

Agency Divisions Working Together to Improve GIS at the DEQ

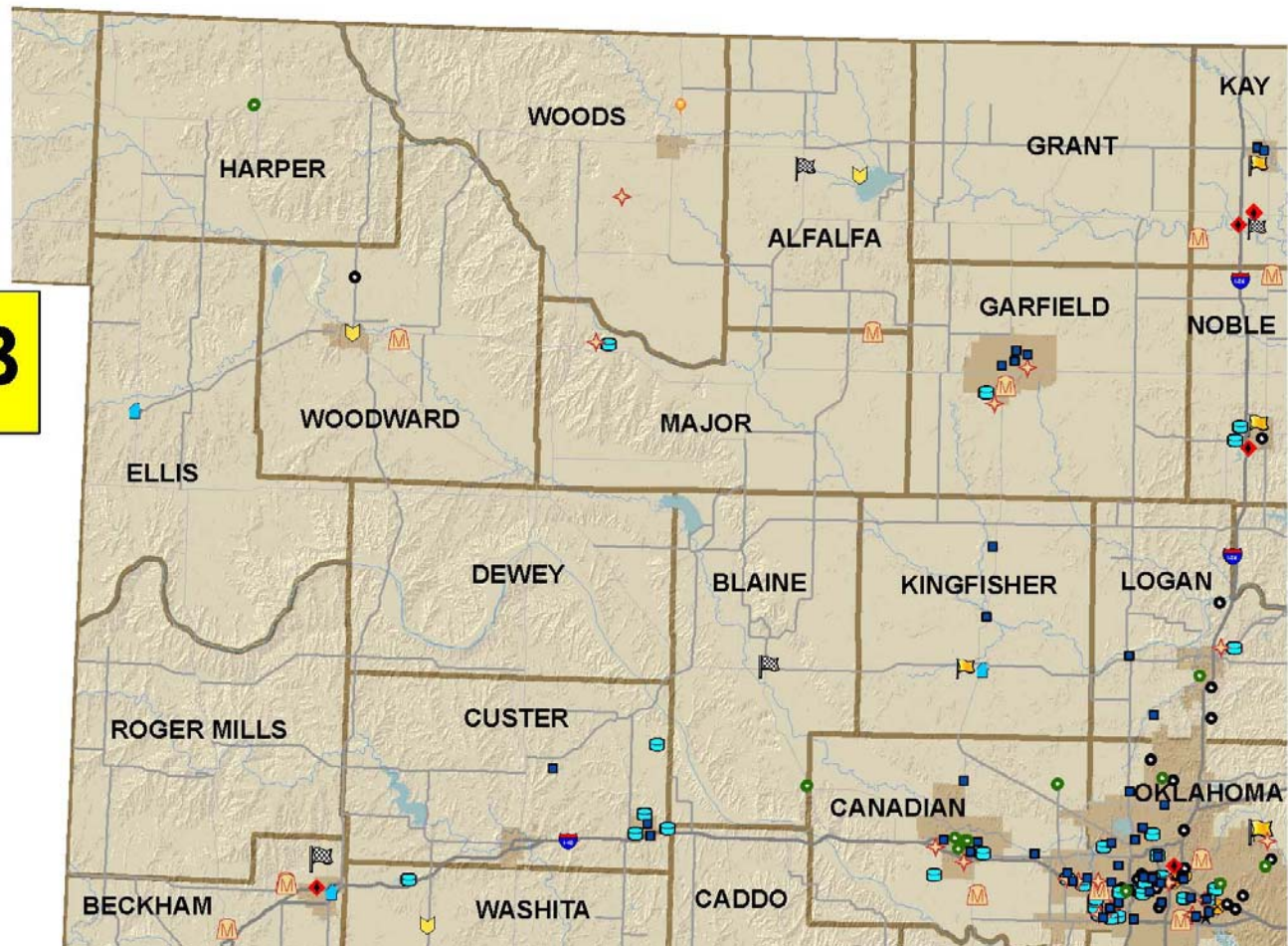
Oklahoma Department of
Environmental Quality



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DEQ GIS Subcommittee

Who are we...



