



ENVIRONMENTAL DATA QUALITY WORKGROUP



2014 DoD Environmental Monitoring Data Quality Workshop Omaha, Nebraska April 8-10, 2014

Part 1 – Automating the Quality Assurance Process of Electronic Data Deliverables (EDDs)

Part 2 – Different uses of Electronic Data Deliverables (EDDs) for Visualization, Trending, and Presentation



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Transform

Converting Data to Knowledge



Transform

Scientific Results to
Decision-making Information

- ▶ Gives Data Meaning
- ▶ Translate to Industry's "Language"
- ▶ Industry's Format
- ▶ Data Mining, Visualization, Pattern Recognition



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Purpose of Verifying and Validating EDDs

Verification and Validation of EDD



Defensibility

Compliance

Result Reliability

Sound Decisions



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Another Purpose is to Communicate or Qualify Hidden Biases so Professional Judgements can be made.

Verification and Validation of EDD

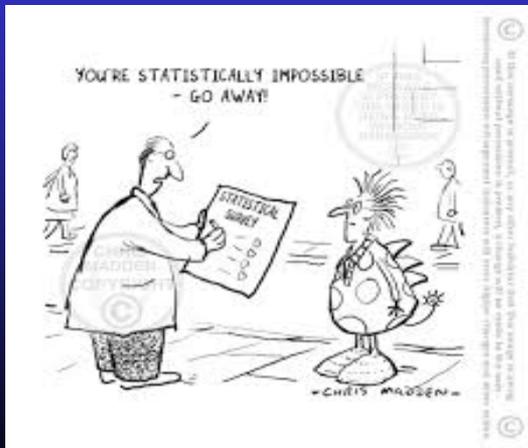


Defensibility

Compliance

Result Reliability

Sound Decisions





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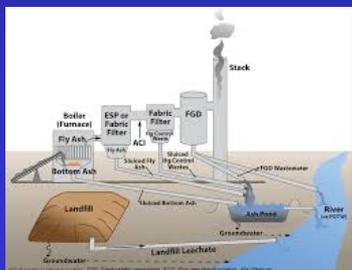


