



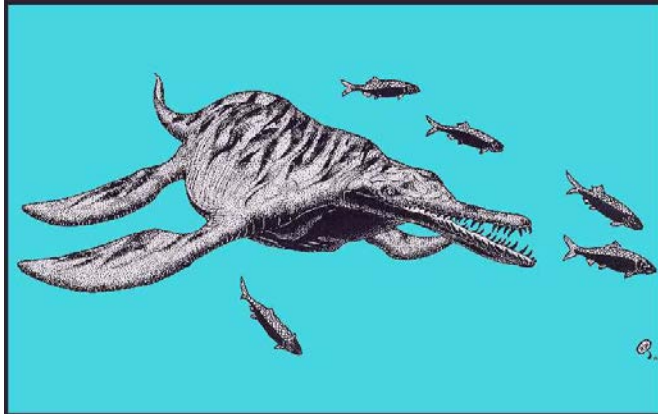
Geospatial Intelligence at the Environmental Protection Agency

Casey McLaughlin, GISP

Mclaughlin.casey@epa.gov

<http://blog.epa.gov/bigbluethread>

Kansas Was an Ocean

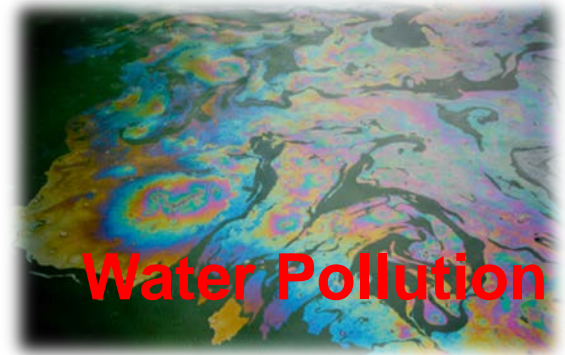




What is EPA?

“Protect Human Health and the Environment”

- Develop and Enforce Regulations
- Give Grants
- Study Environmental Issues
- Sponsor Partnerships
- Teach People About the Environment
- Publish Environmental Information





Today:

- EPA
- Whats GeoSpatial
- National Projects
- What we do regionally



<http://nationalmap.gov/ustopo/history.html>



Chat Piles



NAT-19444-1



Waste Discharge



Geospatial Intelligence

Geospatial Intelligence:

it is the means by which data and information are collected, manipulated, geospatially reasoned, and disseminated to decision-makers.

<http://codes.lp.findlaw.com/uscode/10/A/I/22/IV/467>

**“We don’t do GIS,
we do *spatial IT*
on the *spatial web*”**

Paul Ramsey

“Spatial IT and the Spatial Web” at FOSS, 2012

“The map as *Information Ecology*”

Blaise Aquera Y Arcas

Microsoft Bing Maps Architect

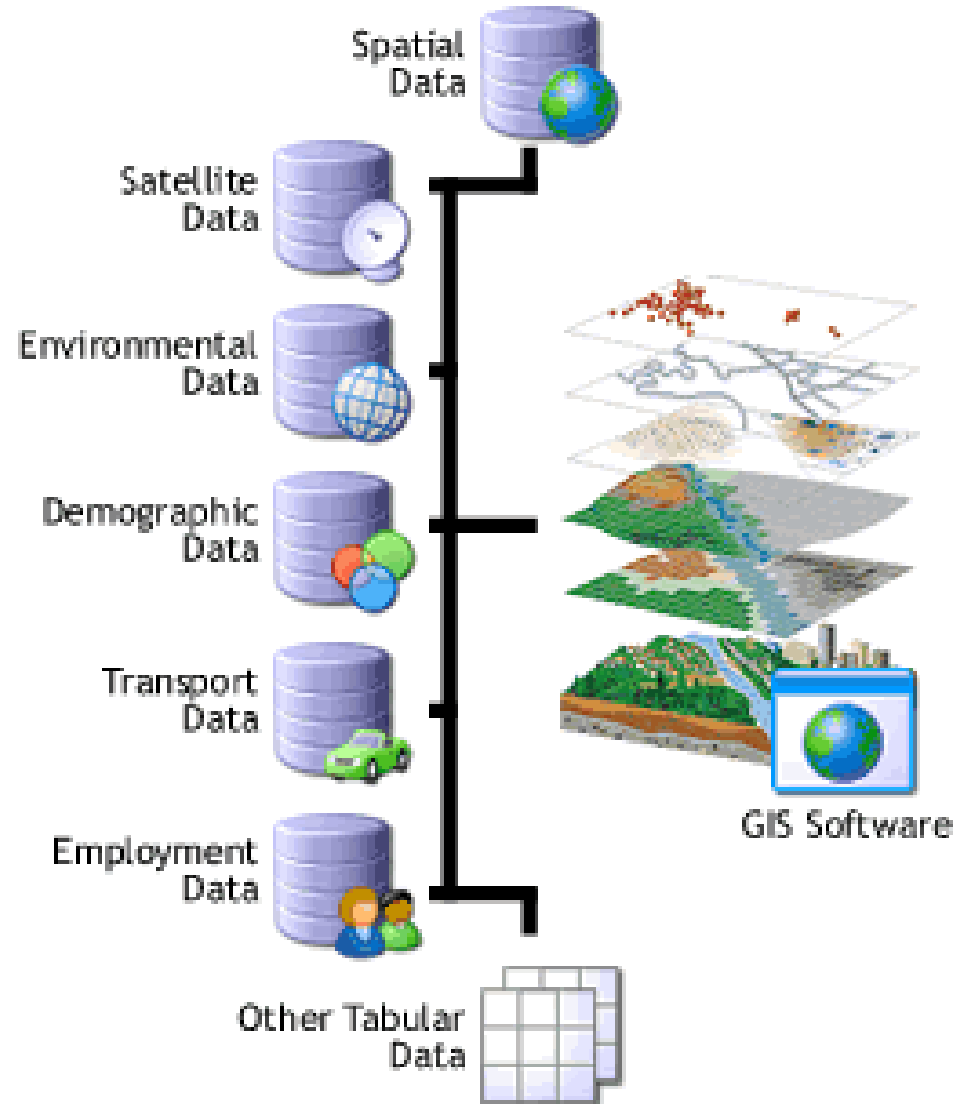
“Earth is the metaphor for *organizing information*”

Michael Goodchild

Author and Professor

GIS is evolving

Data into Decisions



Geospatial Information from Washington D.C. out

- 18k spread across 10 regions and many offices
 - Standard Map Interfaces
 - Data Discovery
 - Transparency
-
- US EPA Geoplatform
 - FRS and Envirofacts
 - Environmental Data Gateway






EPA'S GeoPlatform

EPA GeoPlatform Online

GALLERY MAP GROUPS MY CONTENT Find maps, applications and more...



EPA GeoPlatform Online

A self-service storefront that allows users from novice to expert to search, discover, use, and share EPA knowledge in the form of Maps and Apps.


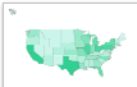
- Browse
- Make A Map
- Start ArcGIS Explorer
- Start Environmental Analyst

EPA.gov News






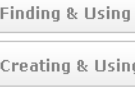
EPA Announces 12 Great

2 hours ago
FOR IMMEDIATE RELEASE
(CHICAGO – Sept. 1, 2011) The U.S. Environmental Protection

Featured Maps & Apps

-  EPA Toxic Release Inventory
-  EPA_Facilities

Most Recent

- No image available
-  EJSEAT scores
-  EPA Toxic Release Inventory
-  USA Topo Maps
-  Imagery with Labels
-  OpenStreetMap
-  Imagery with Labels

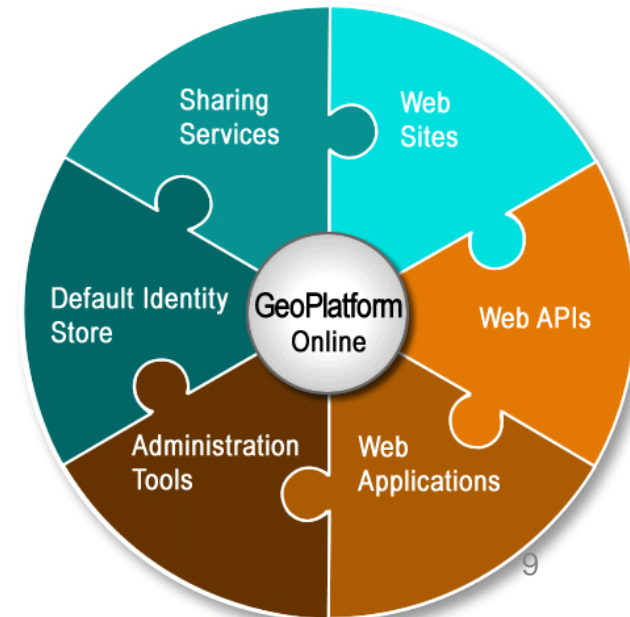
Instructional Videos

▼ Overview

- [What is the ArcGIS Portal](#) [2:49]
- [Featured content in the galleries](#) [1:39]

- Finding & Using Content
- Creating & Using Maps
- Managing Groups
- Future Development

EPA Home | Privacy and Security Notice | Comments and Suggestions | Contact Us





EPA'S GeoPlatform

Online Collaboration

The screenshot displays the EPA's GeoPlatform interface. At the top, there is a navigation bar with 'Home', 'Details', and 'Find Places' search. The main map area shows a street view of Highland Park and Sargent with blue circular markers representing facilities. Two dialog boxes are overlaid on the map:

Add Sublayer

USA Facilities Regulated by EPA

Choose the sublayer you want to add to the map as features

Sublayer:

Specify the features you want to include in the layer.

- All Features
All the features from the sublayer will be included in the feature layer.
- Filtered Features
Specify a query to filter the features that are included in the layer.

Query Definition

Specify the query criteria for your feature layer

Query | Data

Specify your query criteria

Field: Operator: Value:

Facilities Regulated by EPA : BUELL DOOR COMPANY

REG_ID	110000457425
Facility Name	BUELL DOOR COMPANY
Address	1420 S. BARRY
City	DALLAS
State	TX
Zip	75223
LATITUDE83	32.79
LONGITUDE83	-96.75
LATITUDE	32.79
LONGITUDE	-96.75
HORIZONTAL DATUM	NAD83
COL_MTH	ADDRESS MATCHING-HOUSE NUMBER
REF_NAME	ENTRANCE POINT OF A FACILITY OR STATION
SRC_SCALE	
FACILITY_URL	http://oaspub.epa.gov/envir
AFS_URL	

POWERED BY



Users have many options for classifying and displaying data

The screenshot displays a GIS application interface with a map of the border region between the United States and Mexico. The map shows various cities and geographical features. Overlaid on the map are several blue circles of varying sizes, representing data points for 'Copy of RETC 2007 border facilities'. The interface includes a 'Configure Display' panel with the following options:

- Classify Using Size** (selected)
- Single Symbol**: A simple display of all features using a single symbol. Use when each feature should be displayed uniformly.
- Unique Values**: Display a set of values for a given attribute independently. Use when describing nominal data.
- Classify Using Color**: Display continuous attribute values as groups, using color to distinguish differences. Most commonly used to create thematic or choropleth maps.
- Classify Using Size** (highlighted): Display continuous attribute values as groups, using symbol size to distinguish relative differences. Use for illustrating relative values such as population.
- No Renderer**: Click on a feature to change the symbol. Use when data has limited attributes or is unstructured.

Below the classification options are sliders for 'Start Size' and 'End Size'. The 'End Size' slider is currently set to a value that results in the largest circles on the map.

The right side of the interface shows a 'Configure Display' panel with the following settings:

- Classify Using Size** (selected)
- Attribute**: Miles from border
- Classify using**: Natural Breaks
- Classes**: 5 classes
- Template Style**: Natural Breaks (selected)
- Start Size**: 0.00
- End Size**: 37.00

The 'Natural Breaks' class is highlighted, showing a histogram of the data distribution. Other classification methods shown include Equal Interval, Standard Deviation, and Quantile, each with a corresponding histogram.



Environmental Analyst allows users access to a wealth of ESRI custom data, Census data, and EPA data in order to query across diverse datasets and target areas that meet users' criteria.

