Next Generation Compliance and Big Data

1

Environmental Law Institute
Big Data Conference

Washington, DC
October 22, 2013

Challenges

- Widespread noncompliance among largest sources
  - Major air sources like power plants and refineries
  - Water pollution discharges
  - Mineral processing

- New environmental challenges – dispersed sources

- Budgets declining

Tough Enforcement

- Tough civil and criminal enforcement for violations that threaten communities and the environment
    - Consequences for violations
    - Deterrence
    - Level playing field

- Enforcement alone is not the answer

- How can we reduce pollution and improve compliance in time of declining budgets?

THE WALL STREET JOURNAL.
EPA: Safeway To Spend $4.7 Million To Resolve Pollution Allegations
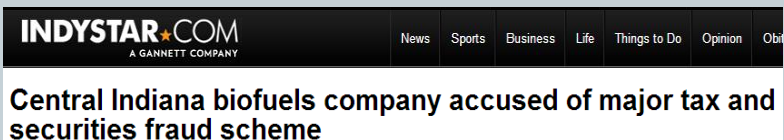
REUTERS
Citgo to pay penalty resolving environmental violations

The New York Times
Halliburton Pleads Guilty to Destroying Evidence After Gulf Spill

INDYSTAR.COM
Central Indiana biofuels company accused of major tax and securities fraud scheme
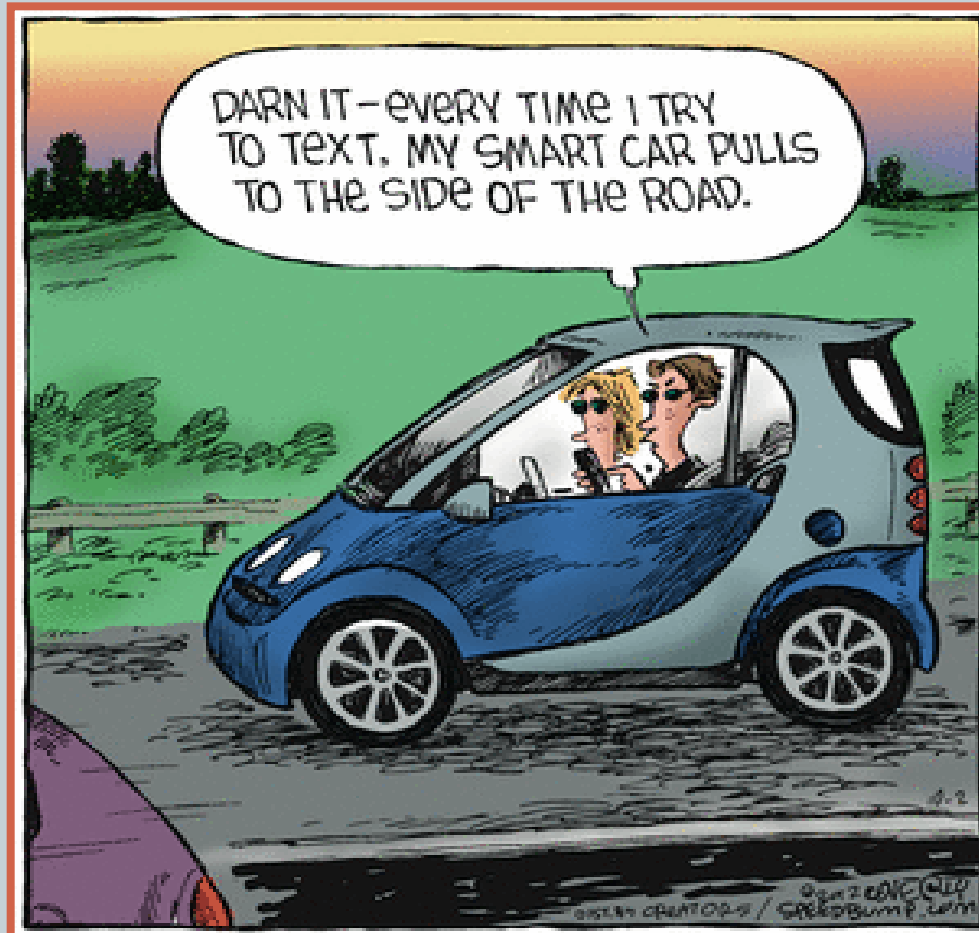
Los Angeles Times
EPA sues MotorScience Inc. over emissions documents
The agency says the City of Industry engine certification company used false or incomplete data to help its clients import recreational vehicles.