Types of Electronic Verification and Validation Levels

Full Level (Tier 3 & 4) – SEDD 2B and 3

Possible Liabilities

Possible Litigation



Waste Streams



Remediation



Accidents

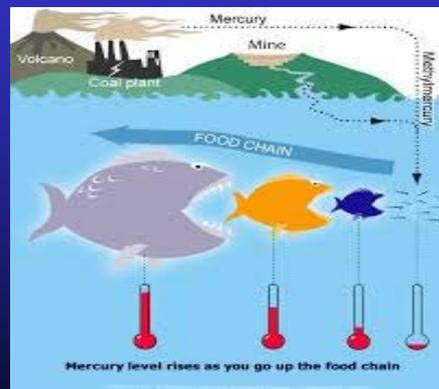


Superfund

Samples and Preparation QC (Tier 2) – SEDD 2A



Monitoring



Compliance





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Metals Associations

Calibrations

Initial Calibration Verification

Initial Calibration Blanks

Quantitation Check Standard

Interference Checks

Continuing Calibration Verification

Continuing Calibration Blanks

Method Blank

Laboratory Control Sample

Client Samples 1 – 10

Field QC Samples

Matrix Spike

Duplicates

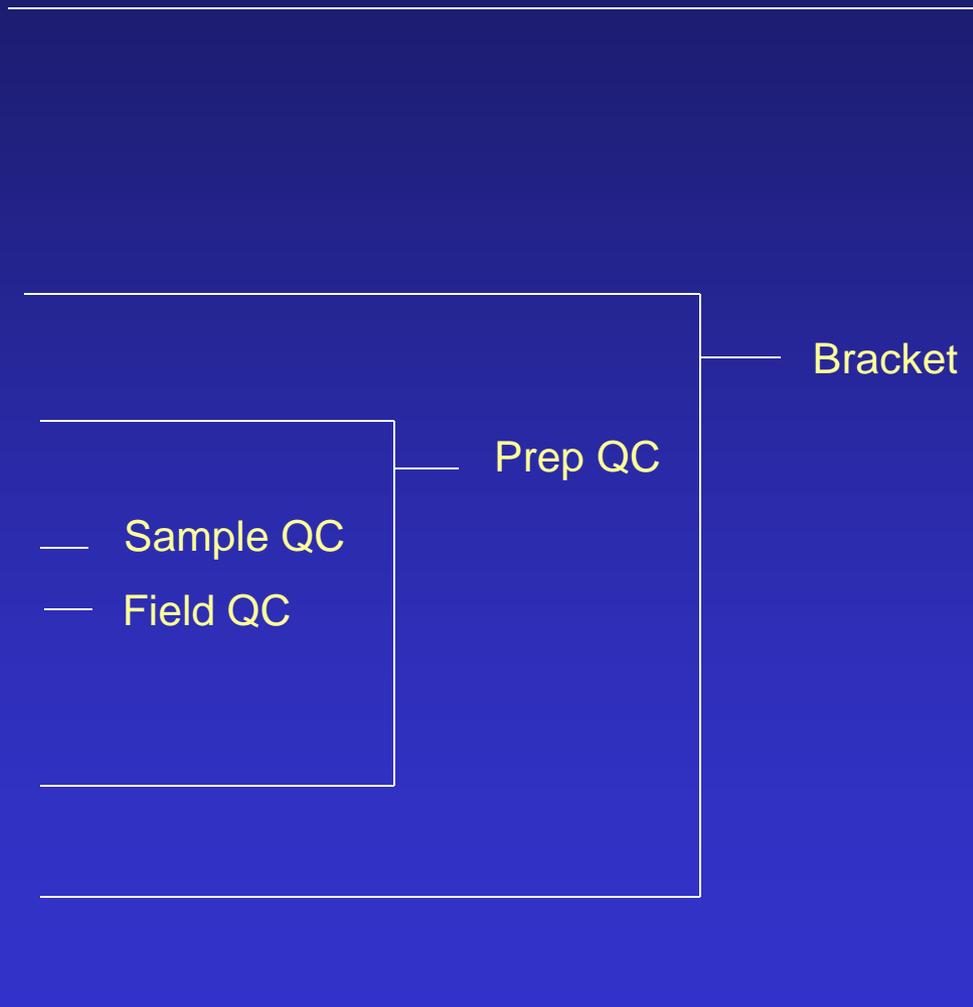
Serial Dilution

Post Spike

Continuing Calibration Verification

Continuing Calibration Blank

Closing QC



Run

Bracket

Prep QC