Smart Map Search | Create Color-Coded Map | Import Locations | Business Search | Enter business name or type

Searching for specific community types? Use Smart Map Search to zero in on the right areas.

Choose your criteria and Smart Map Search will indicate matches in green.

Here's how...

1. Select your criteria.
2. Choose your geography type.
3. Refine your criteria.
 12,300 55,600

Watch a short how-to video.

Skip this page in future.

My Layers | My Sites | Streets | Satellite | More Maps

San Angelo | Waco | Killeen | Bryan | Junction | Austin | Houston | Victoria | Corpus Christi | Laredo

TEXAS

2. Select Geography:

3. Refine your criteria: 4 out of 102 Counties match all selected criteria.

Use	Available Variables	Minimum	Distribution	Maximum	Matches
<input checked="" type="checkbox"/>	2010 Per Capita Income	<input type="text" value="\$9,288"/>		<input type="text" value="\$15,000"/>	4 (3%)
<input checked="" type="checkbox"/>	2010 Unemployment Rate	<input type="text" value="6"/>		<input type="text" value="18.6"/>	82 (80%)

[Change variables...](#) [Save Criteria List](#) [My Criteria Lists](#)



Users can then create custom reports and maps comparing variables across geographies

Home | Explore Community | Select Location | Get Reports

Smart Map Search | Create Color-Coded Map | Import Locations

Enter Address (optional) [Go] Choose Variables | Geography: Counties | Colors: [Color Scale]

2010 Diversity Index (Esri) by Counties

1990 | 2000 | 2010 | 2015

My Layers | My S...

esri | Census 2010 Profile

628 Callaghan Rd, San Antonio, TX, 78228

Ring: 1 mile radius

Latitude: 29.44106
Longitude: -98.60214

Summary	Total		Age 18 Years and Over	
	Number	Percent	Number	Percent
Total Population	7,858	-	4,986	63.5%
Hispanic Population	7,233	92.0%	4,537	62.7%

Population by Race				
Total	Number	Percent	Number	Percent
Population Reporting One Race	7,633	97.1%	4,851	97.3%
White	5,832	74.2%	3,679	73.8%
Black or African American	330	4.2%	212	4.3%
American Indian and Alaska Native	62	0.8%	45	0.9%
Asian	21	0.3%	18	0.4%
Native Hawaiian and Other Pacific Islander	0	0.0%	0	0.0%
Some Other Race	1,387	17.7%	897	18.0%
Population Reporting Two or More Races	225	2.9%	135	2.7%

Hispanic Population by Race				
Total	Number	Percent	Number	Percent
Hispanic Population Reporting One Race	7,034	97.2%	4,418	97.4%
White	5,543	76.6%	3,463	76.3%
Black or African American	47	0.6%	17	0.4%
American Indian and Alaska Native	56	0.8%	40	0.9%
Asian	4	0.1%	4	0.1%
Native Hawaiian and Other Pacific Islander	0	0.0%	0	0.0%
Some Other Race	1,384	19.1%	894	19.7%
Hispanic Population Reporting Two or More Races	199	2.8%	119	2.6%

Housing Units by Occupancy Status				
Total	Number	Percent	Number	Percent
Occupied Housing Units	2,236	93.8%	-	-
Vacant Housing Units	147	6.2%	-	-

Legend | Color-Coded Data

2010 Diversity Index (Esri) by Counties

- 70 - 83
- 62.3 - 69.9
- 52.7 - 62.2
- 44.4 - 52.6
- 19.6 - 44.3

Lock ranges while panning. [Edit ranges...](#)

Filter map options

Choose one: [None]

Enter value: []



National Projects

Data Publishing Resources

NCC Shared Hosting Virtual Servers

- Internet production servers
- Intranet staging & production servers
- Intranet sandbox servers

Data Extraction & Translation Tools

EPA Clip N Ship
Your Data
Regional Data
Program Data
<http://edg.epa.gov/clipship>

EPA FME Server
Transform
Exchange
Load
Distribute

Data Download Storage

EPA Public Downloads
gdb, shp, kml, csv
<http://edg.epa.gov/data/Public>

EPA Internal Downloads
Requires user login

Data Visualization & Analysis Tools

EPA Geospatial Platform Online

Load CSV, txt, or KML Files from your desktop for display & sharing within a web map

<https://epa.maps.arcgis.com>

Data Reuse Resources

National EPA Data Services

Internet Services
EPA Facility Data
ER Quads
Ecoregions
Waters Services
<http://geodata.epa.gov/arcgis/rest/services/>

Intranet Services
SSURGO, STATSGO
Dun & Bradstreet
Fed. Boundaries

Data Discovery Services

EPA Environmental Dataset Gateway (EDG)
Metadata
Links to data sets and services
Links to external resources

<http://edg.epa.gov>
<http://edg.epa.gov/EME>

Deploy your data as services for access by your customers.

Save resources by using a shared environment with ArcGIS Server, ArcSDE and data storage.

Use the sandbox servers for testing purposes. [> More Info](#)

Allow customers to select your data for their area(s) of interest, choose an output format, and download to their local machines. [> More Info](#)

Utilize data transform & aggregation services to flow data from one source to another. [> More Info](#)

Utilize free storage space to place your data files (shp, gdb, kml, csv) for easy access by your customers.

You manage the data at the servers through ftp. You control access to anonymous or logged in users. [> More Info](#)

Make use of free, online mapping tools to create web-based maps, reports, or simple applications.

Load services or local files and configure the display.

Share simple, web-based maps with your clients. [> More Info](#)

Utilize pre-existing data services in your apps or maps.

Contribute your data to national data services.

Save time & resources by using pre-existing data services if they meet your requirements [> More Info](#)

Contribute metadata to allow customers to find your data through search or browse.

Link to your metadata from services, apps, and websites.

Document once, use in many locations [> More Info](#)

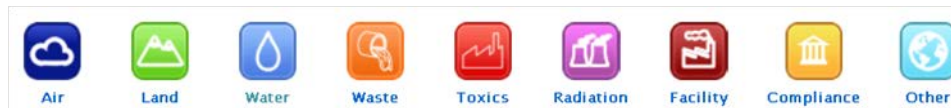


FRS and Envirofacts

Envirofacts allows you to search multiple environmental databases for facility information, including toxic chemical releases, water discharge permit compliance, hazardous waste handling processes, Superfund status, and air emission estimates.



Envirofacts communicates facility locations and delivers facility information to interested users



