Assessment of APWL Areas in Texas: Has Progress been made?

EPA Region 6•Dallas, TX • October 20, 2015

Elena Craft, PhD

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Finding the ways that work

- Founded in 1967 by scientists concerned about pesticide DDT
- Million members nationally

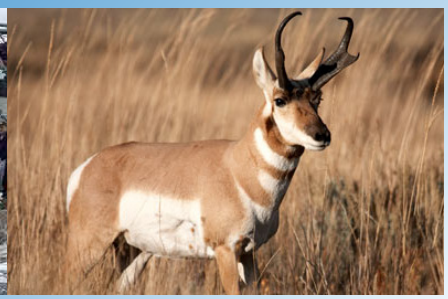
- Over a dozen regional offices
- ~550 scientists, economists, and other professional staff who emphasize
  - Sound science
  - Power of partnerships
  - Power of incentives

4 Principle Goals

Stabilize the Earth's <u>climate</u> by reducing greenhouse gas emissions.

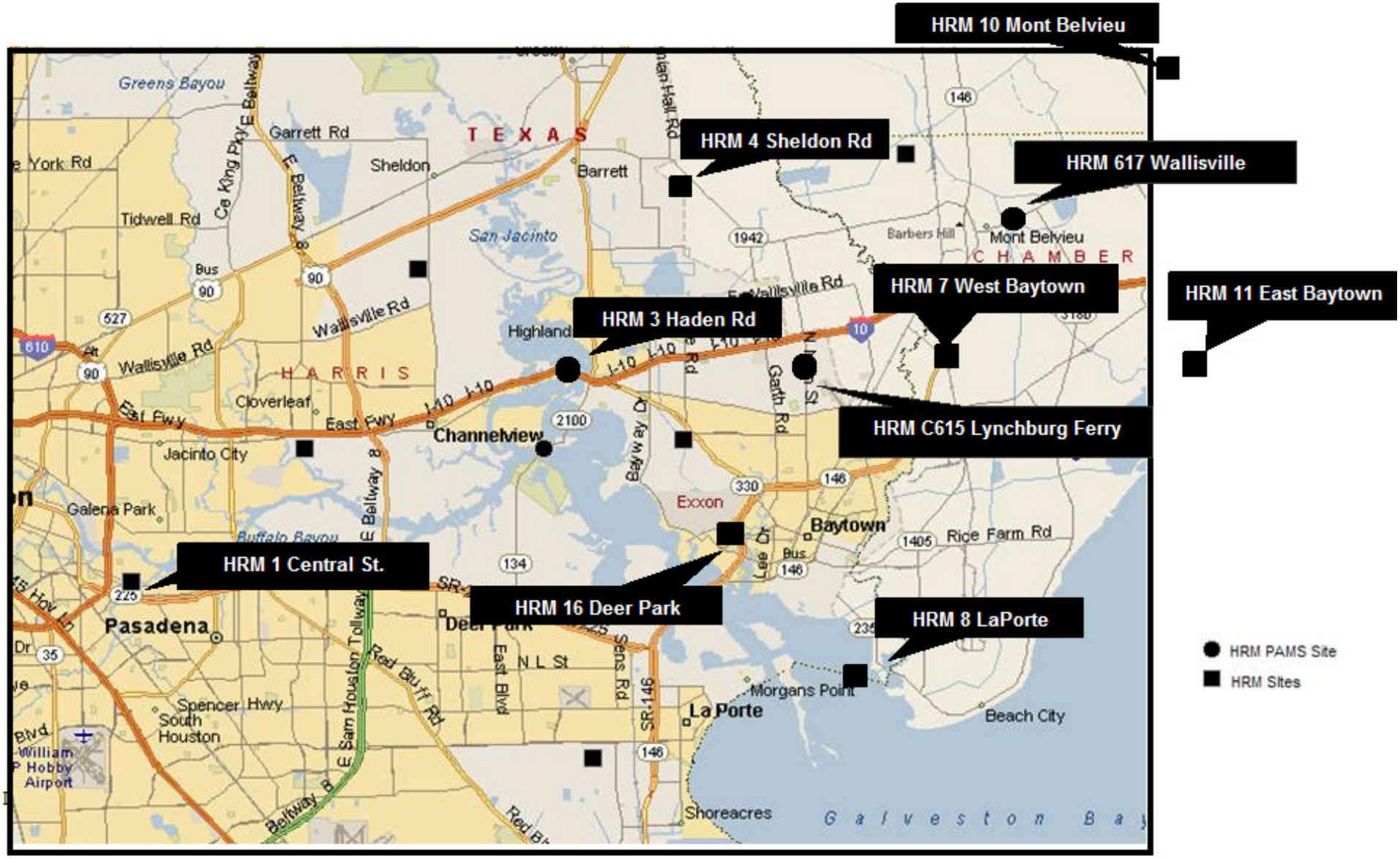
Safeguard human <u>health</u> from exposure to toxic chemicals and pollution.

Protect the world's <u>oceans</u> from pollution and overfishing.