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DEQ GIS Subcommittee

- Membership includes GIS representatives from each Division
- Hold monthly group meetings
- Working group meetings are also held at other times
- Holds yearly officer elections



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DEQ GIS Subcommittee Members

- Roy Walker – Chairman – IT Department
- Amy Brittain – Co-Chair – Land Protection
- Heather Mallory – Secretary – Land Protection
- Steve Webb – Data Keeper – Water Quality
- Toni Payne – Air Quality
- Mark Hildebrand – Water Quality
- Matt Pace – Environmental Complaints
- Matt Johnson – Environmental Complaints
- Pam Baldwin – Customer Services



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DEQ GIS Subcommittee



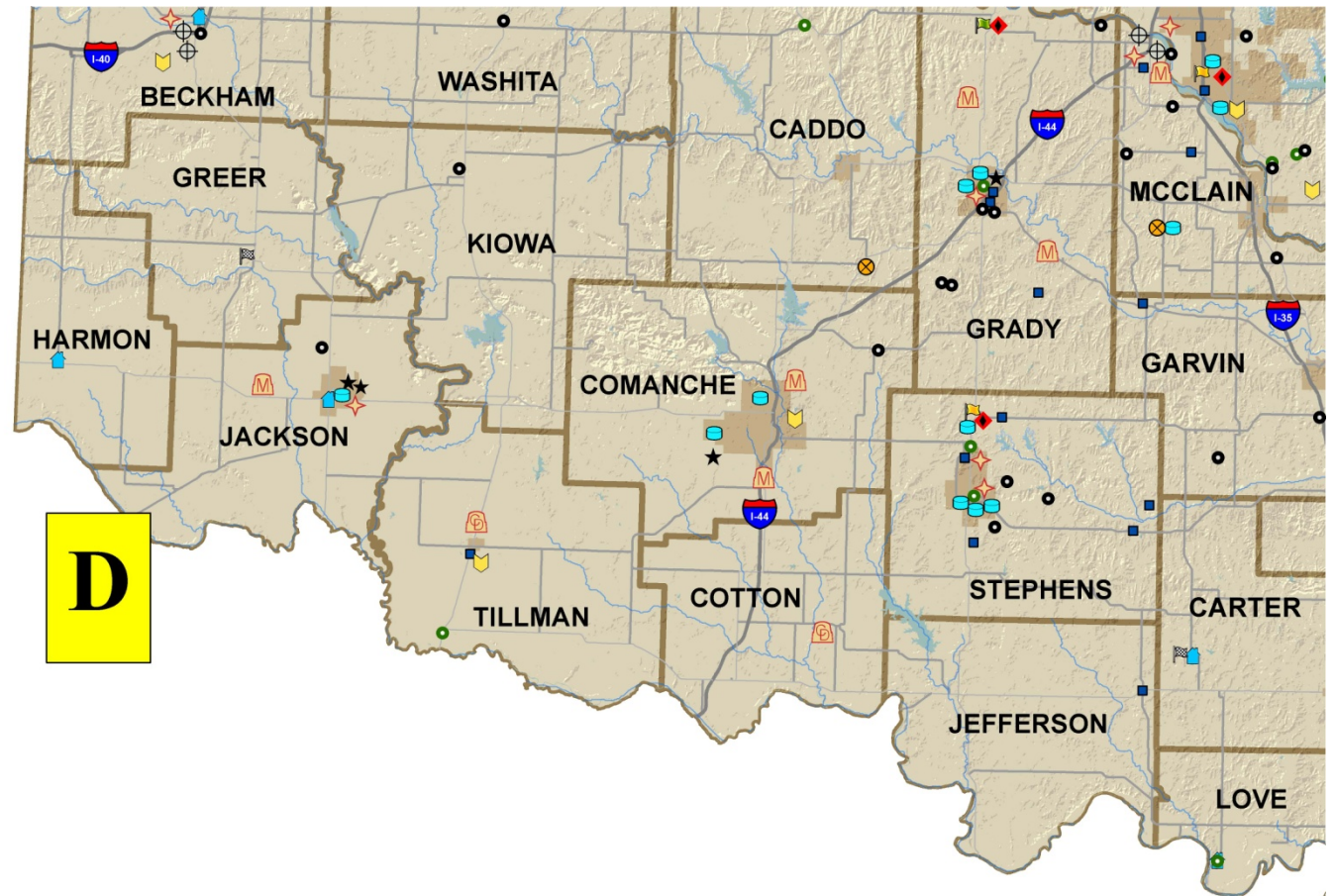
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What is the purpose of the DEQ GIS Subcommittee?