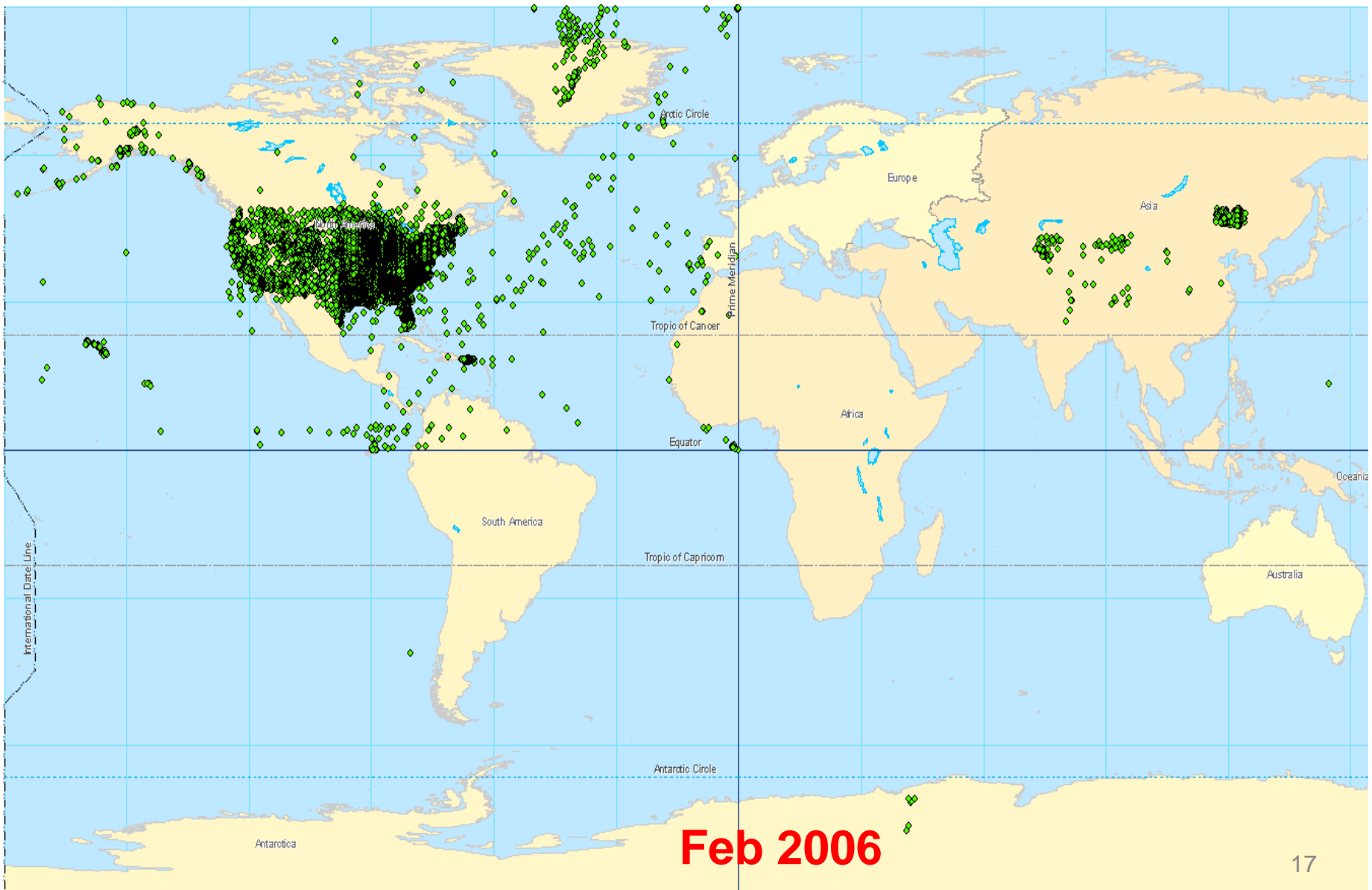


FRS and Envirofacts

The Agency Repository of Places of Environmental Interest

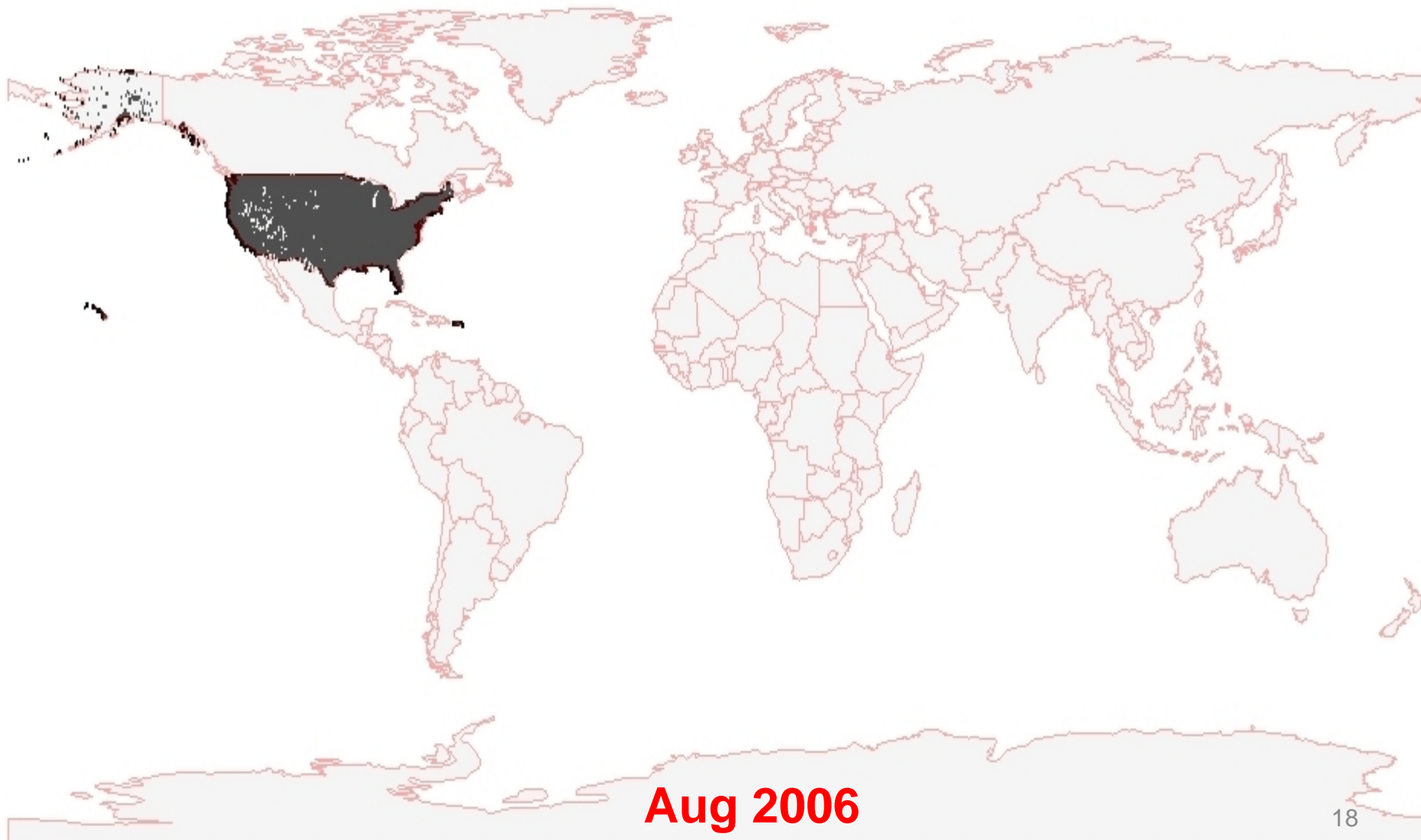
- Creates a single, integrated set of facility identification information
 - Environmental Interests
 - Locational Coordinates
 - Affiliation
- Provides links to EPA's media information systems
- Conforms to the Data Standard
- Verifies the quality of data, including the linkages to EPA and State systems

FRS and Envirofacts





FRS and Envirofacts





Environmental Data Gateway (EDG)

- Satisfying the Need for GIS Data
 - Data User Needs
 - Easily find and access data
 - Understanding what the data are all about
 - Finding data that contains the right content
 - Finding data in a useful format
 - Data Provider Needs
 - Easy metadata management
 - Making data accessible to others
 - Providing documentation with data
 - Understanding who is using my data.....





Environmental Data Gateway (EDG)

The image shows a composite of the EPA Environmental Dataset Gateway (EDG) website and its interactive map interface. The website header includes the EPA logo, the title "Environmental Dataset Gateway (EDG)", and the tagline "Connecting EPA's Environmental Resources". Navigation tabs for HOME, ABOUT, SEARCH, BROWSE, DATA, and REUSE are visible. The main content area features a "Home" section with a welcome message, a "New!" announcement about the EPA Metadata Editor, and a "Contact the EDG Team" link. Below this are sections for "Access EPA's Geospatial Data" with a search bar and "Do More with the EDG" with a link to the "EDG Download Site". A footer contains "EPA Web Links" and "Widgets/Podcasts".

The map interface, titled "EPA Clip N Ship", shows a map of the Northeastern United States with numerous data points. A pop-up window for "R1 Regulated Facilities: ARS-AFS" provides detailed information about the facility, including its location, monitoring stations, and data quality assurance information. The interface also includes a "Select Area" dropdown, a "Select Data" list with checkboxes for various facility types, and options for "Select Vector Format" and "Select Raster Format".

(<http://edg.epa.gov>)



Resource Center Show: Web Content Only Help Sign In

HOME GALLERY MAP GROUPS MY CONTENT Find maps, applications and more...

Welcome to the **Geospatial Platform**

The Geospatial Platform provides shared and trusted geospatial data, services, and applications for use by government agencies, their partners and the public

Featured Map:

NOAA Seamless Raster Nautical ...

Featured Maps Explore featured maps and apps from all levels of government.

Collaborate in Groups Work in public and private groups with others who share your interests and ideas.

Build Your Own Map Create a map you can view anywhere on any device and share with anyone.

DATA.GOV

HOME CATALOGS STATE/LOCAL FAQ SUGGEST DATAS

DISCOVER. PARTICIPATE. ENGAGE.

Search the following Data.gov catalogs:

CSV KML SHP "RAW" DATA CATALOG TOOL CATALOG GEODATA CATALOG

NATIONAL WATER QUALITY MONITORING COUNCIL

Working Together for Clean Water

RECOVERY.GOV TRACK THE MONEY

REPORT ERRORS, REPORT A BONUS

RECIPIENT REPORTED AWARDS MAP

Search Recipients by State: [Dropdown] Search Recipients: [Input] Search [Submit]

Total Recipients: 317
Total Reported Recipient Value: \$1,071,044,919

Zip	# of Recipients	Total Reported Recipient Value
0	1	\$1,071,044,919
112	1	\$1,071,044,919
122	1	\$1,071,044,919
132	1	\$1,071,044,919
142	1	\$1,071,044,919
152	1	\$1,071,044,919
162	1	\$1,071,044,919
172	1	\$1,071,044,919
182	1	\$1,071,044,919
192	1	\$1,071,044,919
202	1	\$1,071,044,919
212	1	\$1,071,044,919
222	1	\$1,071,044,919
232	1	\$1,071,044,919
242	1	\$1,071,044,919
252	1	\$1,071,044,919
262	1	\$1,071,044,919
272	1	\$1,071,044,919
282	1	\$1,071,044,919
292	1	\$1,071,044,919
302	1	\$1,071,044,919
312	1	\$1,071,044,919
322	1	\$1,071,044,919
332	1	\$1,071,044,919
342	1	\$1,071,044,919
352	1	\$1,071,044,919
362	1	\$1,071,044,919
372	1	\$1,071,044,919
382	1	\$1,071,044,919
392	1	\$1,071,044,919
402	1	\$1,071,044,919
412	1	\$1,071,044,919
422	1	\$1,071,044,919
432	1	\$1,071,044,919
442	1	\$1,071,044,919
452	1	\$1,071,044,919
462	1	\$1,071,044,919
472	1	\$1,071,044,919
482	1	\$1,071,044,919
492	1	\$1,071,044,919
502	1	\$1,071,044,919

About AIRnow | AIRnow Partners | FAQs | Contact Us

Search: [Input] Go

LOCAL AIR QUALITY CONDITIONS AND FORECASTS

Zip Code: [Input] Go State: Alabama [Dropdown] Go

U.S. Air Quality Summary (text)

Click on a state for more information

Forecast Current AQI AQI Animation Current Ozone Current PM_{2.5}

Today's AQI Forecast
Thursday, September 29, 2011

Legend: Good Moderate Unhealthy USG Unhealthy Very Unhealthy Hazardous Action Day

Highest 5: U.S. Air Quality Summary | Canada Air Quality

Announcements

9/27/11: New Resource for Teachers - Air Quality Workshop for Teachers - A Toolkit for Facilitators

[How to Protect Your Family from the Health Effects of Smoke](#)

Headlines

E-Mail Notification

EnviroFlash provides air quality information such as forecasts and action day notifications via email for your area of interest. [Sign-Up](#)

Follow us on Twitter

[AQI in Google Earth](#)

[AirCompare](#)

[Publications | Publicaciones \(en español\)](#)

[Air Quality Maps: Monitoring Locations and Archives](#)

[BP Spill Information](#)

AIR QUALITY BASICS

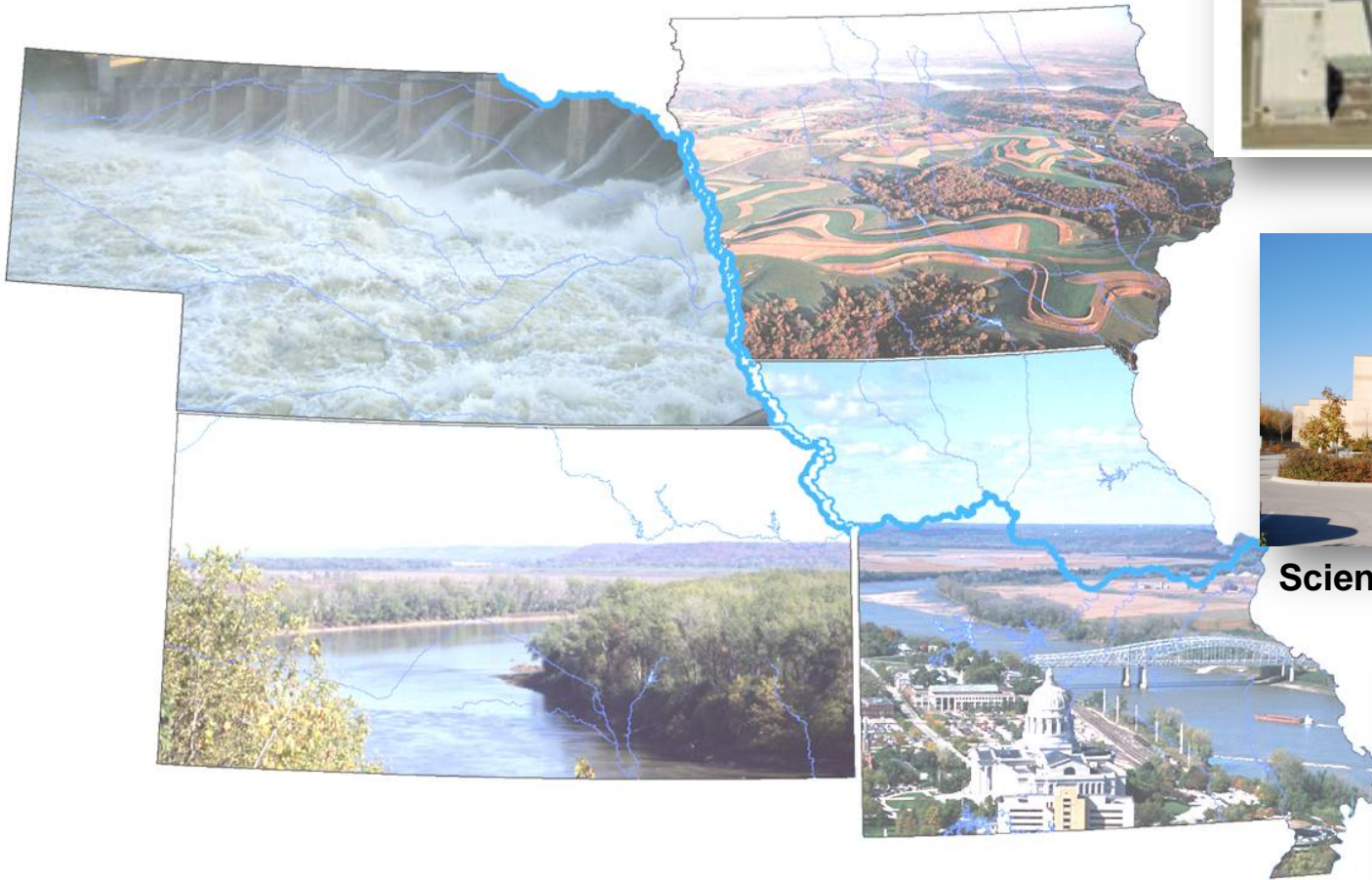
[Air Quality Index](#) | [Ozone](#) | [Particle Pollution](#) | [UV](#) | [Smoke from Fires](#) | [What You Can Do](#)

HEALTH

[Your Health](#) | [Health Protection](#) | [Wildfire Smoke](#)