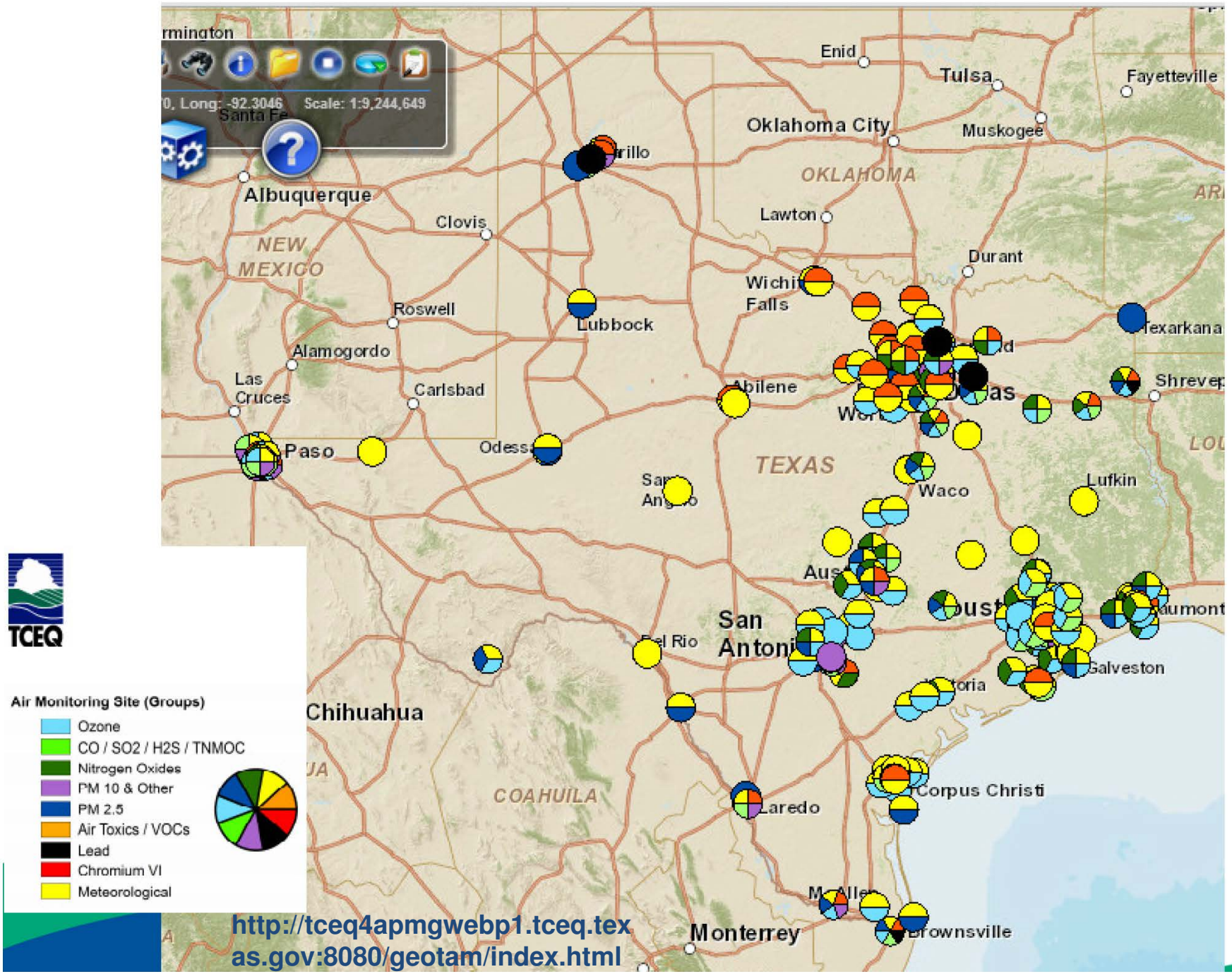


Preserve and restore <u>biodiversity</u>.

Houston Regional Monitoring Network



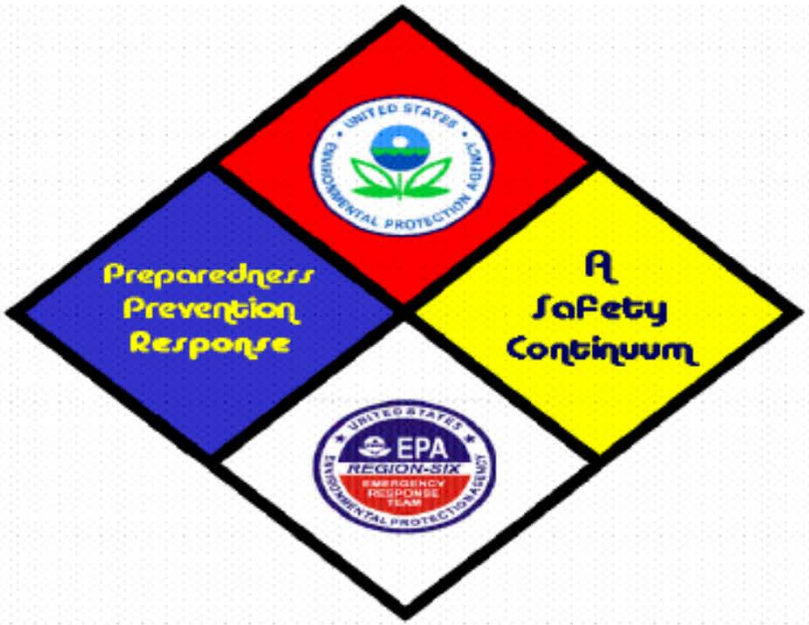
http://hrm.radian.com/sitemap.htm



http://tceq4apmgwebp1.tceq.texas.gov:8080/geotam/index.html

Air Toxics

- Many sources
- New concerns found every day
- Not enough coverage from air monitors
- Clearly identified hotspot areas
- Inaccurate emission inventories
- Low enforcement rates for violations
- Citizens who live in hotspot areas are at increased risk for health effects associated with exposure to these pollutants



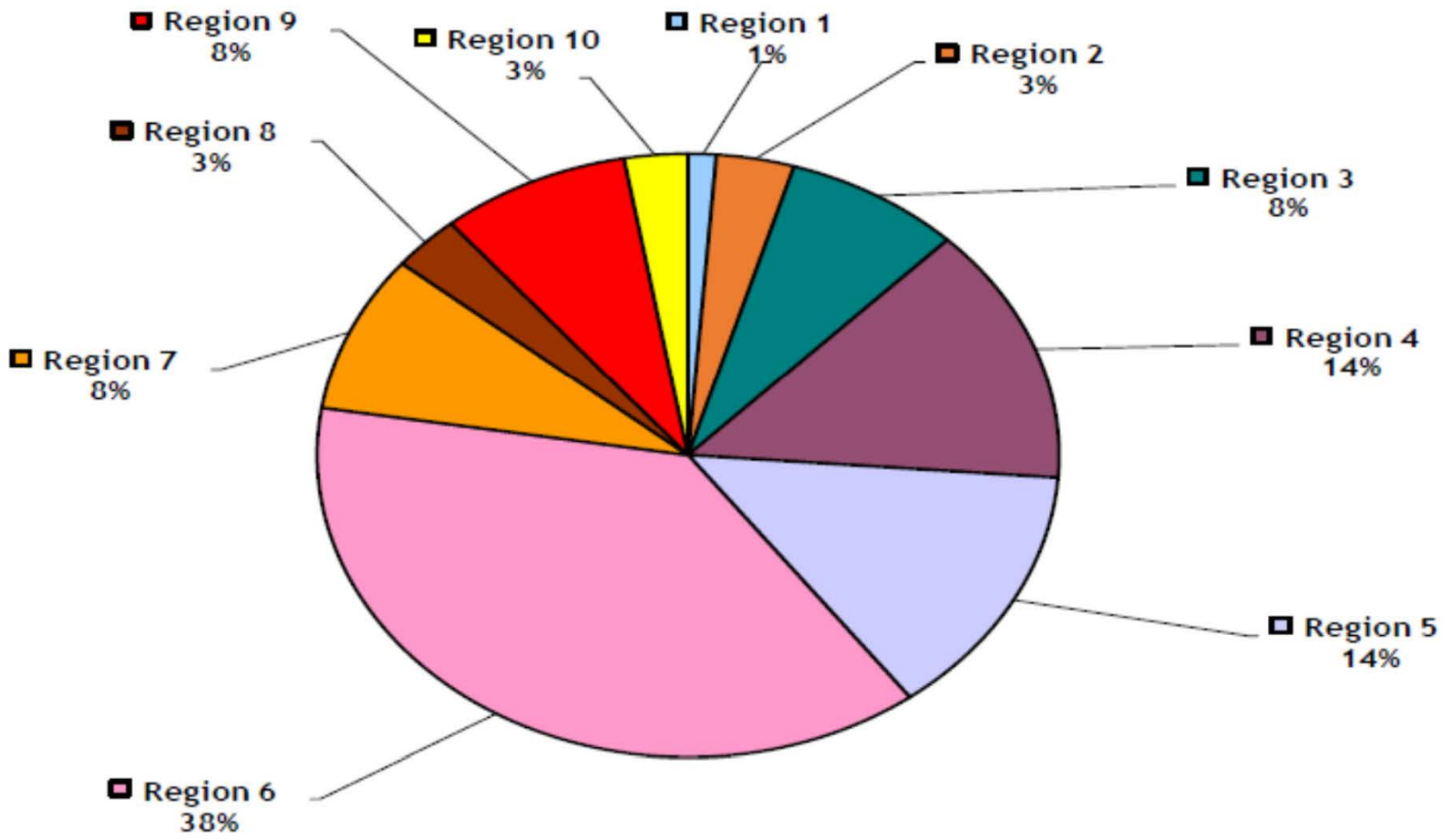
EPA Region 6 Accidental Release Notificaiton Information:

FY 2011 - 2015

Over Thirty Years of Collecting Release / Spill Information

EPA Air Release Notifications to NRC per Region (2011 - 2015)

10/12/2015



Factoid

10/12/2015

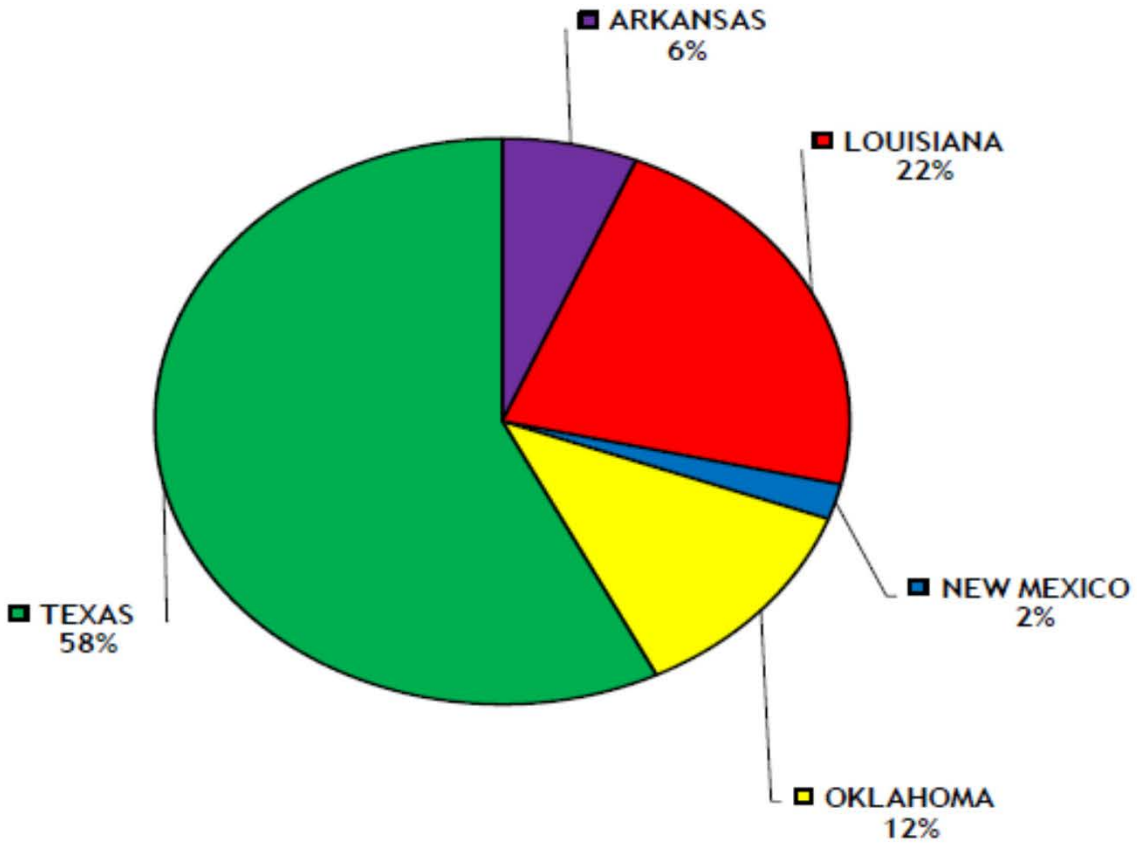
Since 2000, approximately ***3.3% of all*** release reports have led to a significant event (death, injury, community evacuation, evacuation of a facility, shelter-in-place)

Deaths, injuries, and evacuations may not be directly due to exposure, but as a consequence of the accident resulting in the release

Since 2000, statistically there is more than one shelter-in-place or evacuation of a community (whole or part) or of a facility due to a hazardous substance, oil, or other material incident somewhere in Region 6, ***on a weekly basis***

NRC Notifications to EPA Region 6 -- % by State (2011 - 2015)