Sample QC

Field QC



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SVOC and VOC Associations

Tune

Initial Calibrations

Continuing Calibration Verification

Method Blank

Laboratory Control Sample

Client Samples 1 – n

Field and Storage QC

Matrix Spike

Matrix Spike Duplicate

Continuing Calibration Verification

Tune

Continuing Calibration Verification

Method Blank

Laboratory Control Sample

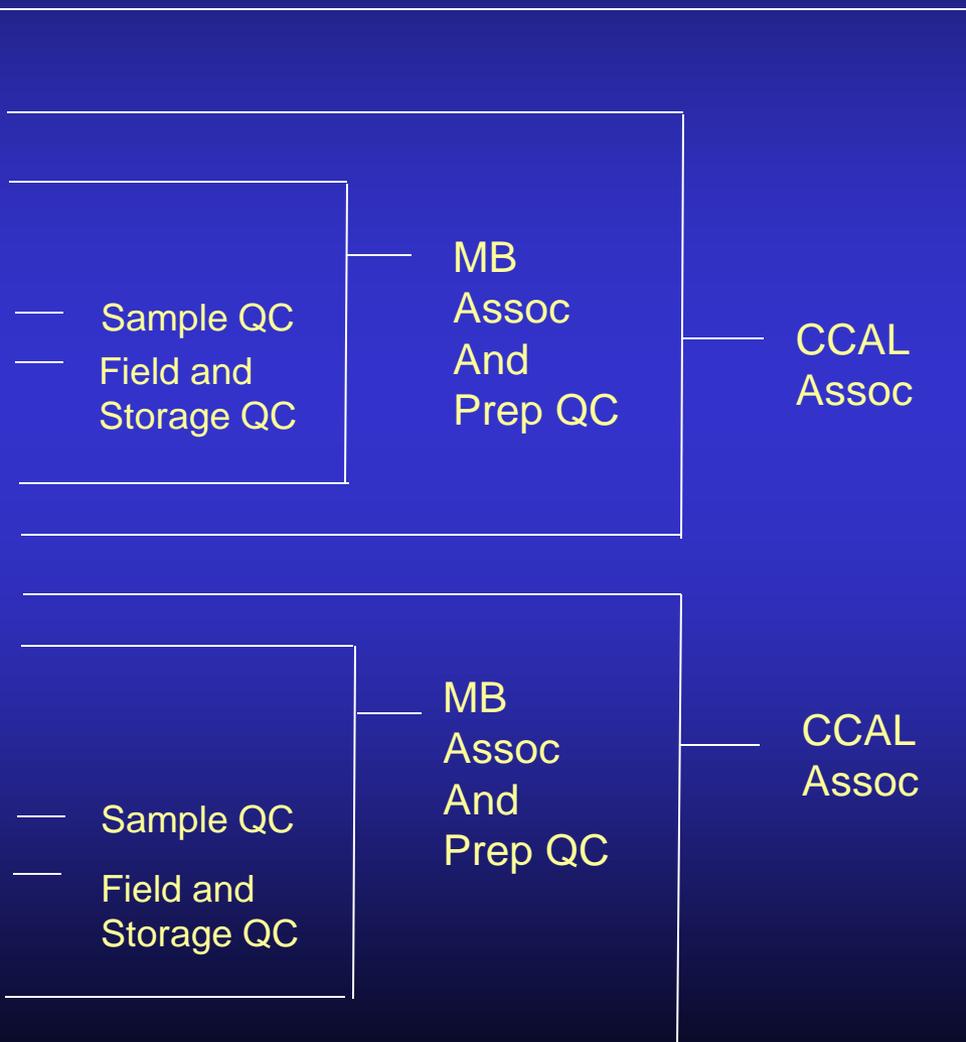
Client Samples 1 – n

Field and Storage QC

Matrix Spike

Matrix Spike Duplicate

Continuing Calibration Verification



ICAL Assoc

CCAL Assoc

CCAL Assoc

MB Assoc And Prep QC

MB Assoc And Prep QC

Sample QC
Field and Storage QC

Sample QC
Field and Storage QC

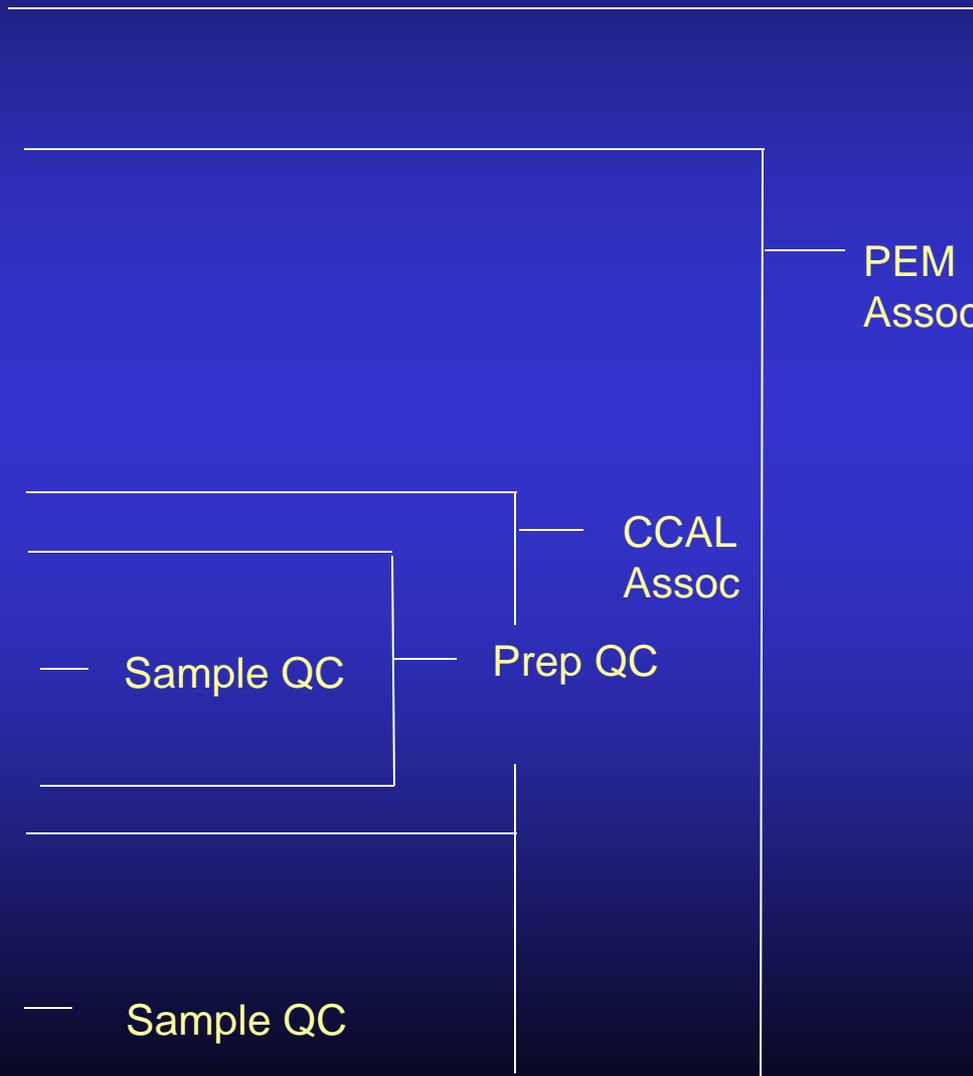


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Pesticides/PCB Associations

- Instrument Blank
- Resolution Check