New Approach:
Next Generation Compliance

Next Generation Compliance – What is it?

1. More effective rules

2. Advanced monitoring technology

3. Electronic reporting

4. Increased transparency

5. Innovative enforcement

GMAP (geospatial measure of air pollution) tool can be used to estimate amount and location of methane and VOC emissions. Includes IR camera, sampling ports, GPS, methane meter.

1. More Effective Rules

Rules structured to promote compliance

- Simplicity
- Designed to make compliance the default
- Market mechanisms – efficiency and clarity
- Transparency as accountability tool
- Self and third-party certifications
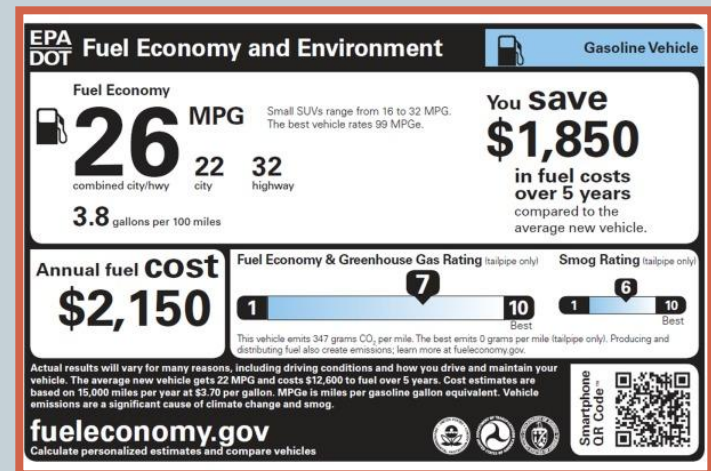
More Effective Rules

New proposed air rule for oil and gas exploration

- Manufacturers of pollution controls test and submit proof of certification to EPA

- Operators not required to conduct initial performance tests if they purchase a certified combustor