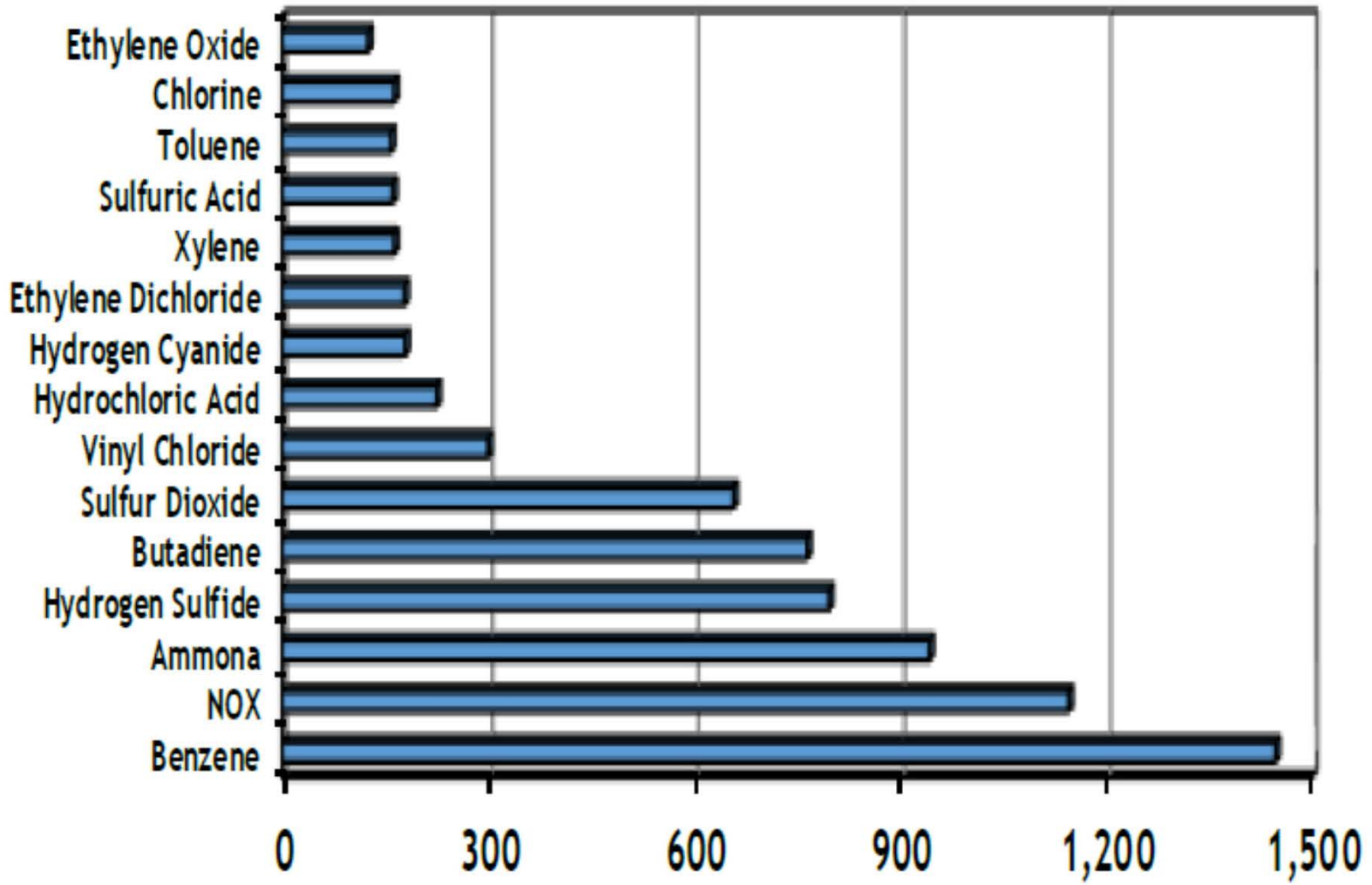
10/12/2015



NRC Notifications to EPA Region 6 -- Top Hazardous Materials Released (2011 - 2015)

10/12/2015

The substances listed below account for 83 % of all hazardous material releases within Region 6 since 2011



2009 Annual Report on the Air Pollutant Watch List Areas in Texas

Prepared by
Toxicology Division
Chief Engineer's Office
Texas Commission on Environmental Quality

February 17, 2010

Report on the Air Pollutant Watch List Areas in Texas

Prepared by the Texas Commission on Environmental Quality Chief Engineer's Office

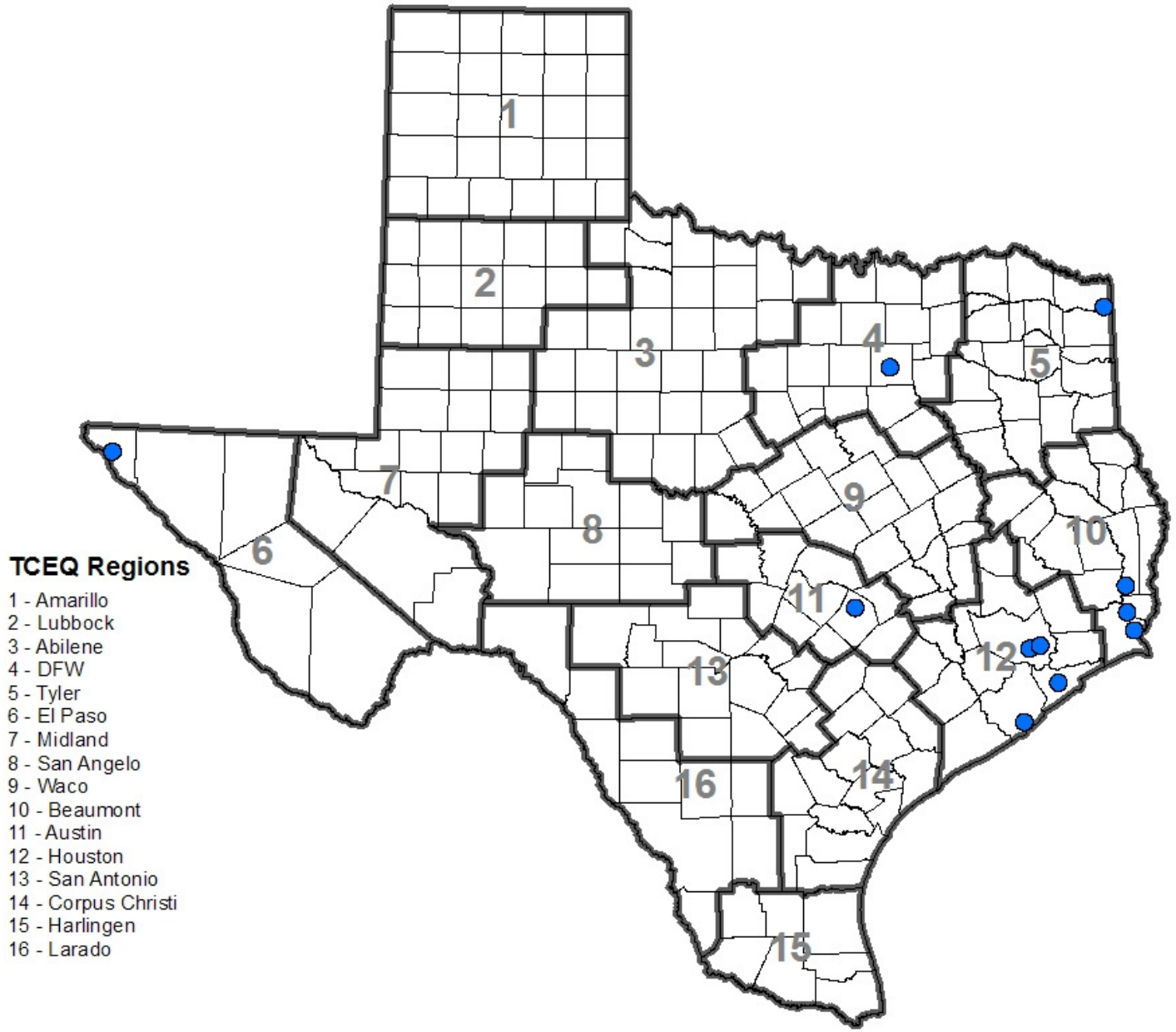
February 2012

Current APWL Areas (2014)

County	Pollutant	Year Added	Years on List
Bowie & Cass	hydrogen sulfide	1997	17
Brazoria	arsenic cobalt nickel vanadium	2005	9
Dallas	nickel	2004	10
El Paso	hydrogen sulfide	2004	10
Galveston	propionaldehyde benzene* hydrogen sulfide*	2001 2003 2004	13
Harris	styrene*	2002	12
Harris	benzene	2000	14
Jasper	hydrogen sulfide	2003	11
Jefferson	sulfur dioxide	2003	11
Jefferson	benzene*	2001	13

***Proposed for removal**

Air Pollution Watch List Areas



TCEQ Regions

1 - Amarillo
2 - Lubbock
3 - Abilene
4 - DFW
5 - Tyler
6 - El Paso
7 - Midland
8 - San Angelo
9 - Waco
10 - Beaumont
11 - Austin
12 - Houston
13 - San Antonio
14 - Corpus Christi
15 - Harlingen
16 - Larado

What You Can Do » Blogs, Podcasts & RSS » Texas Clean Air Matters

12-Step Program for TCEQ to Clean Up Air Pollutant "Hotspots" in Texas

April 22, 2010 | Posted by **Elena Craft** in Air Pollutants

Our first post to Texas Clean Air Matters offers a 12-step program to TCEQ for cleaning up air pollutant hotspots around the state (and not just because it's Earth Day, but if it helps promote the cause, we'll take it).