What we do regionally



Region 7 Offices



Science & Technology Center



**Training & Logistics
Aka the "Cave"**



What we do regionally



Chem-Central Fire, Kansas City, Mo



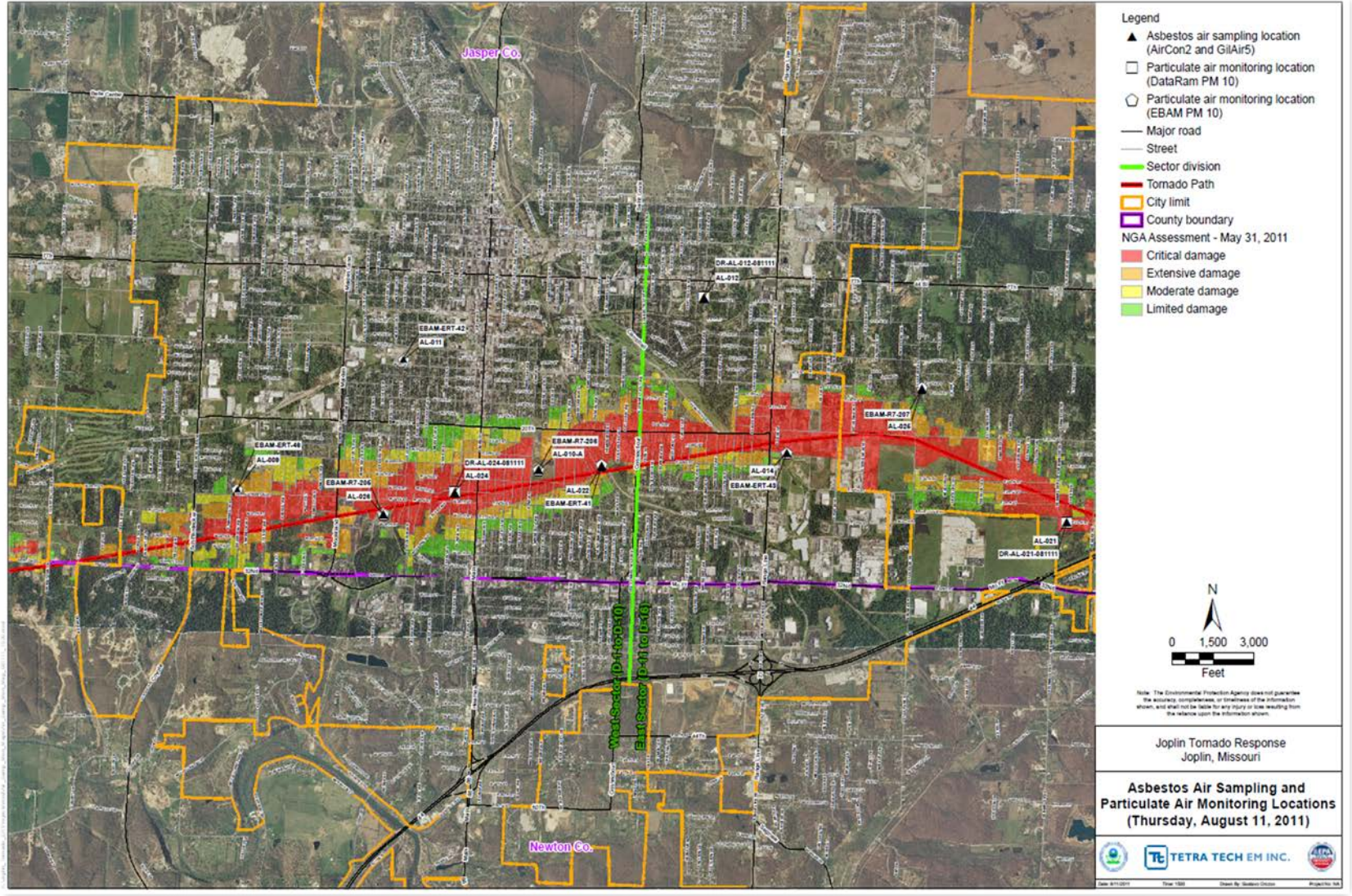
Flooding, Coffeyville, KS



Tornado, Joplin, MO

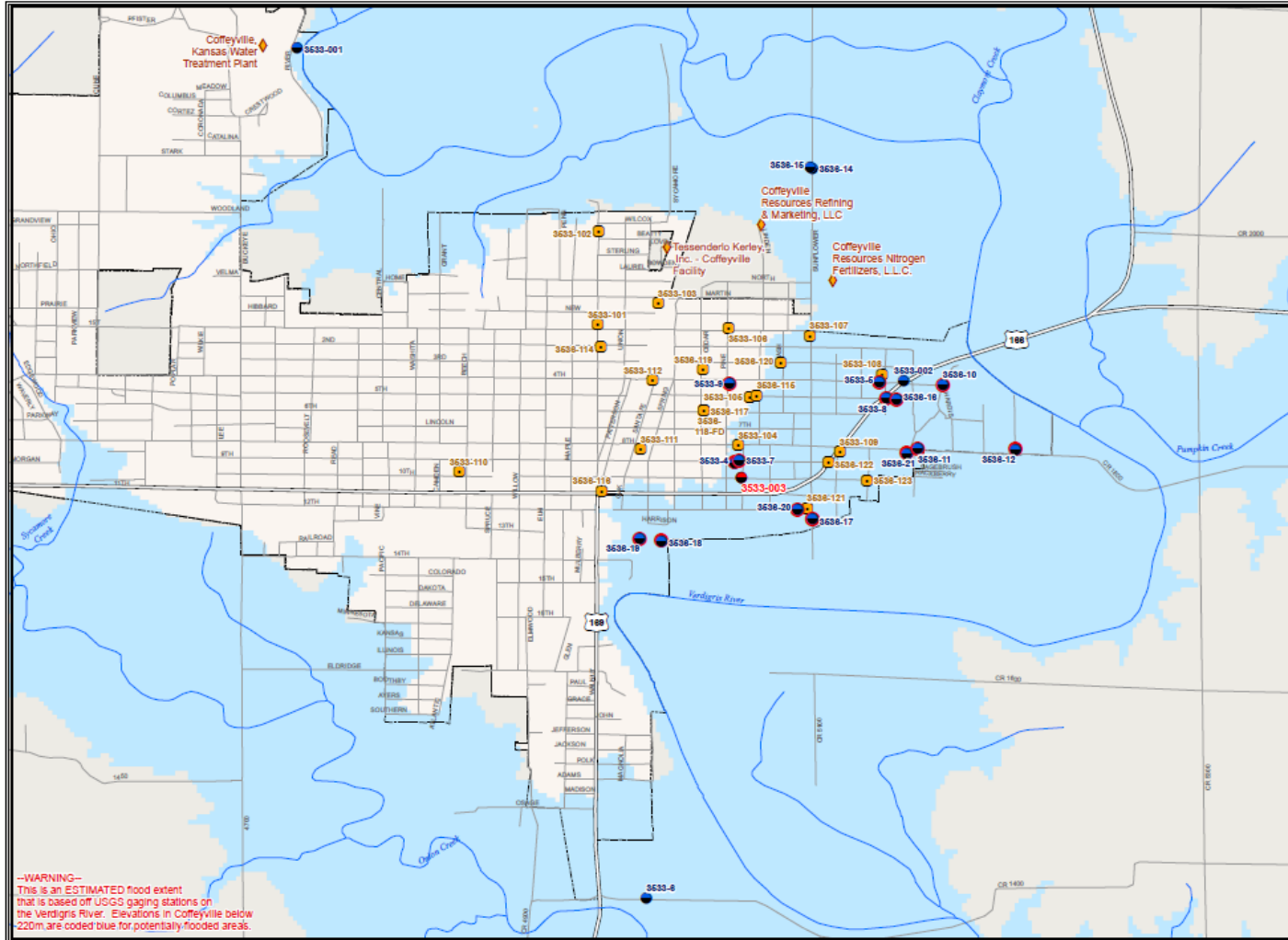


What we do regionally





What we do regionally



Coffeyville, KS

Sampling Locations

Sample Dates: 7/1 - 7/9/2007

Sampling Locations

- Air (Summa Canisters)
- Water (Flood)
- Exceeds Public Health Standards for bis(2-Ethylhexyl) phthalate
- Exceeds Public Health Standards for Fecal Coliform
- ◆ RMP (Risk Mgmt Plan)
- ~ Streams
- Major Road
- Interstate
- U.S. Highway
- State Highway
- Streets
- Est. Flood Extent 7/3/07

0 0.25 0.5 Miles

EPA does not warrant the accuracy, completeness, or timeliness of the information shown. The information herein is subject to revision and is not in final form. EPA shall not be liable for any detrimental reliance upon the information shown.