- Similar to IRS model for salary dividend interest income dual reporting

2. Advanced Monitoring Technologies

- Real-time monitoring – knowing about pollution as it's happening

- Facility feedback loops – preventing pollution before it happens

- Fenceline monitoring

- Community monitoring

- Remote sensing

Monitoring buoy in Charles River collects and transmits data
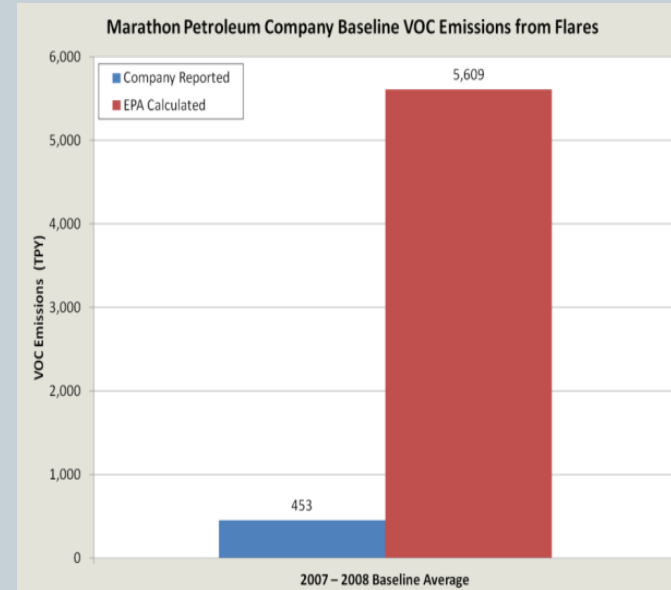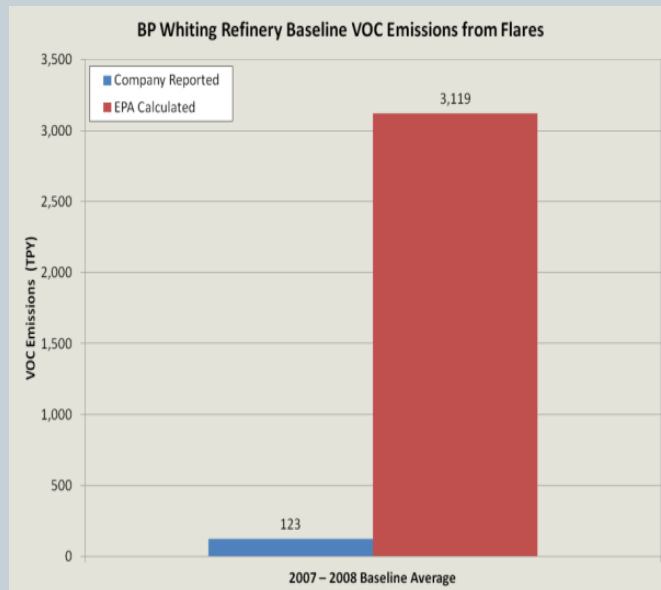
Advanced Monitoring

Making the invisible visible

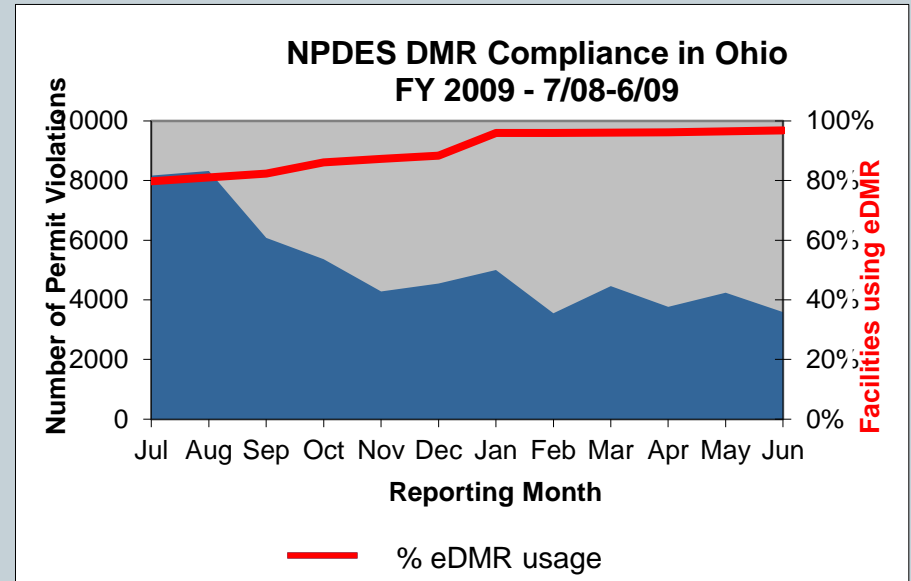28/09/11 14:51 N 29°43.266' W 95°7.223'

