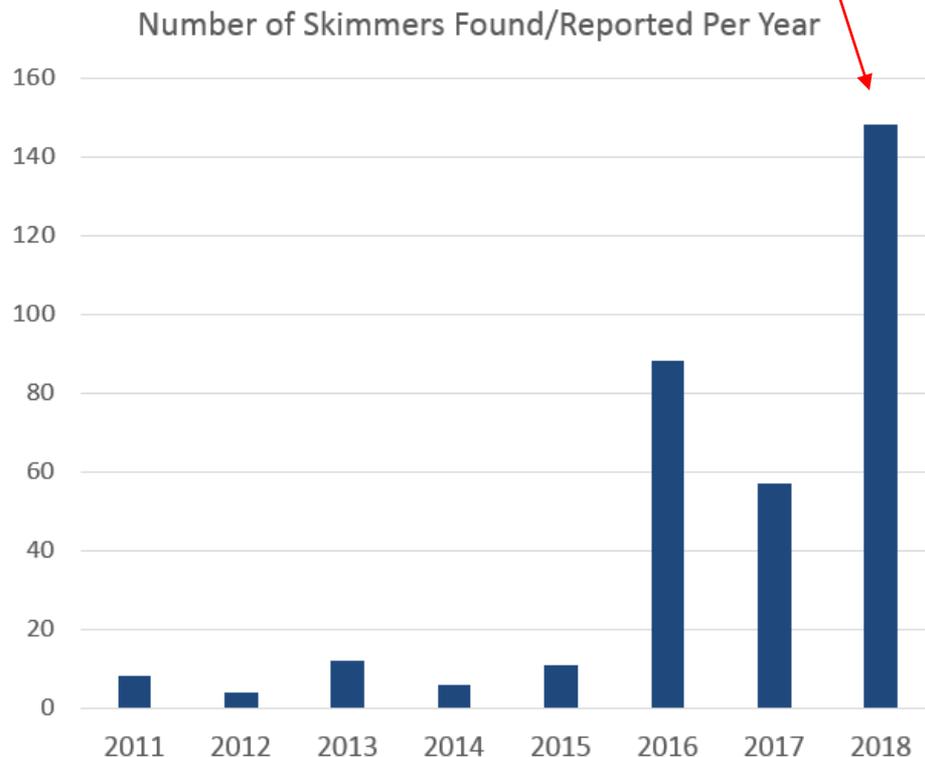


# 2018 Accomplishments, cont....

- Continued our efforts in the battle against skimmers

- RSR Reporting
- Testing Bluetana
- Work with NCWM Credit Card Skimmer Task Group
- Many news stories

**144 skimmers in 2018!**



# 2018 Accomplishments, cont....



## Provided Technical NIST Training to Staff:

Fueling Devices (16 staff)

Propane (2 staff)

UPC (1 staff)

Handbook 133 (5 staff)

Handbook 130 (3 staff)

**>730  
Hours**

# 2018 Accomplishments, cont....

**Quadrupled the number of staff  
who have passed NCWM  
Certification Exams!!**

# 2018 Accomplishments, cont....

- Purchased 4 new Seraphin tank systems
  - Separate diesel and gas tanks, reduce potential for fuel contamination, protect air quality with vapor capture
- Increased the number of fuel trucks in the field.



# 2018 Accomplishments, cont....



**Completed SOP Manual for  
95% Inspection Types**

**Finished Additional  
Inspection Forms**

**Isobutanol & Handbook  
Update Rulemaking**

# 2018 Accomplishments, cont....

Conducted Team project in Northern Arizona to catch up remote areas



Conducted three Cleaner Burning Gasoline refinery audits



# 2018 Accomplishments, cont....

Welcomed  
and  
trained five  
new team  
members

CHAD

HERMAN

KARLA

CORY

EVAN

# 2018 Accomplishments, cont....



Reorganized  
to provide  
greater  
opportunity  
and better  
consistency

# Future Goals.....

Long Term:

- Update Computer System
  - Backbone of the division – all electronic
  - Custom computer system written in outdated code
  - Due to age, inefficient in many areas including licensing, scheduling, and inspections

Current status – proposed budget of \$200k to ADOA to review computer system and options

- Seraphin fuel tank system units in all vehicles

# Future Goals, cont....

## **Short Term (FY 20)**

- Test compressed natural gas (CNG) sites
- Develop SOP for unscheduled vapor site inspections
- Evaluate propane inspection program
- Continue to utilize all staff for most inspection types
- Continue efforts for consistency with Team Leads
- 3 staff with CDL for large scale inspections
- 3 staff trained in propane inspections
- Field and office computer replacement (2 fiscal years)
- Review potential guide for sale of ready to eat foods
- Implement uniform policy



Contact Us At [dwm@azda.gov](mailto:dwm@azda.gov) or 602-542-4373