1. Identify that we have a problem with toxic air pollutants.

As with other 12-step programs, the first step toward recovery is admitting that there's a problem. Texas, we have a problem: It's called "hotspots." The Texas Commission of Environmental Quality (TCEQ) recently released the 2009 Air Pollutant Watch List (APWL) report, which outlines areas around the state where pollution levels for one or more toxic compounds exceeds the state's health-based levels of concern, referred to as "effects screening levels" or ESLs. Some of the pollutants within these hotspot areas can cause cancer, birth defects, or even death.

2. Develop a better process for defining the boundaries of air pollutant watch list areas.

Currently, TCEQ designates APWL areas based on convenient landmarks like highways and water bodies rather than on emission reports or modeling information.

3. Communicate with the public about the increased risks of living in hotspots.

12-step Program to remediate APWLs

1. Identify that there is a problem
2. Develop a better process for defining the boundaries of air pollutant watch list areas
3. Communicate with the public about the increased risks of living in hotspots
4. Increase the number of air monitors in hotspot areas
5. Include advanced monitoring techniques as part of the remediation process.
6. Follow up mobile monitoring trips with immediate and aggressive remediation efforts
7. Work more effectively with city and county officials
8. Spend resources reducing emissions rather than trying to define the issue away
9. Incorporate emission reduction requirements more effectively into the air permitting process, and in between permit reviews
10. Increase enforcement actions on facilities located in hotspots that have emission events, especially when there are state standards for specific pollutants
11. Set a timeline for remediation of watch list areas
12. Develop a formal process for delisting air pollutant watch list areas

Protocol for Notification and Work Group Functions for Evaluating Potential and Active Air Pollutant Watch List (APWL) Areas

Prepared:

DRAFT, November 3, 2010

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

APWL Removal Process for Existing Pollutants/Areas

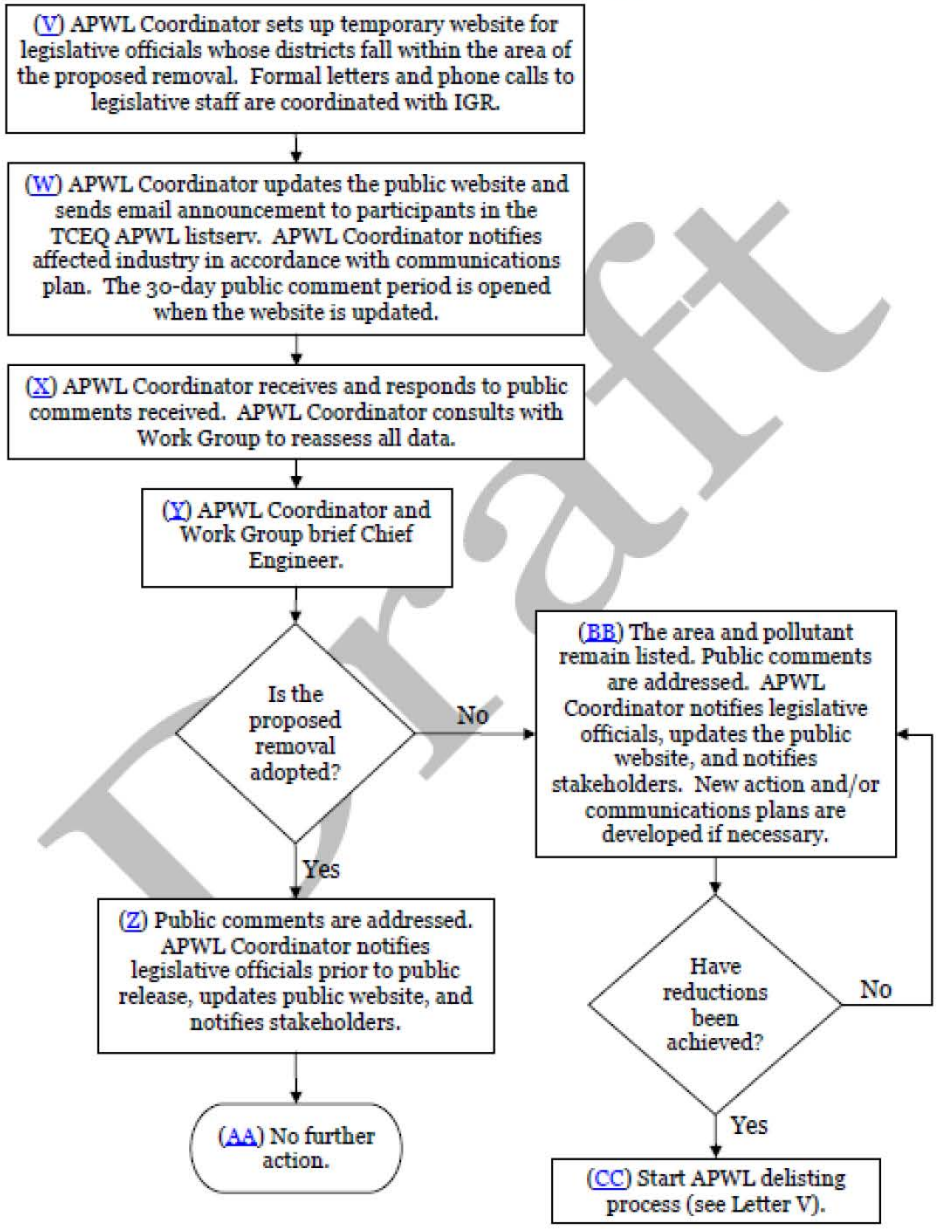


Table 2. Pollutants removed from the Air Pollutant Watch List from January 2009 to January 2010.

County	City	TCEQ Region	Year Added	Pollutant of Interest	Year Removed
Jefferson	Beaumont	10	2002	Hydrogen sulfide	2009
Jefferson	Beaumont	10	2004	Benzene	2010
Jefferson	Port Neches	10	1996	1,3-Butadiene	2009
Galveston	Texas City	12	2001	Acrolein, butyraldehyde, and valeraldehyde	2010
Harris	Lynchburg Ferry area	12	2002	Benzene	2010
Harris	Houston (Milby Park area)	12	1999	1,3-Butadiene	2009
Nueces	Corpus Christi	14	1998	Benzene	2010

County	City	Years to removal	Pollutant	Reduction achieved as a result of:
Jefferson	Beaumont	7	Hydrogen sulfide	SE Texas Regional Planning Commission Air Monitoring System
Jefferson	Beaumont	6	Benzene	
Jefferson	Port Neches	13	1,3 butadiene	Fenceline monitoring
Galveston	Texas City	9	Acrolein, butyraldehyde, valeraldehyde	***
Harris	Lynchburg Ferry	8	Benzene	Monument area air quality focus group; Environmental monitoring response system
Harris	Houston (Milby Park)	10	1,3-butadiene	Fenceline monitors and GasFind IR; notification system established
Nueces	Corpus Christi	12	Benzene	***
Harris	Houston	N/A	Styrene	VER agreement with Goodyear

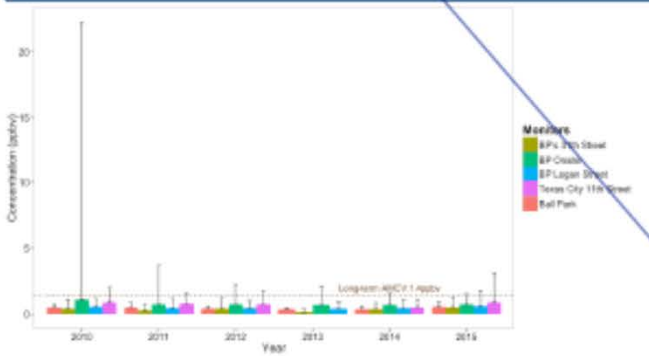
Air Quality Assessment on the Air Pollutant Watch List (APWL) Removed Area in Texas

Milby Park (Removed 2010)

- The maximum hourly concentration of 1,3-butadiene at Milby Park monitor was more than 10 times higher in 2014 comparing to the other years.

