

**Science and Data**  
**How do we know that we have  
the right data, right, for our  
decisions?**

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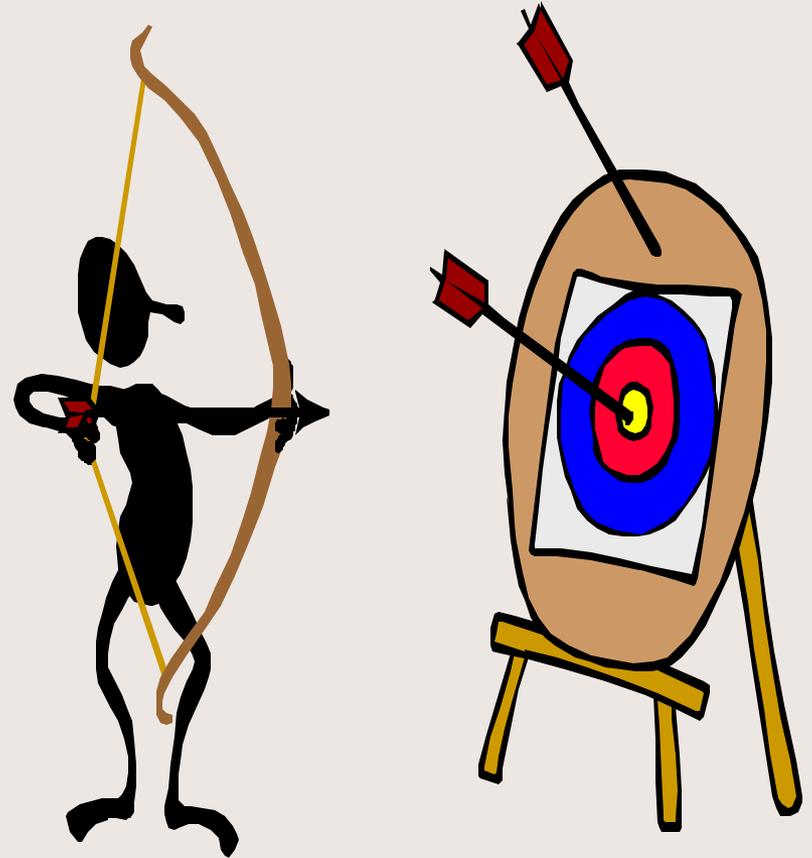
# Presentation Topics

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- **EPA's Quality System**
  - Elements
  - Policies and Requirements
  - Guidance and Tools
- **Data Quality Definition**
- **Data and Science**
- **Government-wide Data Quality Initiatives**

# EPA's Quality System

- **Policies and Requirements**
  - Get the right data
  - Get the data right
  - Keep the data right
- **Mandatory for EPA projects and users of EPA funds**



# **EPA's Quality System**

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- **Elements – Management-level**
  - **Management statement on Quality**
  - **Policies and procedures for Quality**
  - **Roles and responsibilities within organization**
  - **Resources to support program**
  - **Training for all responsible individuals**

# EPA's Quality System

- **Elements – project specific**
  - **Systematic planning (data quality objectives -- what is the decision? what data do we have? what data do we need?)**
  - **Documenting the plan (quality assurance project plans, sampling, analytical methods, data handling)**
  - **Assessing the activities (field, laboratory, and data)**

# EPA's Quality System

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- **Guidance and Tools -- Non-mandatory guidance and tools to assist in implementation**
  - **Systematic planning**
  - **Project planning and documentation**
  - **Assessment**
  - **Training needs**

# Data Quality Definition

- It Is **NOT**:
  - The most expensive
  - The thickest data package of QA/QC information
  - The most difficult to understand or interpret



# Data Quality Definition

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- **Data Quality is defined by purpose (proposed data use) and context**
- **As DATUM, it can be defined by indicators (PBARCCS)**
- **As a DATA SET, it must be tied to use, or performance expectations (or data quality objectives) to determine adequacy**