This map has not been submitted to the EPA peer review process



July 10, 2007 14:00



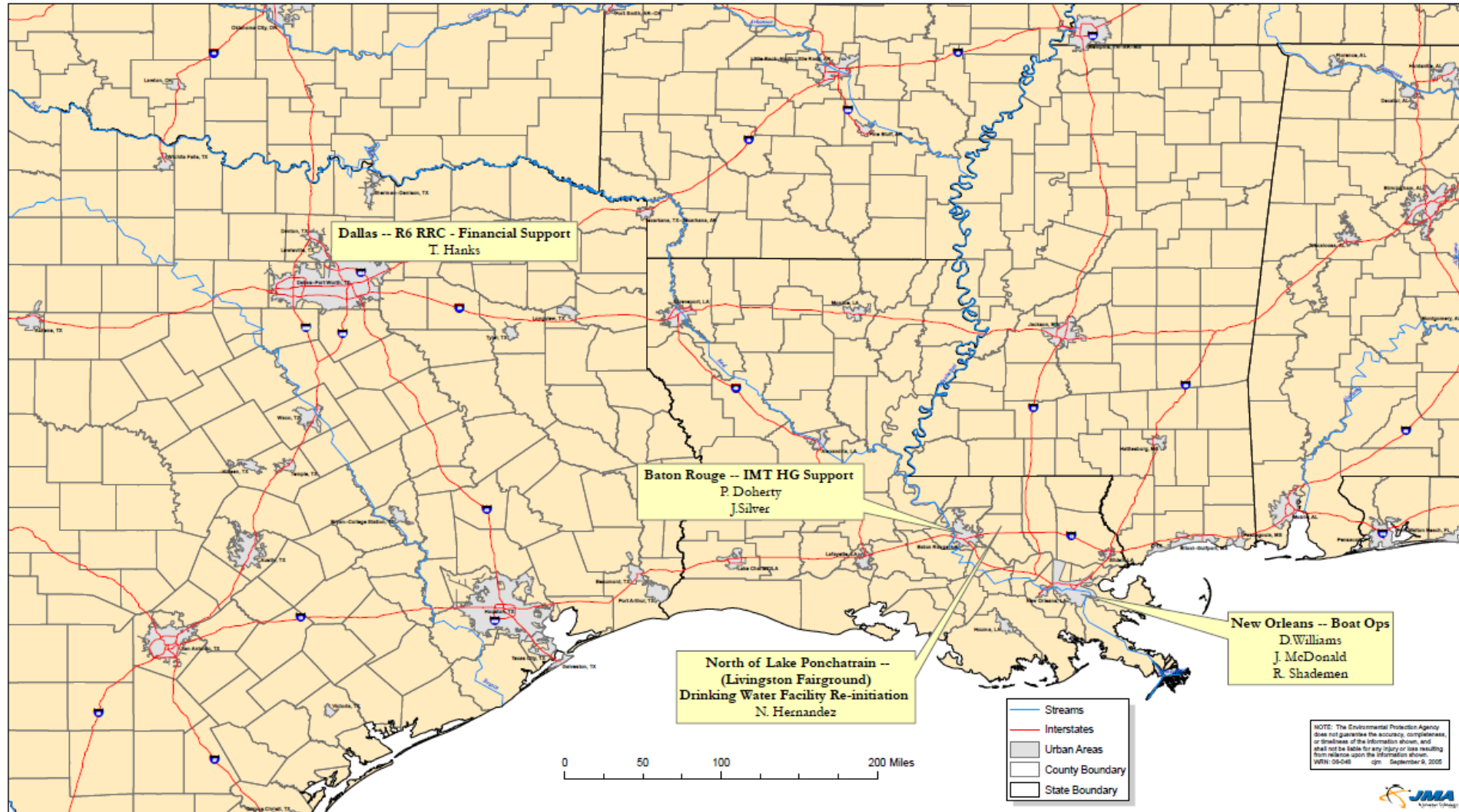
SampleLoc_Coffeyville_gm_071007_1400



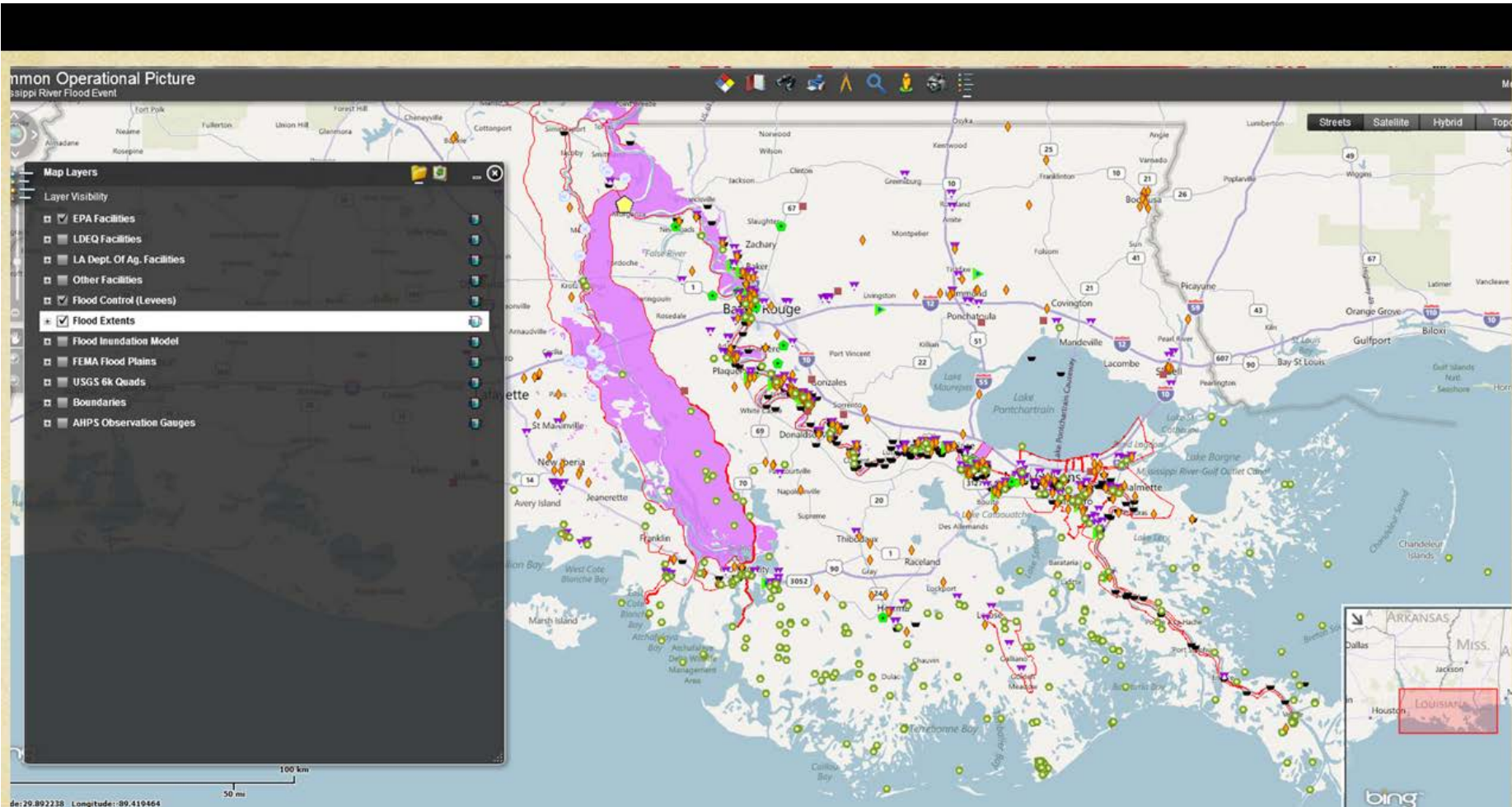
What we do regionally



EPA Region 7 Staff Deployed in Response to Hurricane Katrina September 9, 2005

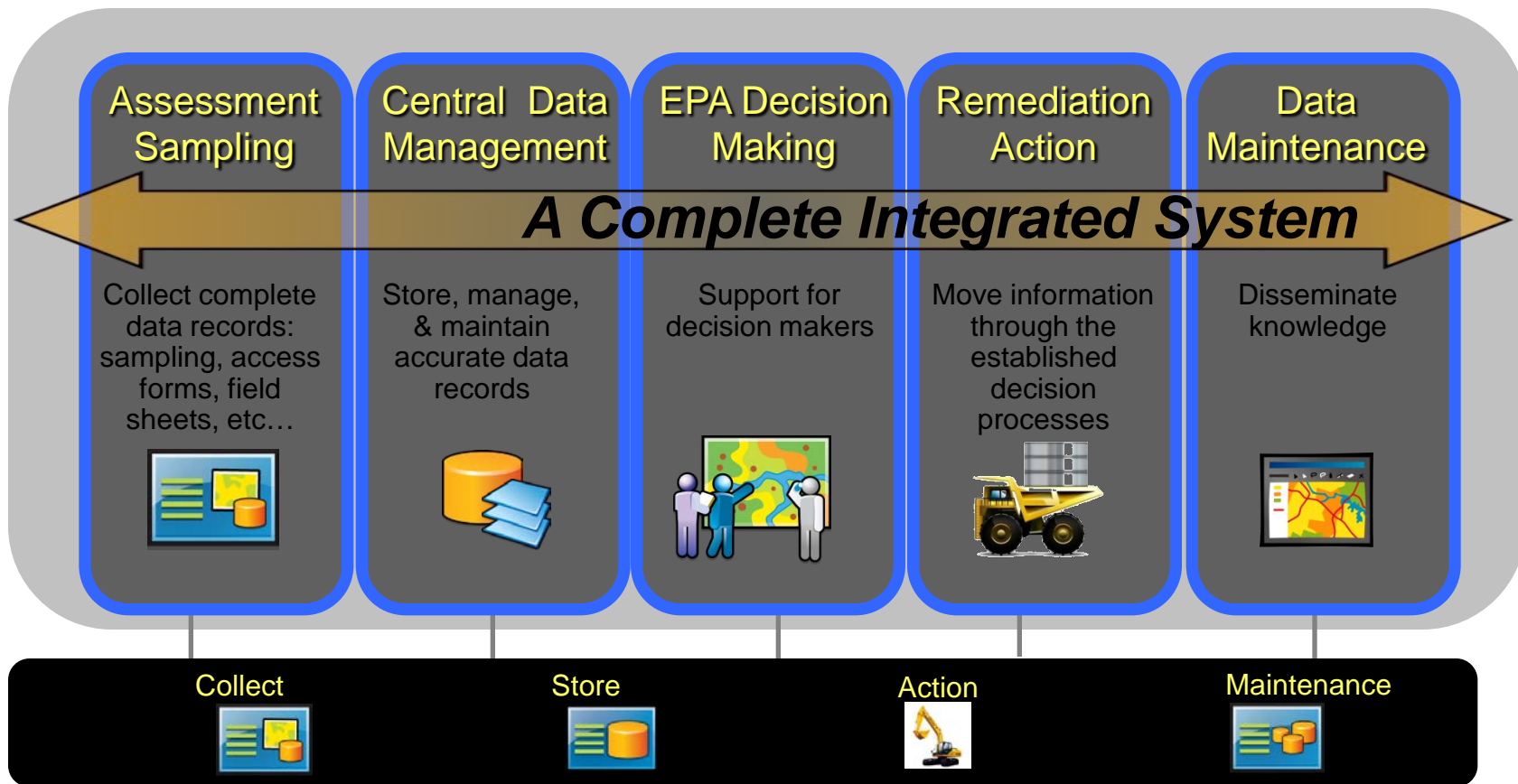


What we do regionally





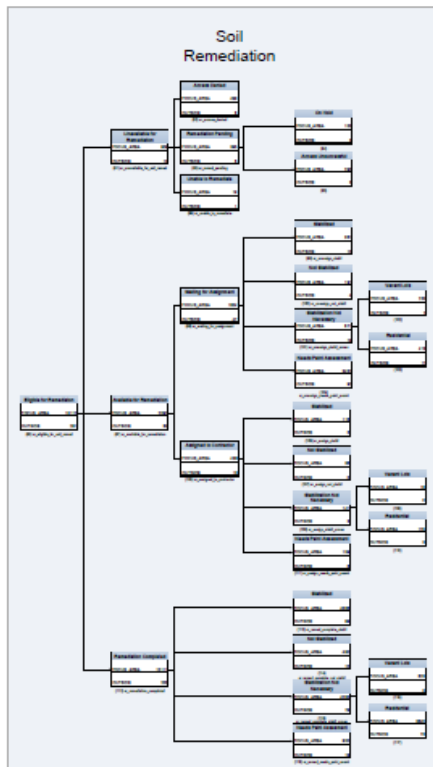
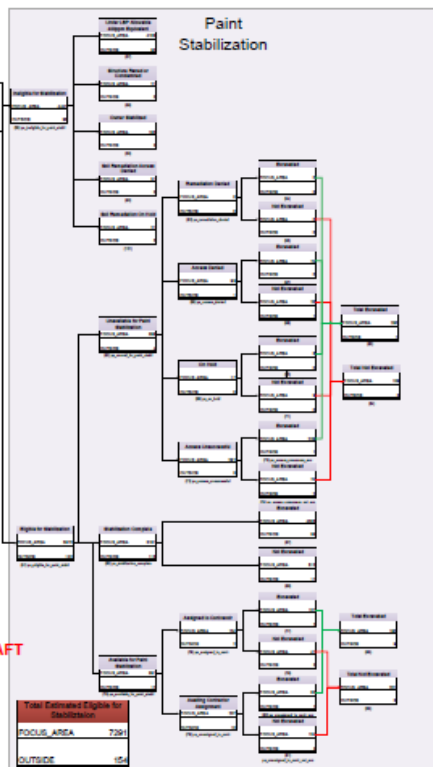
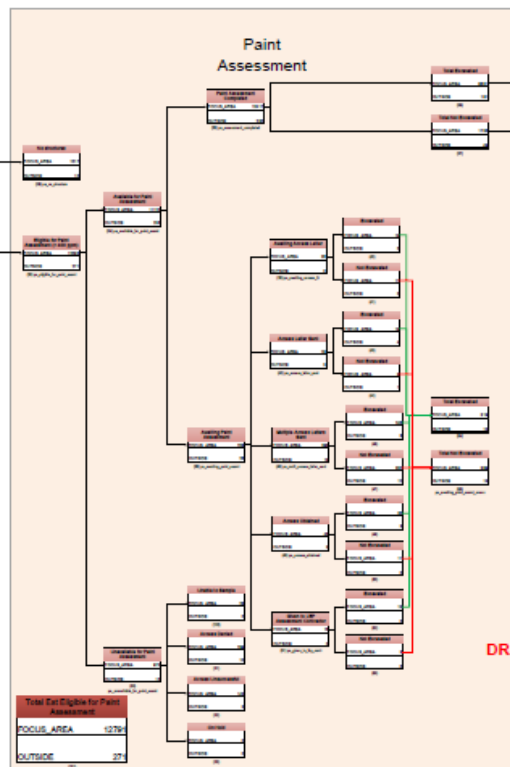
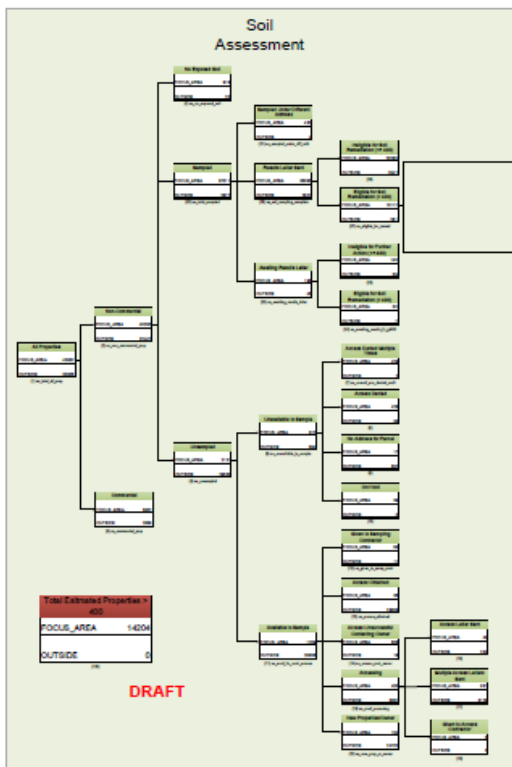
What we do regionally



“Using **all the tools** at our disposal, including enforcement and compliance efforts, we will continue to focus on making safer, healthier communities.”