- Provide geospatial and GIS uniformity to the Agency
- Ensure Agency meets Federal and State requirements for geospatial data and GIS
- Establish and maintain GIS/GPS standard operating procedures (SOPs) for the Agency
- Provide annual updates to the existing statewide data layers for the Agency
- Provide educational resources and opportunities





New GIS Standard Operating Procedures

Why do we need them and what do they say...



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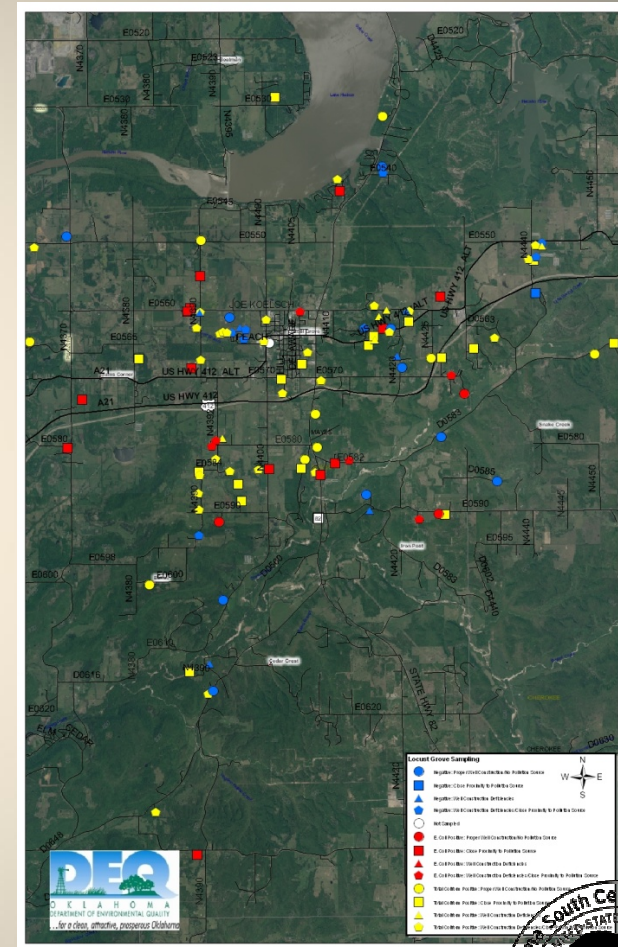
Case Study – Locust Grove

- In the News...
 - August 2008 - E. Coli Outbreak in Oklahoma Kills 1, Sickens 200
 - News outlets report that bacterial contamination has been found in the well water that is used at The Country Cottage restaurant in Locust Grove
 - OSDH identifies E. coli O111 bacteria as the cause of an outbreak of illness associated with restaurant
 - DEQ decided to test private drinking water wells within 5 miles of Locust Grove



Case Study – Locust Grove

- February 2009 – DEQ collects initial ground water well samples.
- GPS is collected at each well
- GPS data collection problems identified:
 - Field staff not adequately trained
 - Not all data was saved to the GPS receiver
 - It was determined that it would be hard to make an accurate map



Case Study – Locust Grove

- March 2009 – DEQ sent teams of GPS experts back to collect location data at all wells with suspect data



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Case Study – Locust Grove

- 113 wells tested for total coliform and E. coli bacteria
- 76 percent initially showed bacteriological contamination
- This is substantially higher than the rate that would be expected for sampling in rural areas
- Of the 27 wells that were disinfected by the well owners, 81 percent still tested positive after disinfection
- However E. coli O111, the bacteria identified as the cause of an outbreak of illness was not found