Year	Maximum hourly concentration (ppb$_v$)
2006	1611.25
2007	73.93
2008	29.32
2009	36.62
2010	107.31
2011	62.5
2012	56.85
2013	58.17
2014	1207.88
2015	26.08

Texas City (Removed 2014)



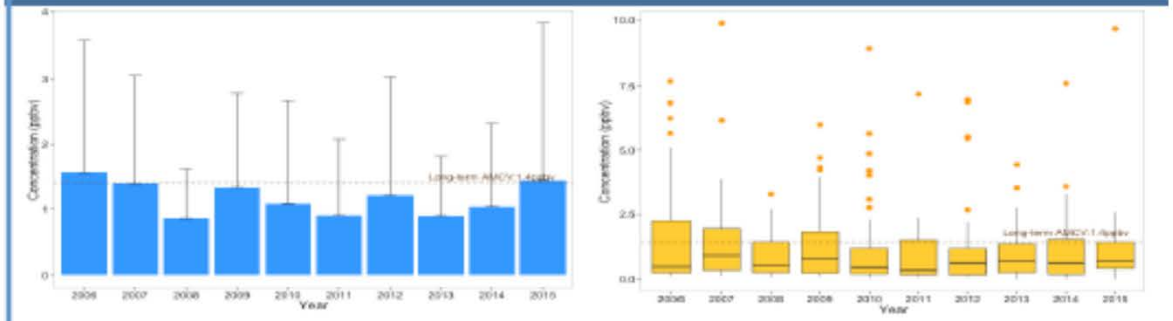
- Large standard deviations of benzene concentrations indicate large spikes occurred between 2010 and 2015.

Lynchburg Ferry Area (Removed 2014)

- Comparing to the year removed with no odor-based AMCV (i.e.25 ppb$_v$) exceedances, one exceedance was monitored at the Lynchburg Ferry monitor in 2015.

Date	Time (Central Standard Time)	Styrene Concentration (ppb$_v$)
2012/01/05	2:00 a.m.	47.51
2012/06/13	4:00 a.m.	29.61
2012/07/18	6:00 a.m.	37.82
2012/08/28	9:00 p.m.	38.59
2012/09/28	5:00 p.m.	56.58
2012/11/16	9:00 p.m.	39.91
2013/11/18	0:00 a.m.	43.25
2015/02/10	5:00 a.m.	26.41

Corpus Christi (Removed 2010)



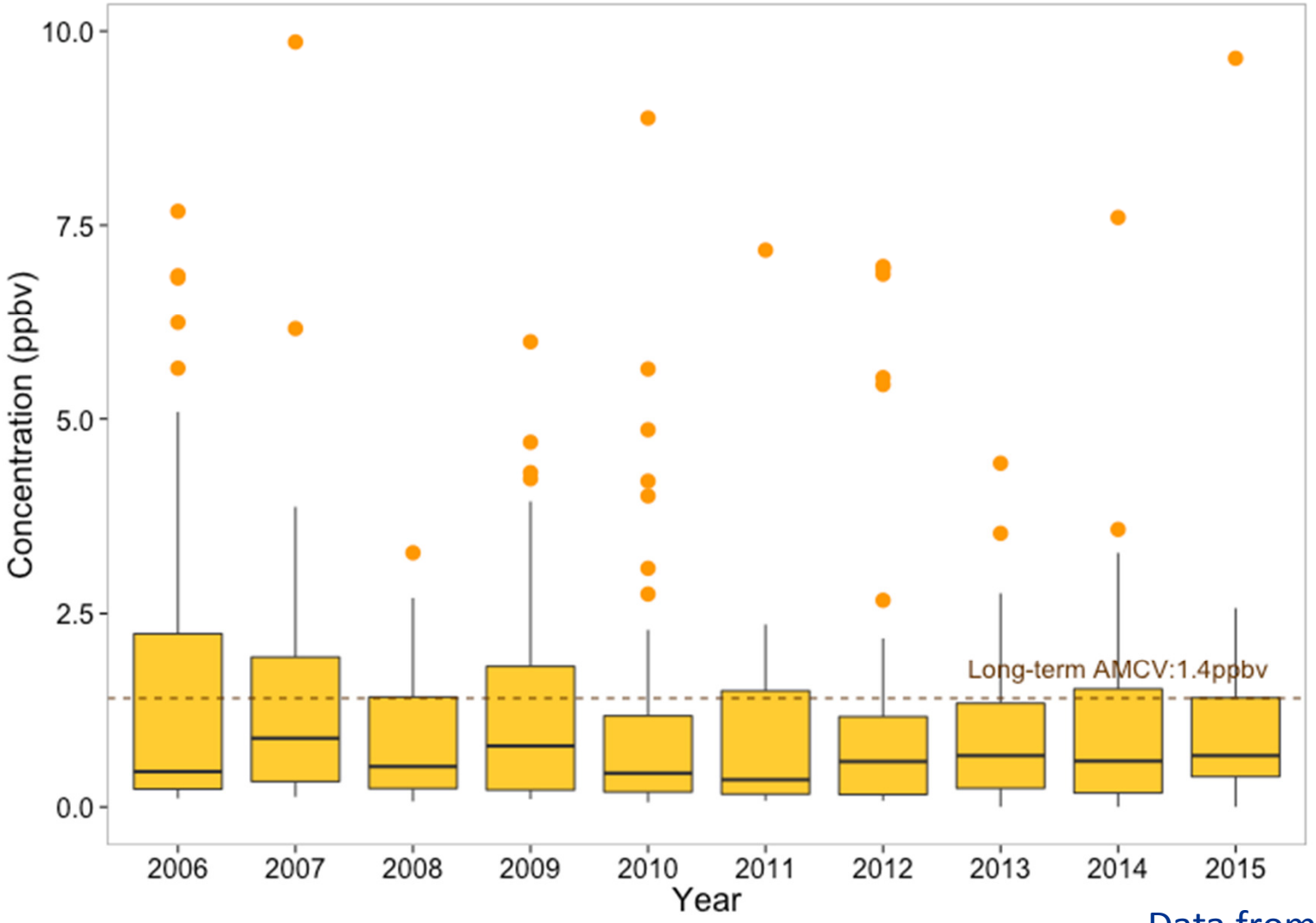
- The annual average benzene concentrations based on every-six-day 24-hour concentration at the Huisache monitor was above the long-term AMCV (i.e. 1.4 ppb$_v$) in 2015.
- Large spikes occurred almost every year, especially an extreme value of 9.65 ppb$_v$ in 2015.