- Performance Evaluation
- Single Point Calibrations
- Toxaphene/Chlordane Calibrations
- Pesticide Initial Calibrations
- Performance Evaluation
- Instrument Blank
- Continuing Calibration
- Method Blank
- Laboratory Control Sample
- Samples 1 – n
- Matrix Spike
- Matrix Spike Duplicate
- Continuing Calibration
- Method Blank
- Laboratory Control Sample
- Samples 1 – n ...
- Closing Continuing Calibration



Run Assoc

PEM Assoc

CCAL Assoc

Sample QC

Prep QC

Sample QC



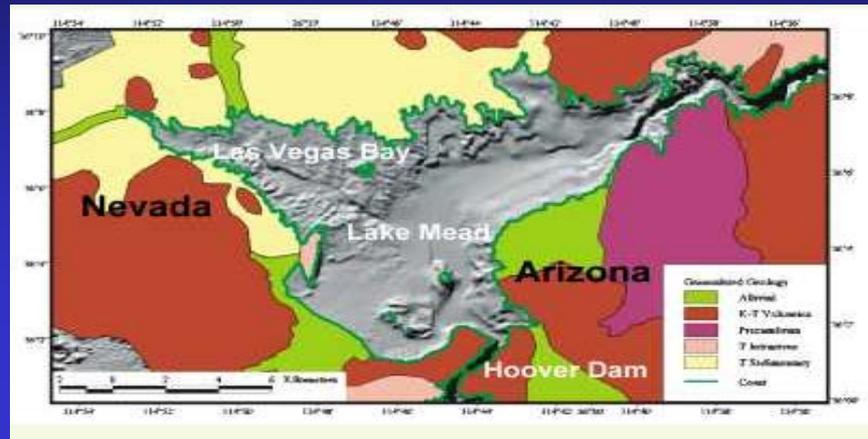
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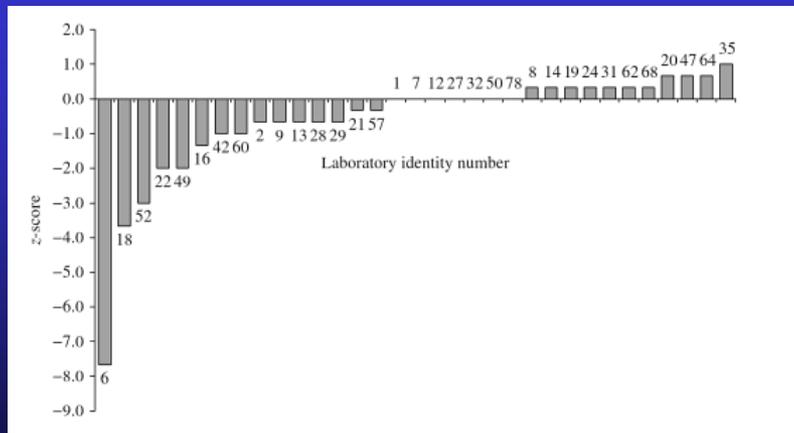
Part 2 – Different uses of Electronic Data Deliverables (EDDs)



Process Control



Visualization



Trending



Case Studies of EDDs



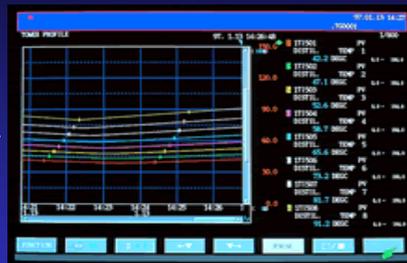
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Process Control