Advanced Monitoring

An example from flaring enforcement

3. Electronic Reporting

- Information technologies make new solutions possible

- Smart tools and two-way communication

- Private sector reporting tools

- NPDES e-reporting rule proposed on July 30

NPDES DMR Compliance in Ohio FY 2009 - 7/08-6/09

— % eDMR usage

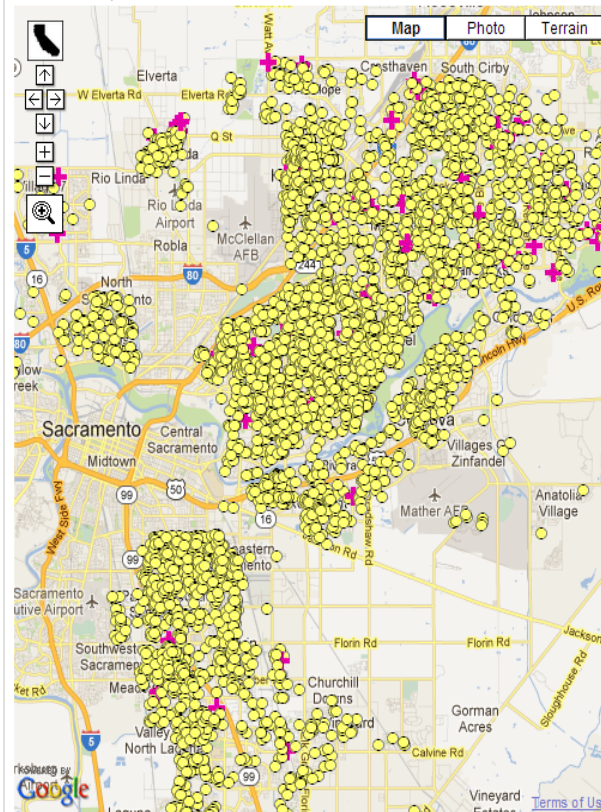# 21st Century Enforcement

Using social media to protect communities

4. Increased Transparency

- Public accountability drives better performance

- As people pay more attention to data, its quality and accuracy tend to improve

Increased Transparency

- Evidence that effective transparency drives performance

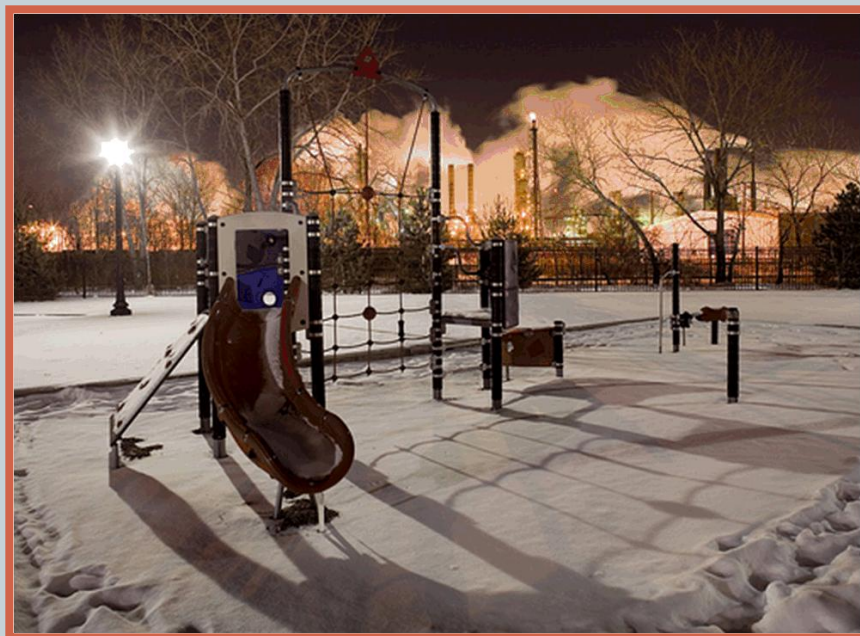- SDWA Consumer Confidence Reports

- Restaurant health inspection grades

5. Innovative Enforcement
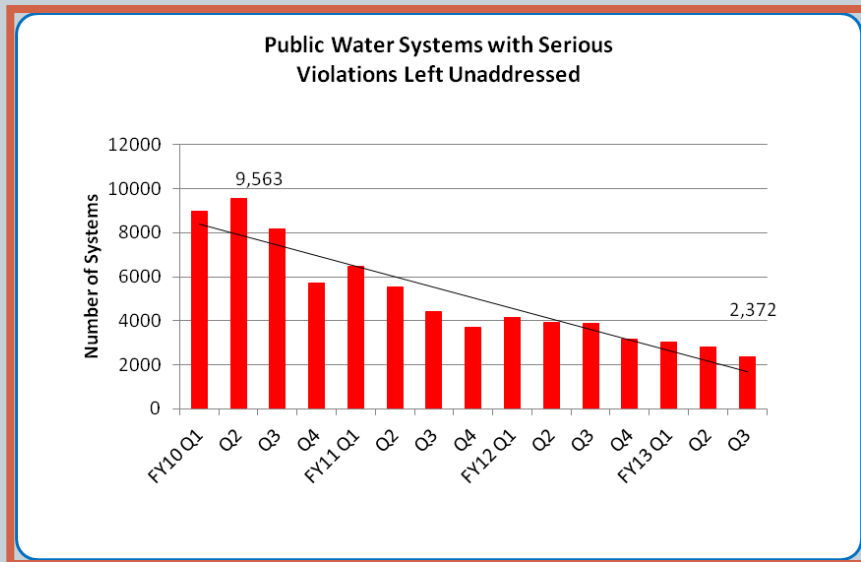
Include Next Gen ideas in settlements