Pollutants/ areas with no data from TCEQ

- Acrolein, butyraldehyde and valeraldehyde in Texas City
- 1,2 Dichloroethane in Point Comfort
- Hydrogen Sulfide in Bastrop

* The year 2015 only includes January, February and March monitoring data.

Boxplot of benzene concentrations at the Huisache monitoring site, Corpus Christi 2006 – 2015



Data from 2015 includes Jan-Mar

Maximum 1,3-butadiene hourly concentrations at Milby Park monitor, 2006 – 2015

Year	Maximum hourly concentration (ppb_v)
2006	1611.25
2007	73.93
2008	29.32
2009	36.62
2010	107.31
2011	62.5
2012	56.85
2013	58.17
2014	**1207.88**
2015	26.08

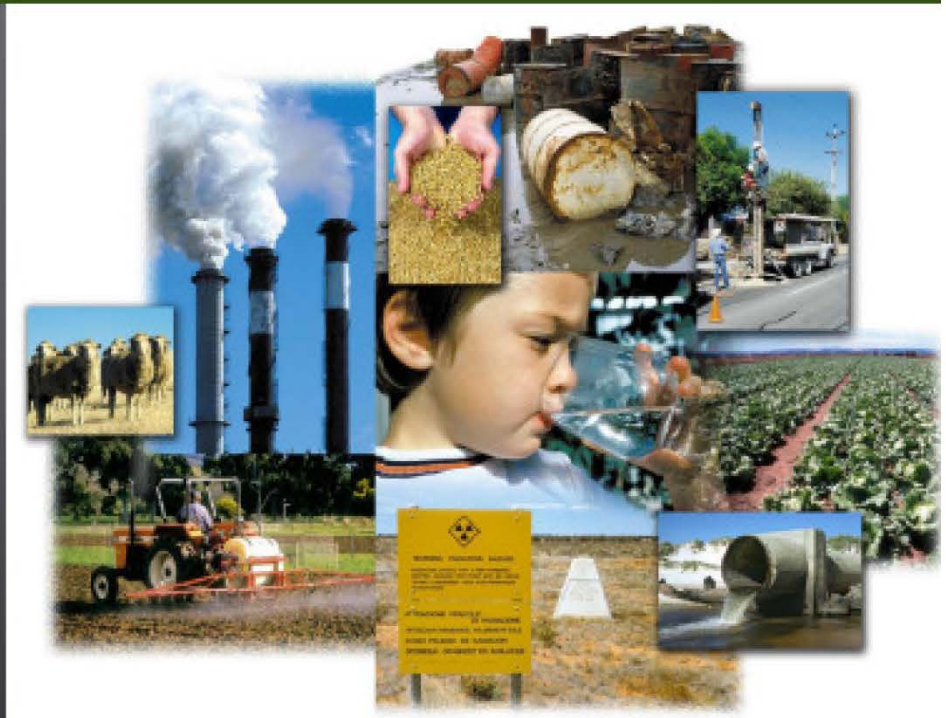
Data from 2015 includes Jan-Mar

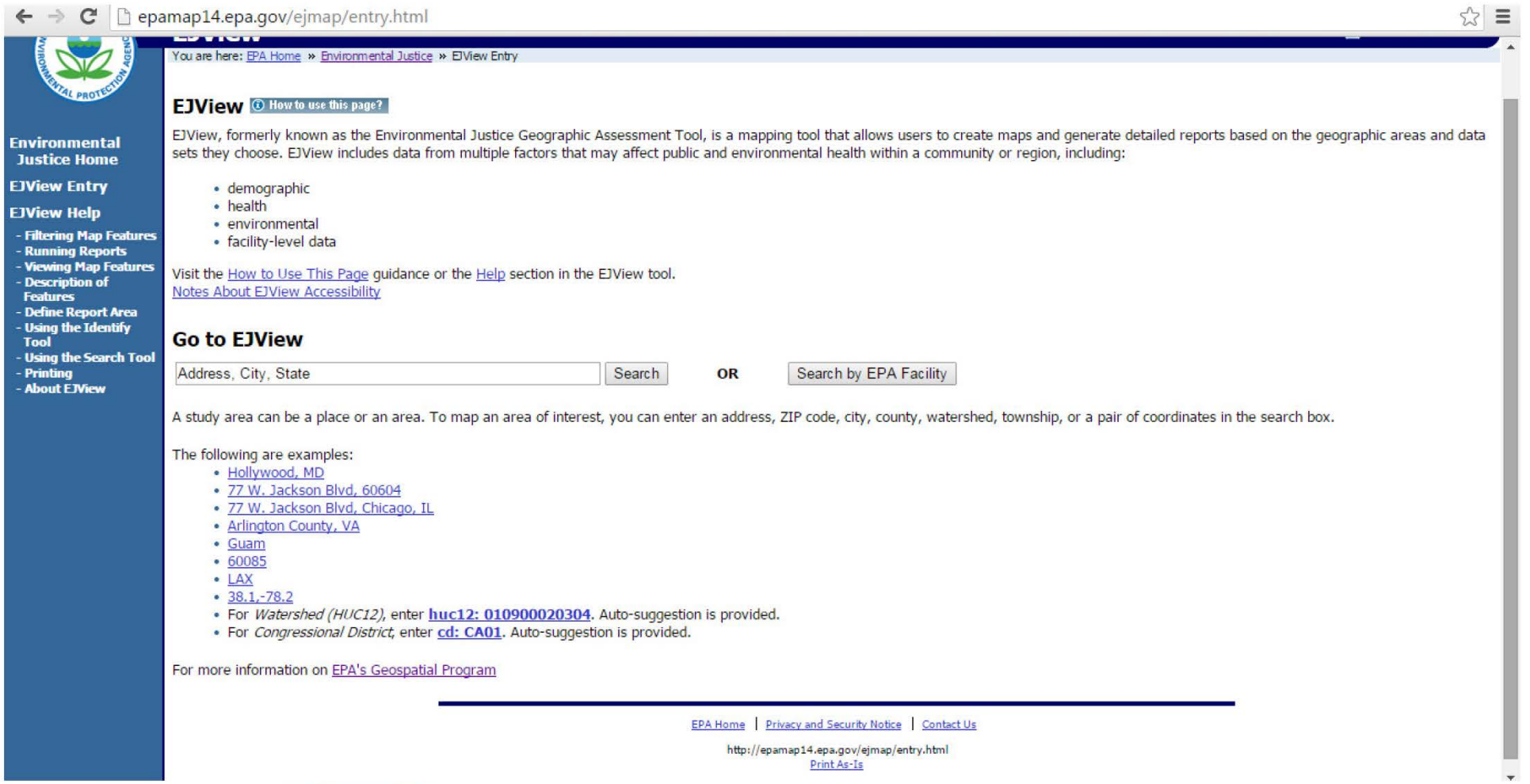
Problems with Monitoring System

- Not enough coverage from monitors
- Siting
- Data handling
- Data ownership
- Data mining
- Co-located monitors lack correlation