Instrument Data



Trend Panels



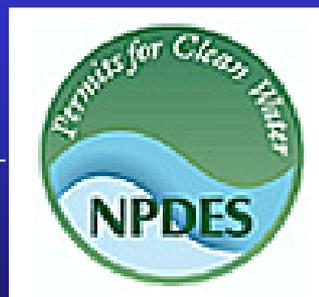
Process Control



Product



Lab Data



Real-time Discharge Monitoring Reports



Scada System



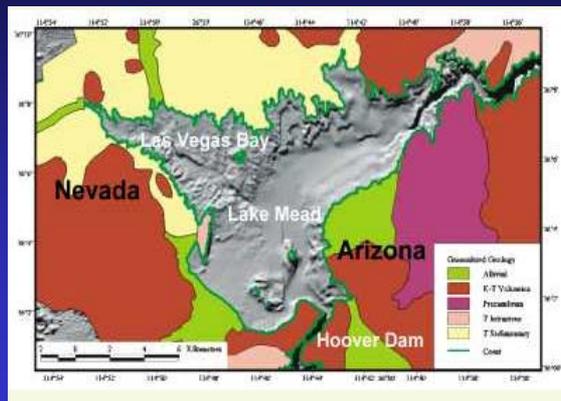
Adjustments to Water Treatment



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Visualization



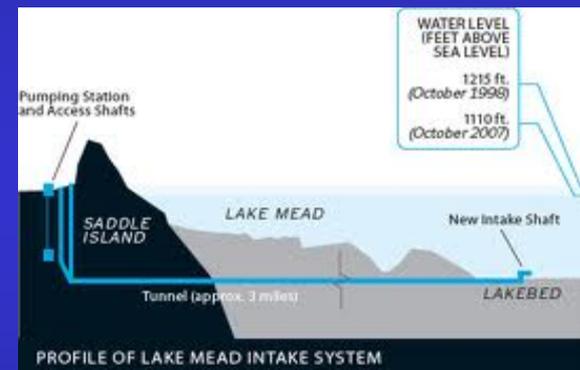
Sediments and Contaminants



Lab Data



Lake Mead Water Levels



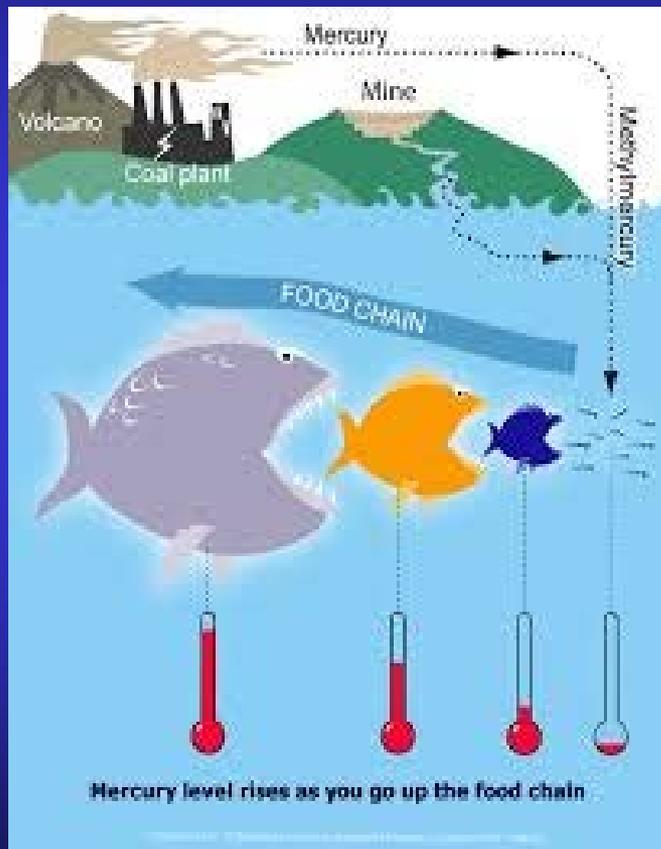
New Water Intake



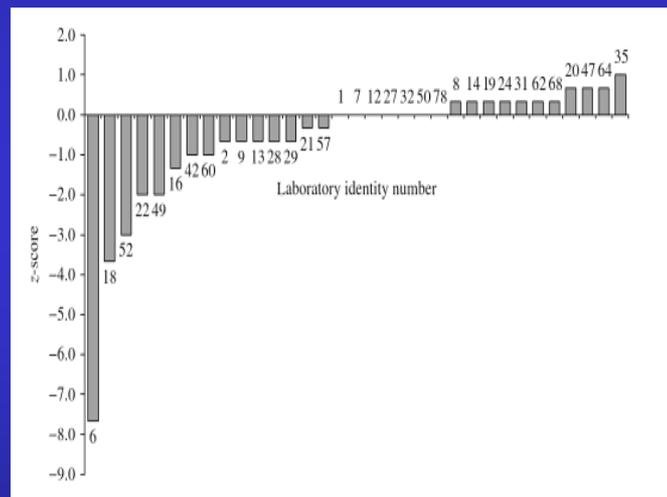
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Trending – Seasonal Z-Scoring



Lab Data



Seasonal Contaminant Fluctuations



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Analytical – Regulatory Reporting – Clean Water – Landfills – Renewable Energy