Lessons Learned from Locust Grove

- Locust Grove GPS collection event highlighted the need for an Agency wide Standard Operating Procedure for GPS collection, training, and documentation
- Summer of 2009, the GIS Subcommittee drafted “Standards for Global Positioning System (GPS) Data Collection and Documentation” SOP



GPS SOP Highlights

- Purpose
 - Ensure staff is trained and certified in the use of GPS equipment
 - Set up categories of GPS equipment and how to choose what to use when
 - Establish common methods for GPS data collection
 - Set up divisional GPS Coordinators
 - Provide standards for data documentation, storage, and auditing



GPS Training & Certification

- Divisional GPS Coordinators are responsible for coordinating training and certification within their division
- Certification Requirements:
 - 2 hours of GPS training per year
 - Pass device-specific exam
 - Initial certification includes 2 days of documented field work with currently-certified staff member



Metadata SOP

- New SOP is intended to support the daily use of metadata with ArcCatalog and create consistency in how metadata is filled out at the DEQ

Editing 'creekagn'

Identification | Data Quality | Data Organization | Spatial Reference | Entity Attribute | Distribution | Metadata Reference

General | Contact | Citation | Time Period | Status | Spatial Domain | Keywords | Browse Graphic | Security | Cross Reference

Description

Abstract: REQUIRED: A brief narrative summary of the data set.

Purpose: REQUIRED: A summary of the intentions with which the data set was developed.

Language:

Supplemental Information:

Access Constraints: REQUIRED: Restrictions and legal prerequisites for accessing the data set.

Use Constraints: REQUIRED: Restrictions and legal prerequisites for using the data set after access is granted.

Data Set Credit:

Native Data Set Environment: Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.2.0.1324

Native Data Set Format:

Save Cancel Help



Metadata SOP

- When metadata standards are required:
 - If shapefiles or geodatabases are shared with anyone outside of our Agency (example EPA)
 - If a shapefile is submitted to be placed on the DEQ Data Viewer
 - If a shapefile is copied to the common folder on the Agencies GIS drive



Metadata SOP

- SOP Standardizes:
 - Contact information
 - Access constraints
 - Data quality documentation/disclaimer
 - Required entity attribute details
 - Metadata reference information



ArcGIS Map Templates

- Templates provide a standardization to the look and elements provided in maps made in the Agency
- SOP describes the required elements that should be found in every map created by the DEQ
- Subcommittee will provide training to staff to teach them how to use the new templates