EJSCREEN: Environmental Justice Screening Tool

EPA
United States
Environmental Protection
Agency




epamap14.epa.gov/ejmap/entry.html
You are here: EPA Home » Environmental Justice » EJView Entry
Environmental Justice Home
EJView Entry
EJView Help
- Filtering Map Features
- Running Reports
- Viewing Map Features
- Description of Features
- Define Report Area
- Using the Identify Tool
- Using the Search Tool
- Printing
- About EJView
EJView
How to use this page?
EJView, formerly known as the Environmental Justice Geographic Assessment Tool, is a mapping tool that allows users to create maps and generate detailed reports based on the geographic areas and data sets they choose. EJView includes data from multiple factors that may affect public and environmental health within a community or region, including:
demographic
health
environmental
facility-level data
Visit the How to Use This Page guidance or the Help section in the EJView tool.
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Go to EJView
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OR
Search by EPA Facility
A study area can be a place or an area. To map an area of interest, you can enter an address, ZIP code, city, county, watershed, township, or a pair of coordinates in the search box.
The following are examples:
Hollywood, MD
77 W. Jackson Blvd, 60604
77 W. Jackson Blvd, Chicago, IL
Arlington County, VA
Guam
60085
LAX
38.1,-78.2
For Watershed (HUC12), enter huc12: 010900020304. Auto-suggestion is provided.
For Congressional District, enter cd: CA01. Auto-suggestion is provided.
For more information on EPA's Geospatial Program
EPA Home | Privacy and Security Notice | Contact Us
http://epamap14.epa.gov/ejmap/entry.html
Print As-Is

EJ Screen Indicators

Environmental Indicator	Demographic Indicator
Particulate Matter	Demographic Index
Ozone	Minority Population
National Air Toxics Assessment Diesel PM	Low-income
NATA Air Toxics Cancer Risk	Linguistically isolated
NATA Respiratory Hazard Index	Less than high school education
NATA Neurological Hazard Index	Under age 5
Lead Paint Indicator	Over age 64
Traffic Proximity	
Proximity to National Priority List sites	
Proximity to Risk Management Plan	
Proximity to Treatment Storage Disposal Facilities	
Proximity to Major Direct Discharges	

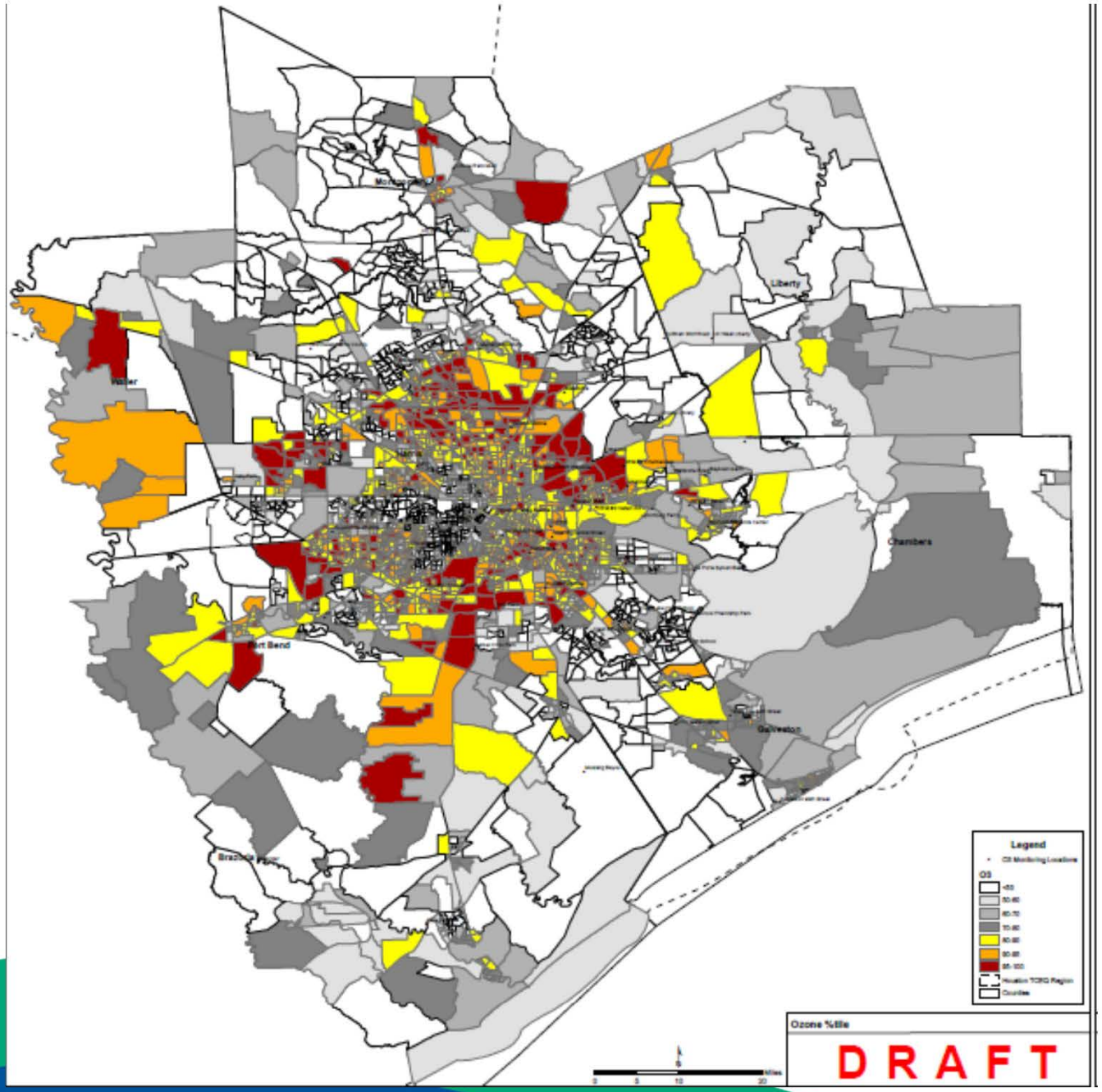
New Features

- 12 different environmental factors, including several new or improved metrics (e.g., traffic score)
- Updated demographics – every 1 year, not every 10 years
- A consistent, quantified approach to EJ, not just "overlays" – numerical indexes that combine environmental and demographic indicators
- Accessible and transparent to anyone with a web browser
- Standard printable reports and bar graphs
- Higher resolution maps – 3 times as many data points
- A wealth of additional data maps; can add more from the Web
- Raw data downloads will also be available

EJ Index Score

What does the EJ Index mean?

- **The EJ index combines environmental and demographic data**
- **It shows how much a block group contributes to the nation's overall disparity (between demographic groups) in that environmental indicator.**
- **In other words,**
  - » Nationwide overall, the average low-income and/or minority individual in the US has a higher lead paint indicator score than the rest of the US population.
  - » The EJ index shows how much this block group contributes to that disparity.
  - » If the block groups with the highest EJ index values (for lead paint) were "cleaned up" first, that would be the fastest way to reduce the disparity in average lead paint scores.


Liberty
Waller
Chambers
Fort Bend
Galveston
Brazoria
Legend
O3
Ozone %tile
DRAFT

Draft Technical Guidance for Assessing Environmental Justice in Regulatory Analysis



April 2013

EPA United States Environmental Protection Agency

National Air Toxics Program:

The Second Integrated Urban Air Toxics Report to Congress

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