- Fence line monitors (advanced monitoring)

- Electronic reporting under consent decree (e-reporting)

- Public posting of compliance and pollution data (transparency)

Innovative Enforcement

Drinking water serious violations

Public Water Systems with Serious Violations Left Unaddressed

9,563

2,372

- New scoring system
- New enforcement strategy ➡ return to compliance in six months or face enforcement
- 74% reduction in serious violators in three years

Big Data and Compliance

- Our goal: reduce pollution, improve compliance

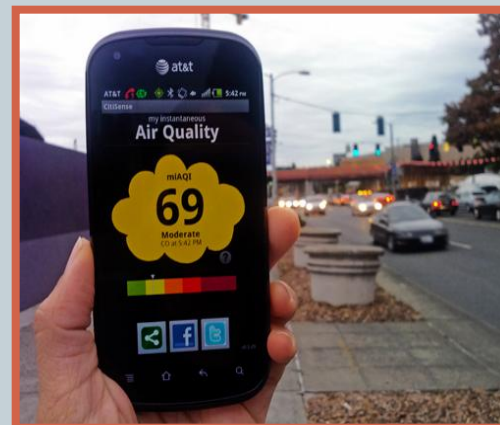- Data ➡ actionable information

- Big data: a tool, not a goal

Big Data: Where Can it Help?

Advanced monitoring

- Direct monitoring of pollution by companies
- Make invisible pollution visible
- Citizen monitoring combined with IT
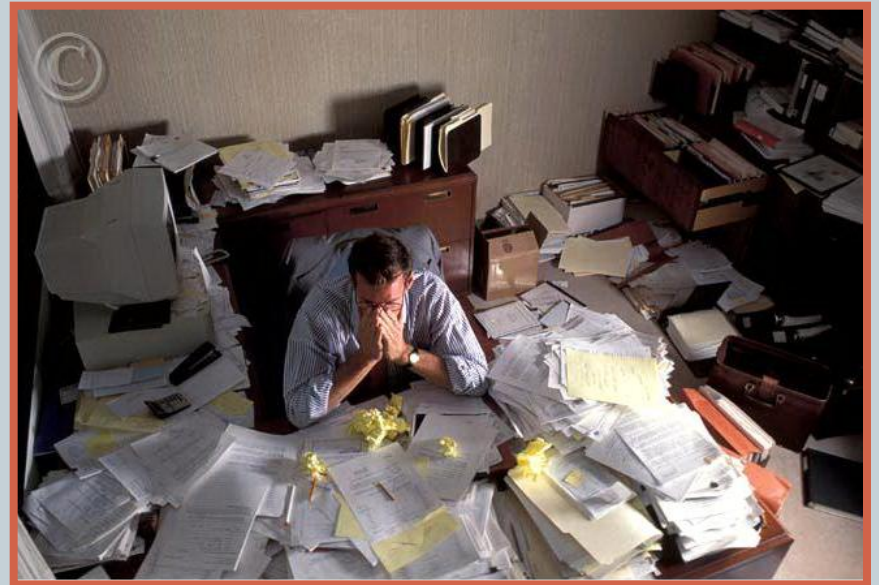- Environmental Justice: protecting overburdened communities