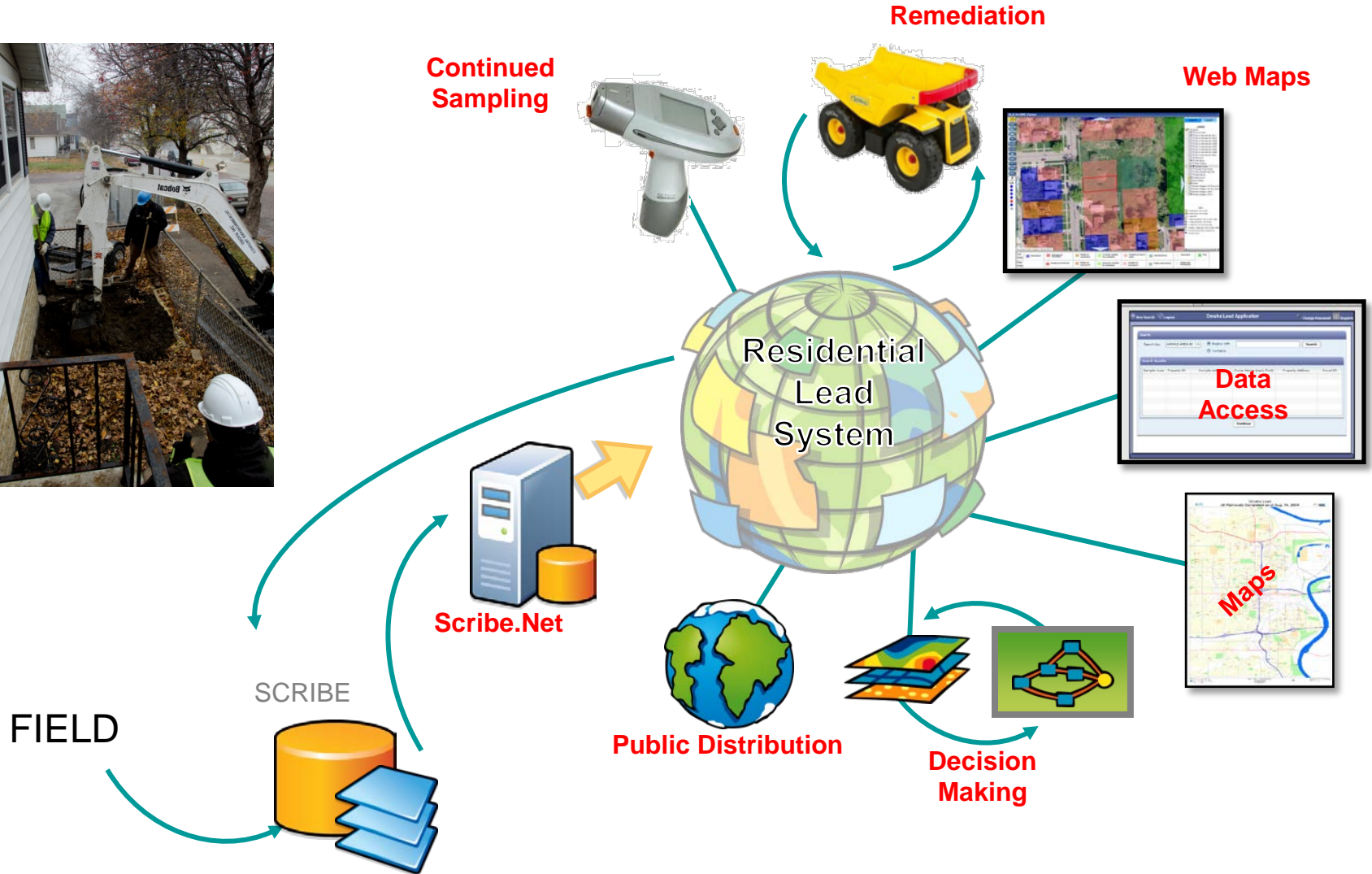


Lead Remediation Process Support





What we do regionally





What we do regionally

Region 7: Omaha Lead
Spatial Data Viewer

Enhanced Search

Bing Streets Bing Aerial Bing Hybrid Streets Dg. Co. 2007 Dg. Co. 2010 2010 Local

Zoom Clear

"WE'VE ALL IMPRESSED WITH THE WORK YOU'VE DONE WITH CUSTOMER DATA, PALE, BUT WE'D LIKE SOMETHING A LITTLE MORE STATE-OF-THE-ART."

Data Layers and Legend

Layer Visibility

- OLS Sample Areas
- Douglas County Parcels
- Soil Status
- Paint Status
- NAVTEQ Transportation

67753 67752 67751 67750 67749 67748 67747 67746 67745 67744 67743 67742 67741 67740 67739 67738 67737 67736 67735 67734 67733 67732 67731 67730 67729 67728 67727 67726 67725 67724 67723 67722 67721 67720 67719 67718 67717 67716 67715 67714 67713 67712 67711 67710 67709 67708 67707 67706 67705 67704 67703 67702 67701 67700 66699 66698 66697 66696 66695 66694 66693 66692 66691 66690 66689 66688 66687 66686 66685 66684 66683 66682 66681 66680

100 ft
Latitude: 41.257932 Longitude: -95.998370

POWERED BY esri



What we do regionally

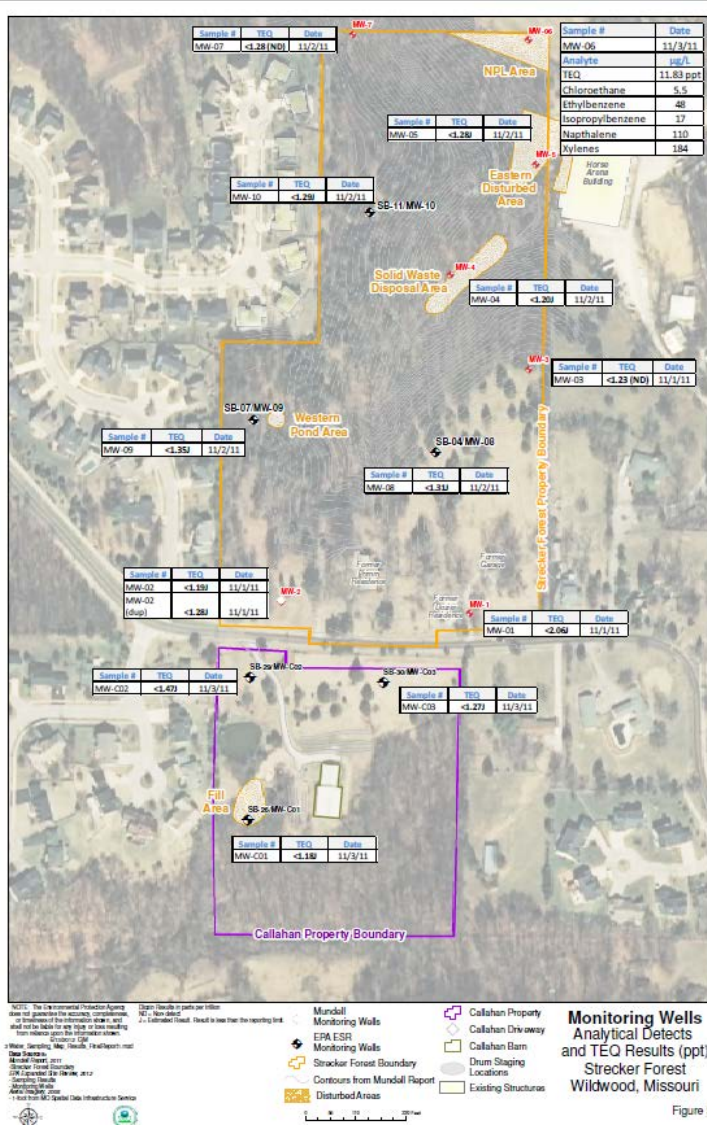


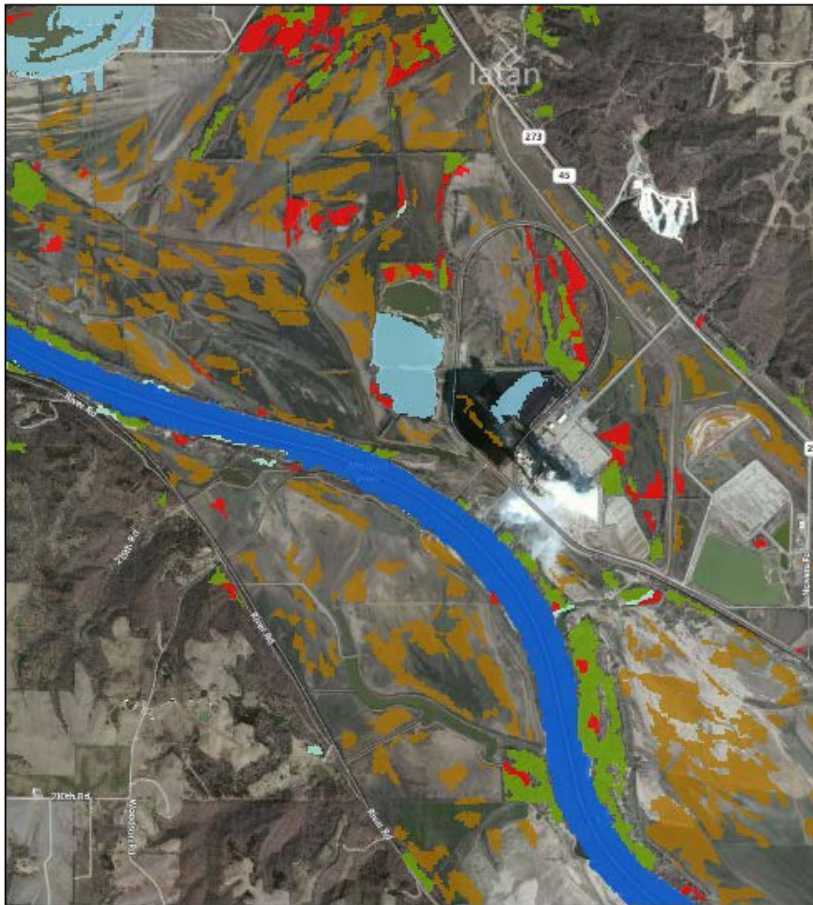
Figure 3



Figure 5



What we do regionally



Legend

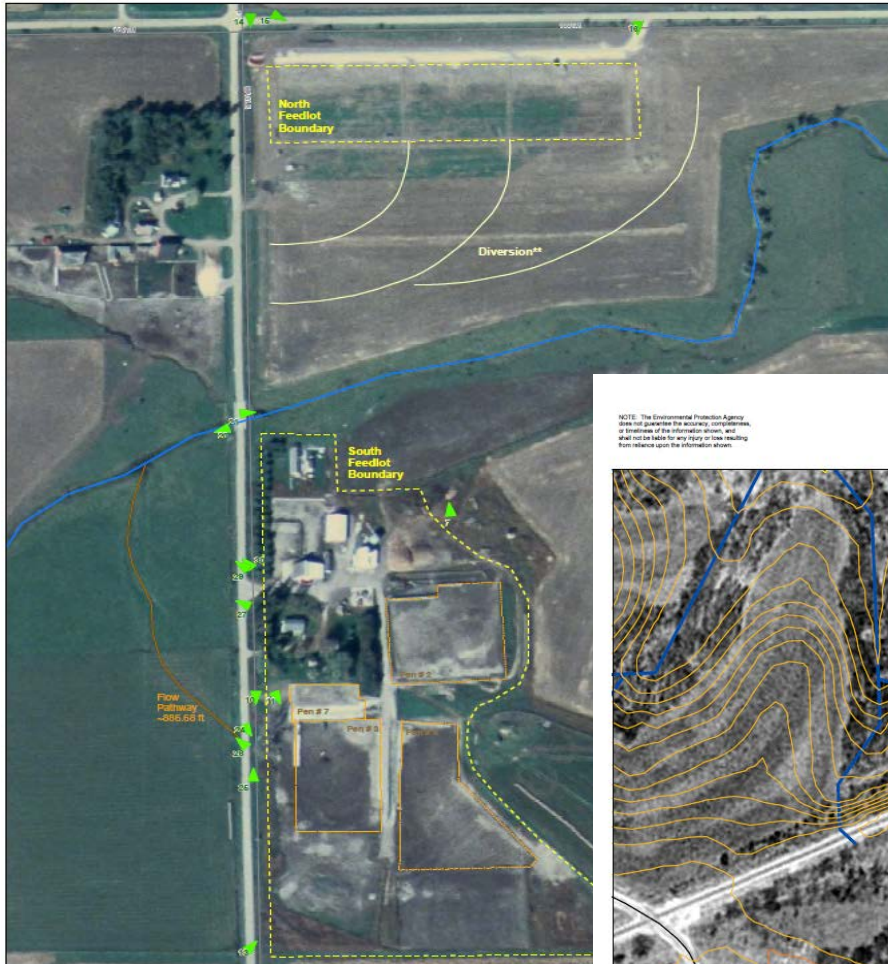
MoRAP Wetland Classification class

	LUBH		PEMJ		PFOJ		PSSJ		PUBJ
	LUB		PEM		PFO		PSS		PUB
	LUBA		PEMA		PFOA		PSSA		PUBA
	LUBF		PEMF		PFOF		PSSF		PUBF
	LUBG		PEMG		PFOG		PSSG		PUBG
			PEMH		PFOH		PSSH		PUBH
									RUB
									RUBH