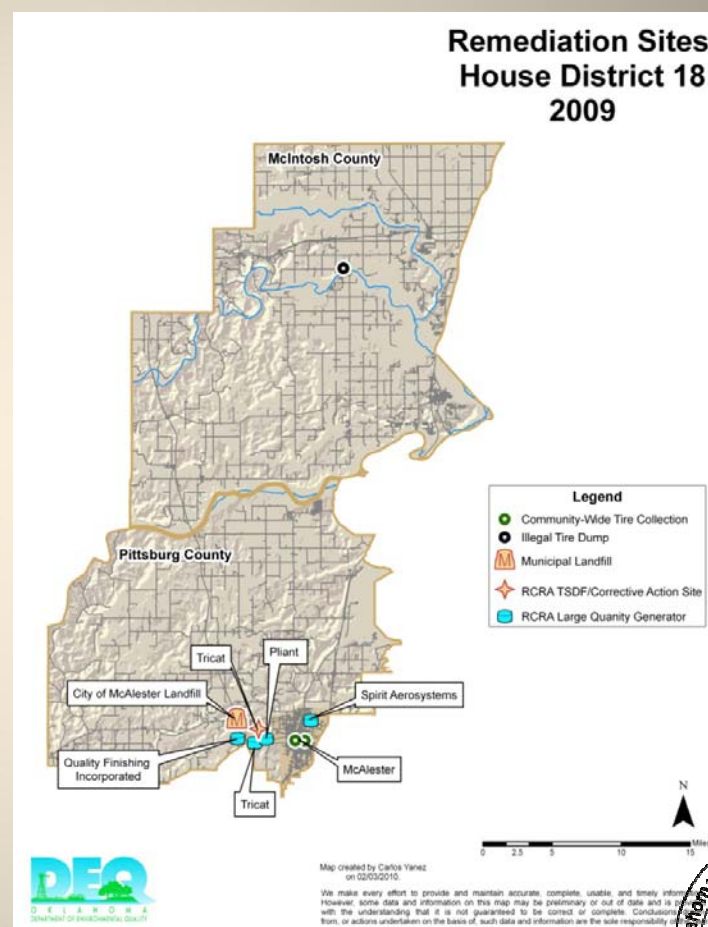
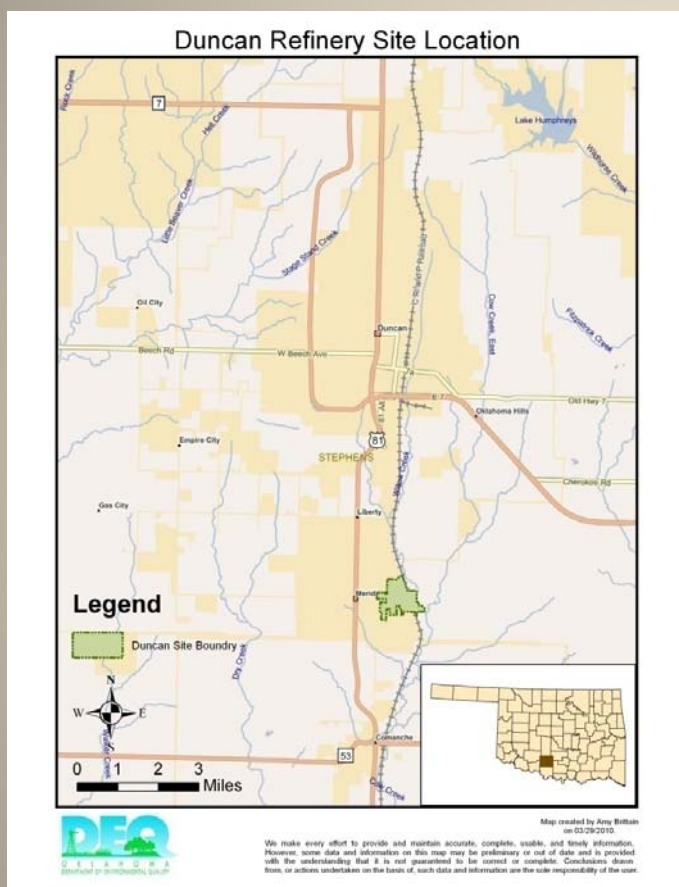


ArcGIS Map Templates

- Required features include:
 - Map Title
 - Legend
 - North Arrow
 - Scale Bar
 - Name of Map Creator
 - Date Map Created or Published
 - ODEQ Map Disclaimer
 - ODEQ Logo



Example Maps Made with DEQ Templates



GIS Data Sharing Agreement SOP

- The Subcommittee saw a need to develop a GIS Data Sharing Agreement to document when data is provided to the public
- SOP sets procedures for processing requests, filing agreements in Central Records, and lists exceptions to the SOP
- Digital GIS data will be made available to the public upon completion of a signed data sharing agreement



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Data Sharing Agreement

- The GIS Subcommittee worked closely with DEQ General Council to draft the Data Sharing Agreement
- Agreement details the Terms of Agreement between the requesting party and the DEQ
- Agreement contains:
 - Accuracy and utility statement
 - Warranties and liability disclaimer
 - Details on sharing DEQ data with third parties
 - A place to list what data is being requested
 - Contact information for the Interested Party



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How important are these standards and practices?

- Data never dies
- Represents credibility
- Data must be as good as the other data in the GIS or stacking layers doesn't mean anything
- Metadata and documentation can provide both support and protection



What happens to the Data?

- Most is pushed to EPA and/or other oversight agencies
- Some stays in the Agency
- It is all public data and can be requested
- Once it's created, it never goes away



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What is it used for?