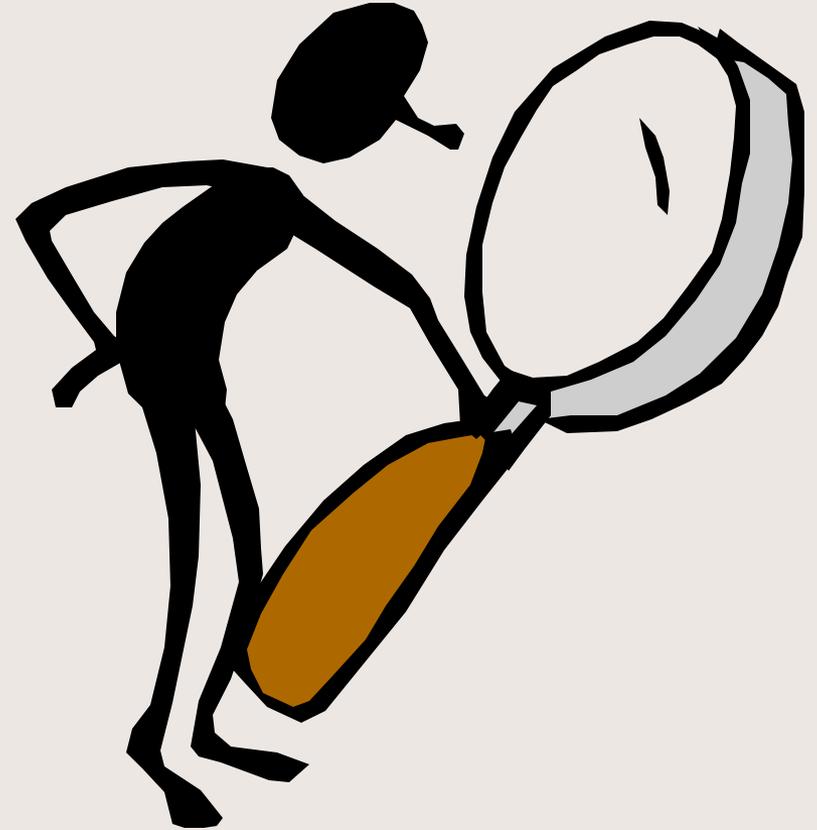
# Data Quality Indicators

- **Precision**
- **Bias**
- **Accuracy**
- **Representativeness**
- **Comparability**
- **Completeness**
- **Sensitivity**



# Data and Science

- **Science is DATA and its interpretation**
- **If you don't know where the data came from and how it got there, you do not have science**



# Government-wide Data Quality Initiatives

- **Section 515 of the Treasury and General Government Appropriations Act for FY 2001 (PL 106-554) directed OMB to issue government-wide guidelines for all federal agencies and for federal agencies to issue their own agency-specific guidelines one year thereafter**
  - *Sometimes called the “Data Quality Act,” or “Data Quality Law”*

# Why Was the Act Passed?

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- **Congress was concerned that the data and information supporting some policies were not available to general public or potentially affected parties**
- **There was also concern that data or information used to support a policy or decision might not be correct, or might be presented in a biased or misleading manner**

# Response at EPA

- **Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency, October 2, 2002, <http://www.epa.gov/oei/qualityguidelines>**
- **Based on existing Agency policies and systems, including the Quality System and peer review policies**

# **What Does This Mean at EPA?**

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- **EPA described the components of the internal systems and processes that support Agency use of data and information to support decisions**
  - **Statement that data and information cannot be used unless they meet the needs of the specified use**
  - **Must be able to produce the data and information to reviewers if requested**
  - **Must correct errors in data and information**

# Resources

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- [www.epa.gov/quality](http://www.epa.gov/quality)
- [www.epa.gov/oei/informationquality](http://www.epa.gov/oei/informationquality)