Brownfields and Land Revitalization

Contact Us Search: All EPA This Area

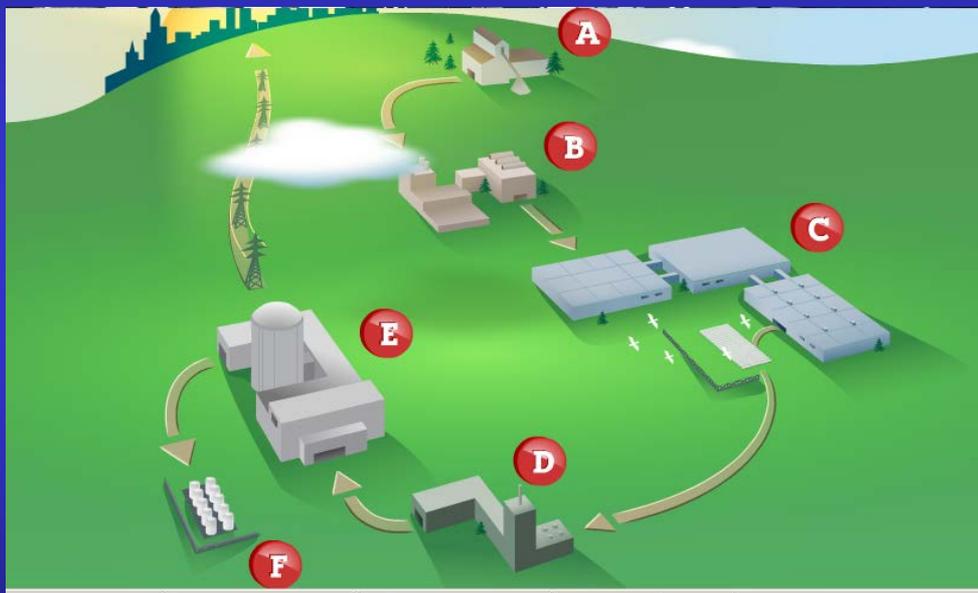




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Analytical – Uranium Enrichment – Environmental – Health & Safety





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Emergency - Analytical – Defenseable Results – Sound Decisions – Clean up



GOOGLE EARTH/DIGITAL GLOBE

On December 22, 1.1 billion gallons of coal ash sludge smothered 300 acres in East Tennessee.



A 25-foot (7.6 m) wall of ash approximately 1 mile (1.6 km) from the retention pond

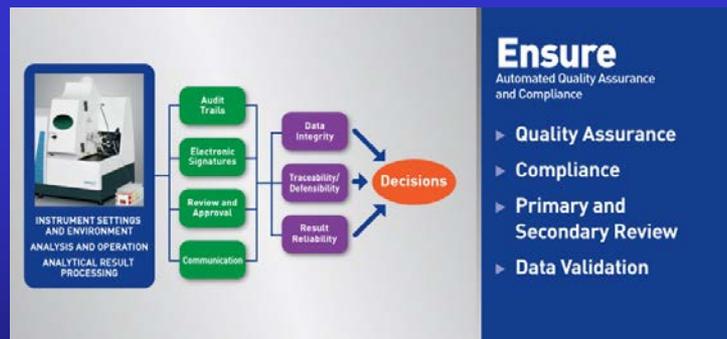




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Conclusions



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EISC
LAB DATA AUTOMATION