- Accessed by anyone in the world
- Used for anything you can dream of
- Put into a GIS by someone somewhere



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Why does data quality matter?

EPA United States Environmental Protection Agency

MyEnvironment
environmental information for my area
[How to use this page?](#) [Help Us to Improve](#)

Sites Reporting to EPA near 73101, OK

Search Enter facility name

Sites and facilities by: [Show Entire Map](#)

Industry **Release media** **EPA program**

All Facilities and Sites

- ☒ All Facilities and Sites(1)
- ☐ Air Emissions (AIRS/AFS)(1)
- ☐ Superfund Sites (CERCLIS)(0)
- ☐ Toxic Releases (TRI)(0)
- ☐ Hazardous Waste (RCRAInfo)(0)
- ☐ Water Dischargers (PCS)(0)
- ☐ Brownfields (ACRES)(0)
- ☐ Biennial Reporting (BR)(0)
- ☐ RADInfo(0)

☒ Single Facility ☐ Multiple Facilities

[Shapefile](#) [Spreadsheet](#) [GeoRSS](#) [KML](#) [Metadata](#) [Where Can I Get the Data?](#) [Shout out](#)



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Why does data quality matter?

The screenshot shows the EPA MyEnvironment website interface. At the top, the EPA logo and "United States Environmental Protection Agency" are visible. The "MyEnvironment" header includes the text "environmental information for my area" and links for "How to use this page?" and "Help Us to Improve". The main heading is "Sites Reporting to EPA near 73101, OK". Below this is a map view with "Road", "Aerial", and "Labels" tabs. The map shows an aerial view of an industrial area with several orange location pins. On the right side, there is a search bar labeled "Search" with the placeholder "Enter facility name". Below the search bar, the section "Sites and facilities by:" includes tabs for "Industry", "Release media", and "EPA pr". A list of "All Facilities and Sites" is shown, with "All Facilities and Sites(6)" selected. Other options include "Air Emissions (AIRS/AFS)(0)", "Superfund Sites (CERCLIS)(0)", "Toxic Releases (TRI)(0)", "Hazardous Waste (RCRAInfo)(4)", "Water Dischargers (PCS)(0)", "Brownfields (ACRES)(2)", "Biennial Reporting (BR)(0)", and "RADInfo(0)". At the bottom of the map area, there are icons for "Shapefile", "Spreadsheet", "GeoRSS", "KML", "Metadata", "Where Can I Get the Data?", and "Shout out".



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Why does data quality matter?

USA TODAY Home News Travel Money Sports Life Tech Weather

SPECIAL REPORT

 **The Smokestack Effect**

Toxic Air and America's Schools

USA TODAY used an EPA model to track the path of industrial pollution and mapped the locations of almost 128,000 schools to determine the levels of toxic chemicals outside. The potential problems that emerged were widespread, insidious and largely unaddressed.