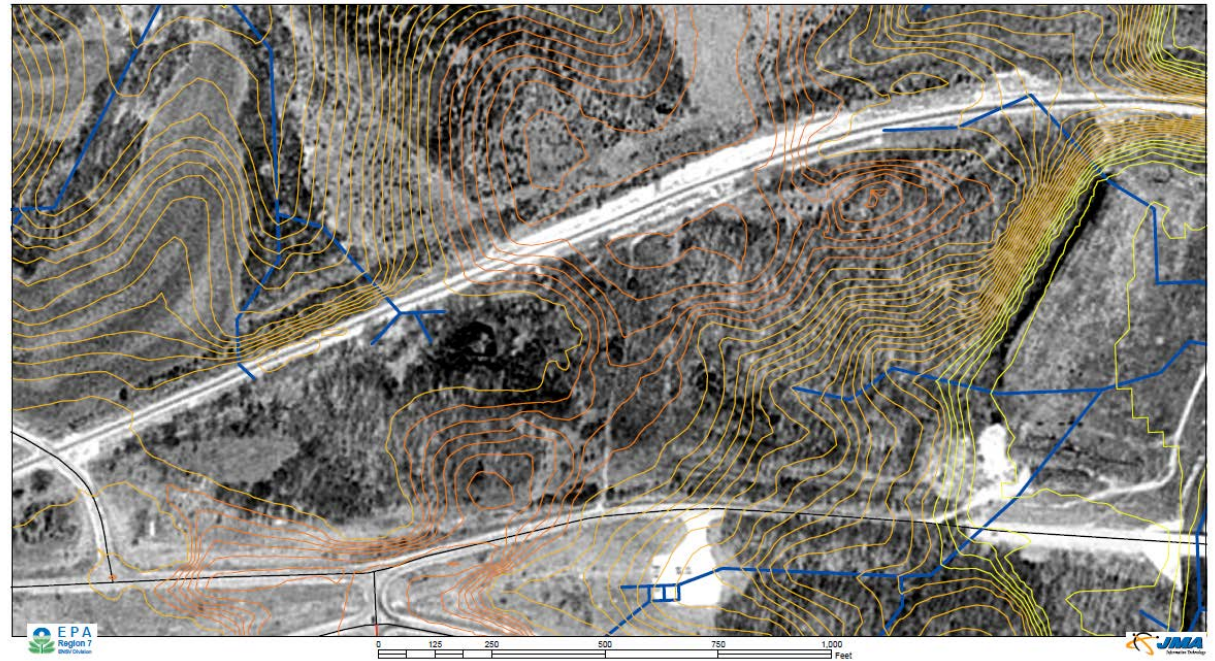
What we do regionally



NOTE: The Environmental Protection Agency does not warrant the accuracy, completeness, or timeliness of the information shown, and shall not be liable for any injury or loss resulting from reliance upon the information shown.

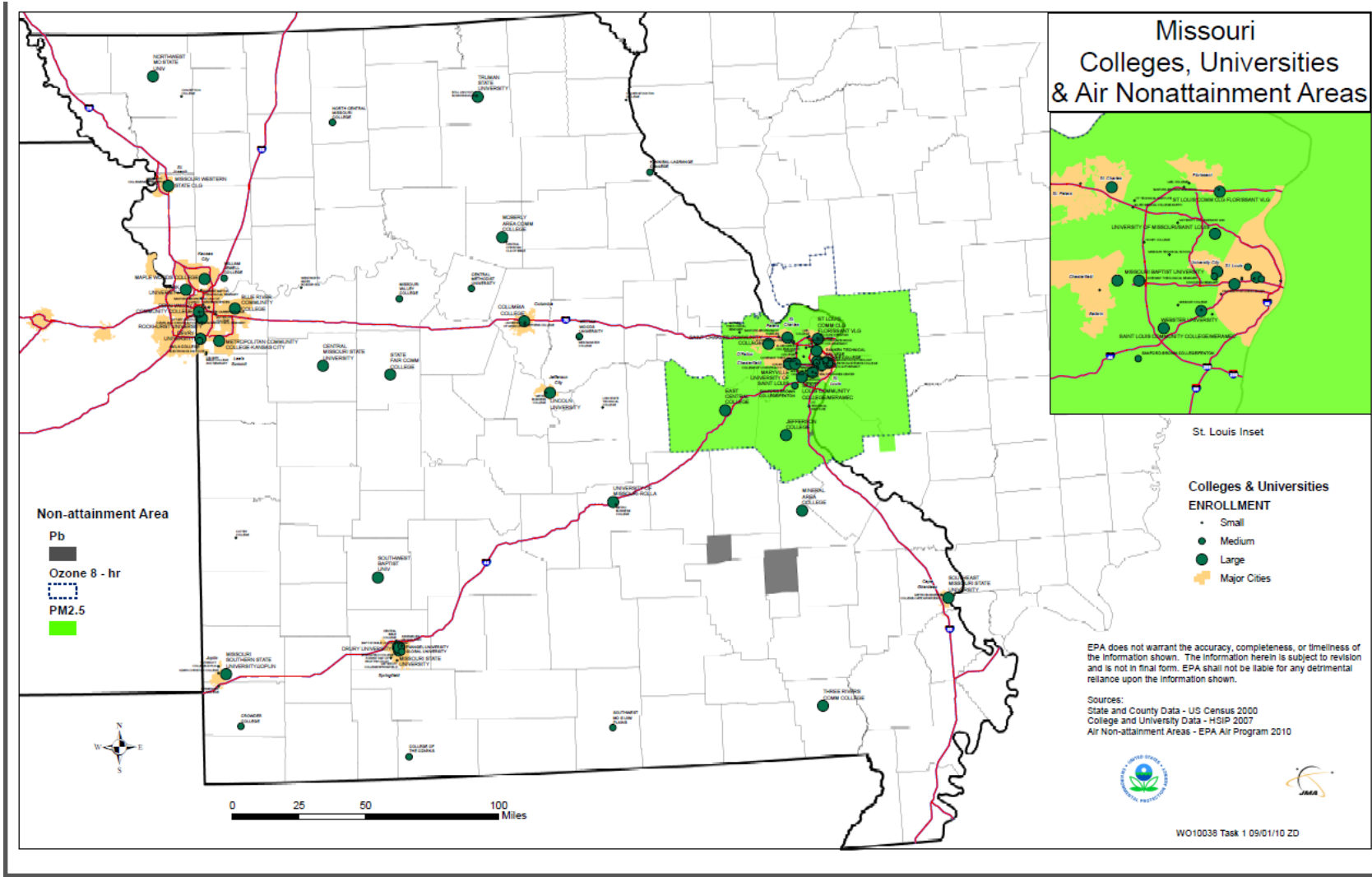
Elevation Contours

DRAFT - Do not cite, copy, or distribute!