http://ucsdnews.ucsd.edu/pressrelease/small_portable_sensors_allow_users_to_monitor_exposure_to_pollution_on_thei

Big Data: Where Can it Help?

Electronic reporting

- We hold these truths to be self evident
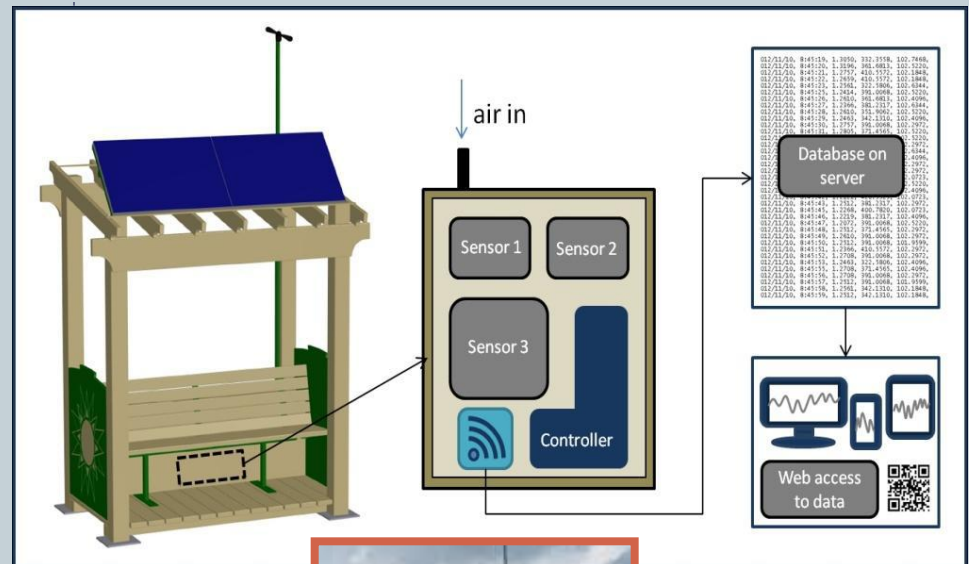
- e-reporting now the default for new EPA rules

Big Data: Where Can it Help?

Improved transparency

- Relevant information

- Communicated directly to people who will use it

- Neighbors, investors, insurers

- Big data available to intermediaries who can translate/develop apps

EPA Village Green Project

http://villagegreen.epa.gov/

Big Data: Where Can it Help?

Using data analytics to find problems – Examples:

- Credit card theft
  - Using data to detect fraud

- NYC fire prevention
  - Predicting fire risk from data on illegal conversions

Better targeting

- Compare multiple data sets
- Not just environmental data
- Data analytics to find serious violations

Partnership With States

- Joint federal/state environmental protection enterprise with shared objectives

- Data interface and compatibility essential

- E-Enterprise for the Environment and Next Generation Compliance

Big Data Has Big Potential

- Opportunity for dramatic gains in environmental and health protection

- Public access to data will happen with government or without; let's lead

- Embrace new approaches

BUT

- Focus on what advances mission

- Careful design required; rely on evidence for what works