Photo by Garrett Hubbard, USA TODAY

Find your school *required

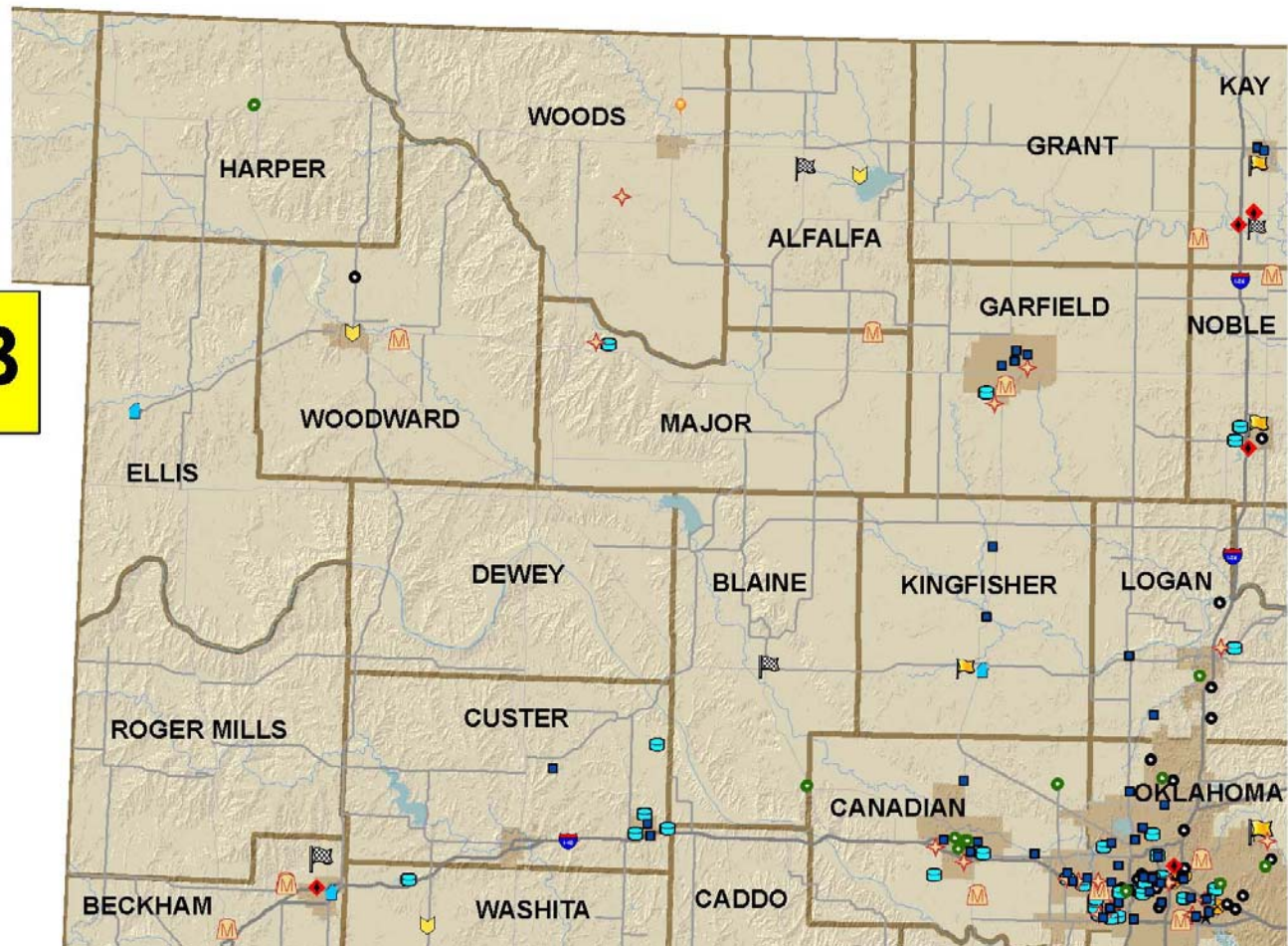
■ **Methodology** ■ **Q and A**



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The Future for GIS at the DEQ
Where are we headed...



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GPS SOP Implementation

- Divisional GPS Coordinators have been appointed and training provided in July 2010
- New Environmental Complaints and Local Services (ECLS) Division complaints system will require that GPS coordinates be input before a complaint can be closed
- Subcommittee developed a DEQ GPS data dictionary for use by ECLS field staff
- August 2010 provided GPS training and certification tests to about 60 field staff in the ECLS Division across the state



Subcommittee Outreach Efforts

- Presented SOP information to IT Committee
- Gave group update in Level 3 manager meeting
- Taught 2 training classes “Introduction to GIS at the DEQ for Managers”
- Hosted several 1 hour free ESRI on-line training for GIS staff



Ideas for the Future of GIS at the DEQ

- Provide GIS/GPS training to DEQ staff
 - New SOP implementation seminars
- 2010 GIS Needs Assessment
- Host the Data Viewer in the DEQ building
- Enhance the Data Viewer by increasing it's functionality
- Coordinate efforts to collect GPS positions at DEQ regulated facilities
- Standardize how GIS information is recorded in all Agency databases
- Connect DEQ databases to GIS in real time