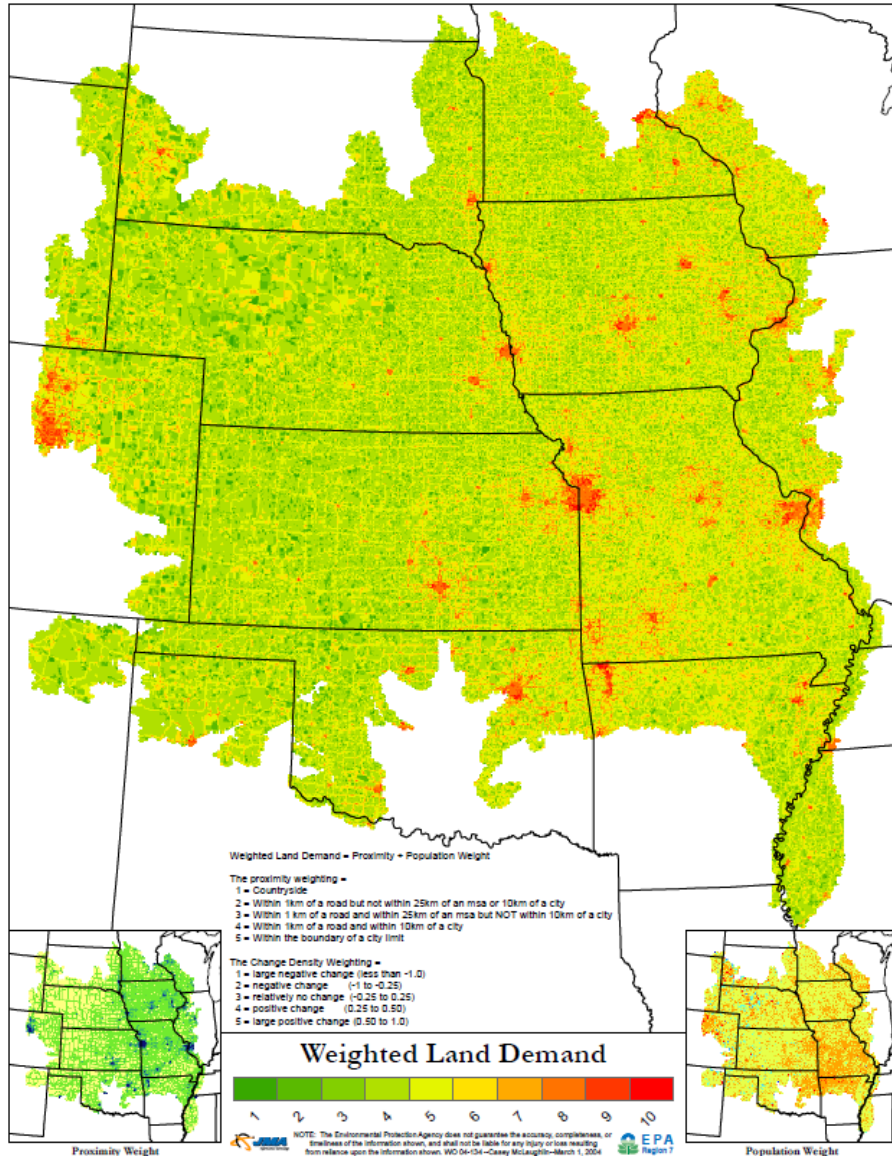




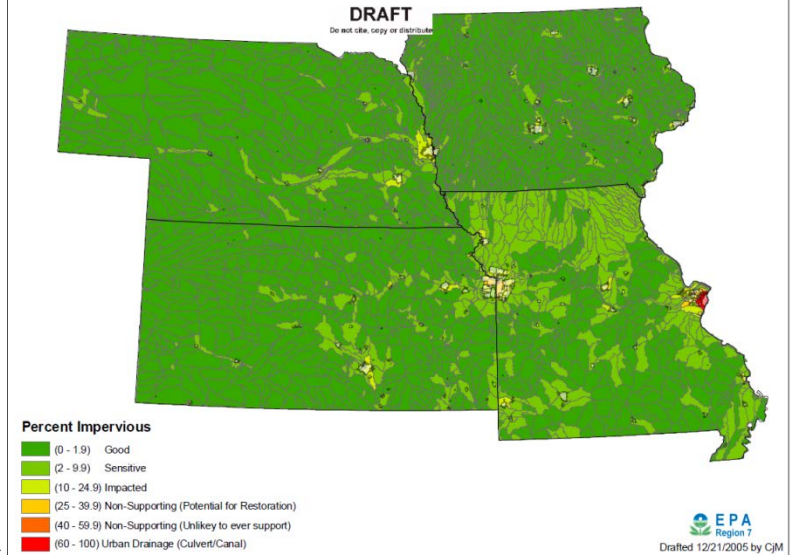
What we do regionally



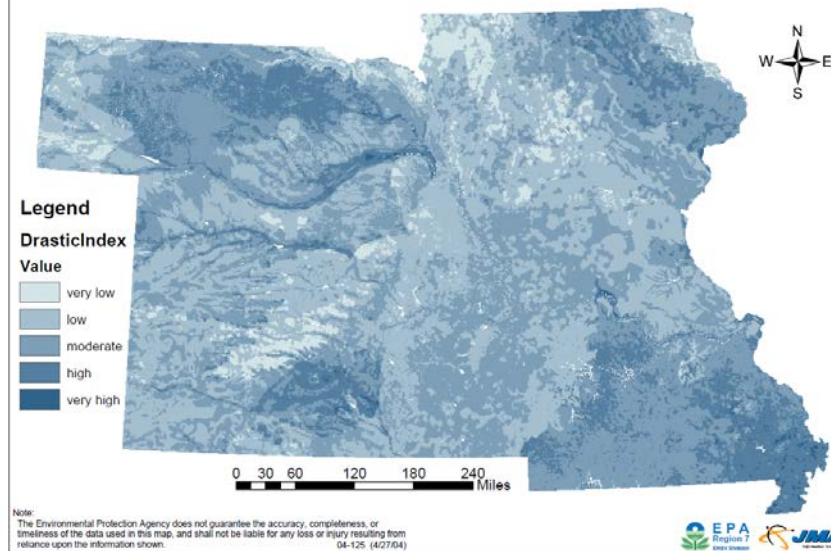
What we do regionally



Region 7 Impervious Surface Analysis

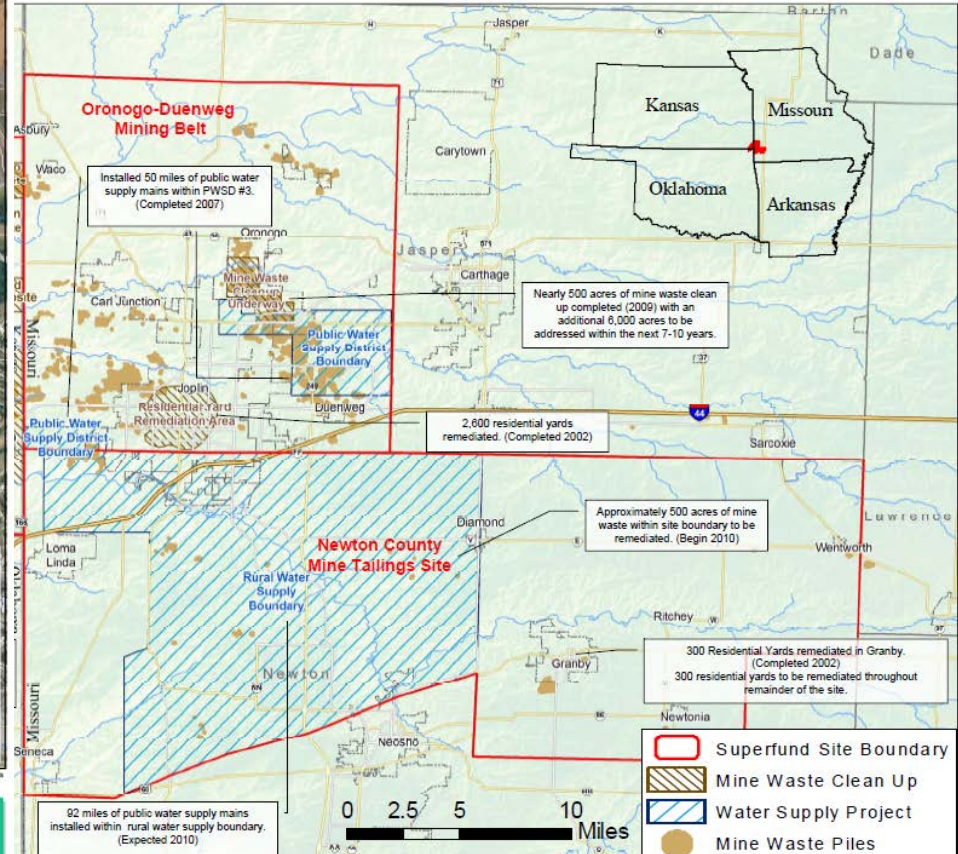
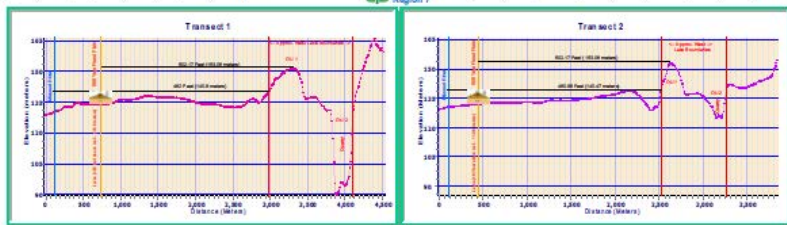
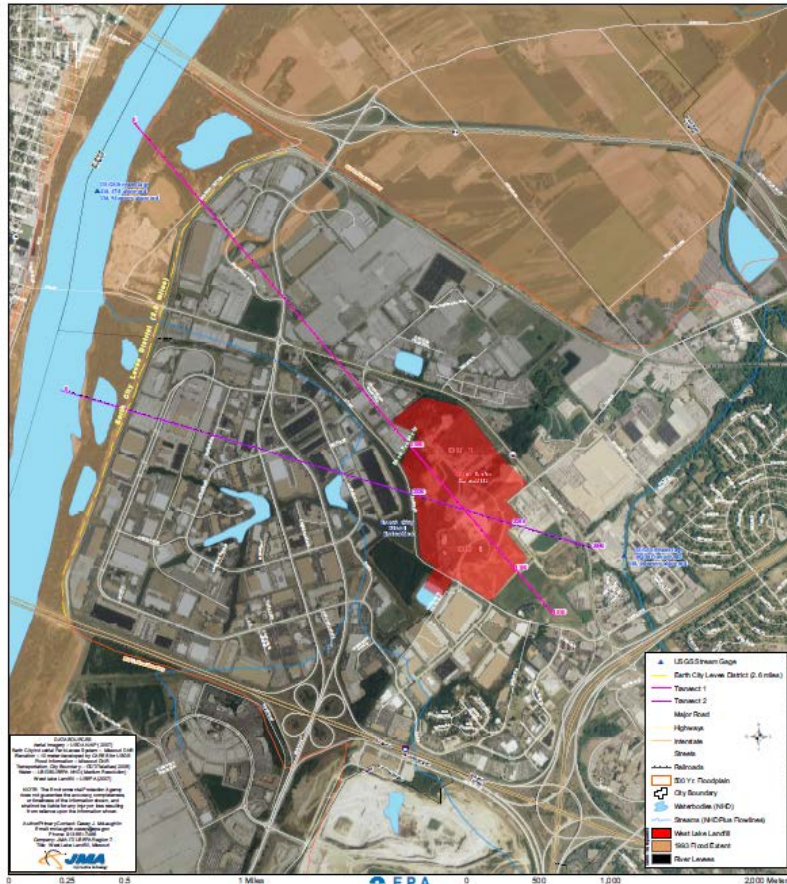


EPA Region 7 Drastic Index





What we do regionally





What we do regionally

Wings 1.1 & 1.A

Region 7 Lenexa Locator

Neogeo

Welcome to Version 1.01 of the new people locator application!

- People updated (10/26/2012)
- Conference rooms now have phone numbers!

Report issues to:
mclaughlin.casey@epa.gov

Floor 1

Floor 2

People Search

Begin typing an employees name, or a workspace number

Regional Water Quality Data and Communication



What we do regionally

The screenshot shows the KCwaters.org website interface. At the top, there is a navigation bar with links for "Urban Monitoring Network", "Metro Area Map", "Partners", "Events & News", and "Contact". A search bar is also present. The main content area features a map of the Kansas City region with various monitoring stations marked by blue pins. A popup window is open over the "Turkey Creek 1" station, displaying the following information:

- River: [Turkey Creek](#)
- Station: Turkey Creek 1
- Source: Urban Monitoring Network
- [Biological](#)
- [Sediment](#)
- [Water](#)
- [Bacteria\(2010\)](#)

The popup also includes the KCwaters.org logo. To the right of the map is a legend with the following categories and icons:

- [KCUrban Stream Monitors](#)
- [STORET](#)
- [USGS Sites](#)
- [Volunteer Sites](#)
- [Government Partner Sites](#)
- [NHD Plus Flowlines](#)
- [Watershed Boundaries](#)
- [NHD Catchments](#)

Below the legend, there is a note: "**Google Maps restricts the number of features visible at any given zoom level." and a small photograph of a riverbank with trees and a person sitting on a bench.

At the bottom of the map, there is a Google search bar and a "Map data ©2012 Google - Terms of Use" link. The website URL "www.kcwaters.org/map.html" is visible in the browser's address bar.

Regional Water Quality Data and Communication



What we do regionally



Regional Water Quality Data and Communication



What we do regionally

New App Provides Water Quality Info for Streams Throughout Kansas City Metro Area

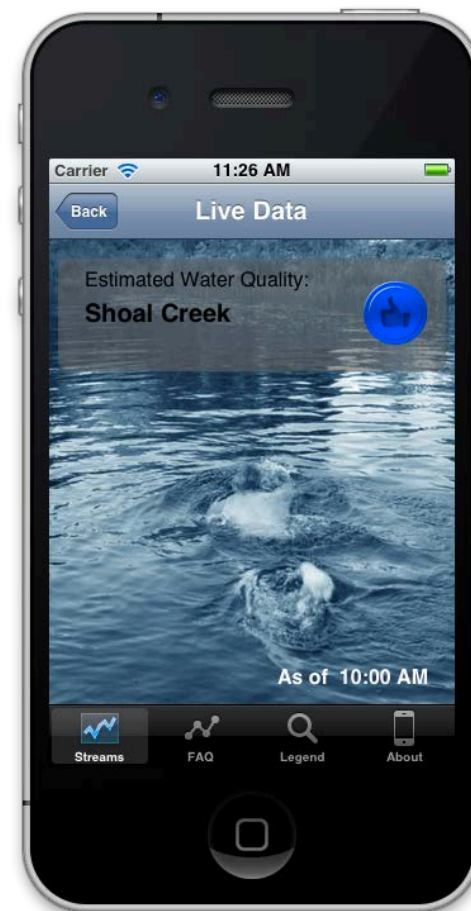
What do the Colors on the App Mean?

Appropriate for all forms of Recreation and Swimming	Appropriate for Wading and Splashing	Appropriate for Activities with Minimal Contact With Water	Contact with Water Not Advised

kcwaterbug

What's in your water?

www.kcwaters.org





What we do regionally

What do I typically do?

- Make sure stuff runs – web services, data, web, etc.
- Provide GIS guidance – answer questions!
- Program web interfaces – mostly data, some mapping
- Make Maps
- Communications
- Make/manipulate data – sort spreadsheets, look at imagery, geocode, etc
- Meta-Data and other data management



Geospatial Intelligence at the Environmental Protection Agency

Casey McLaughlin, GISP

Mclaughlin.casey@epa.gov

<http://blog.epa.gov/bigbluethread>