

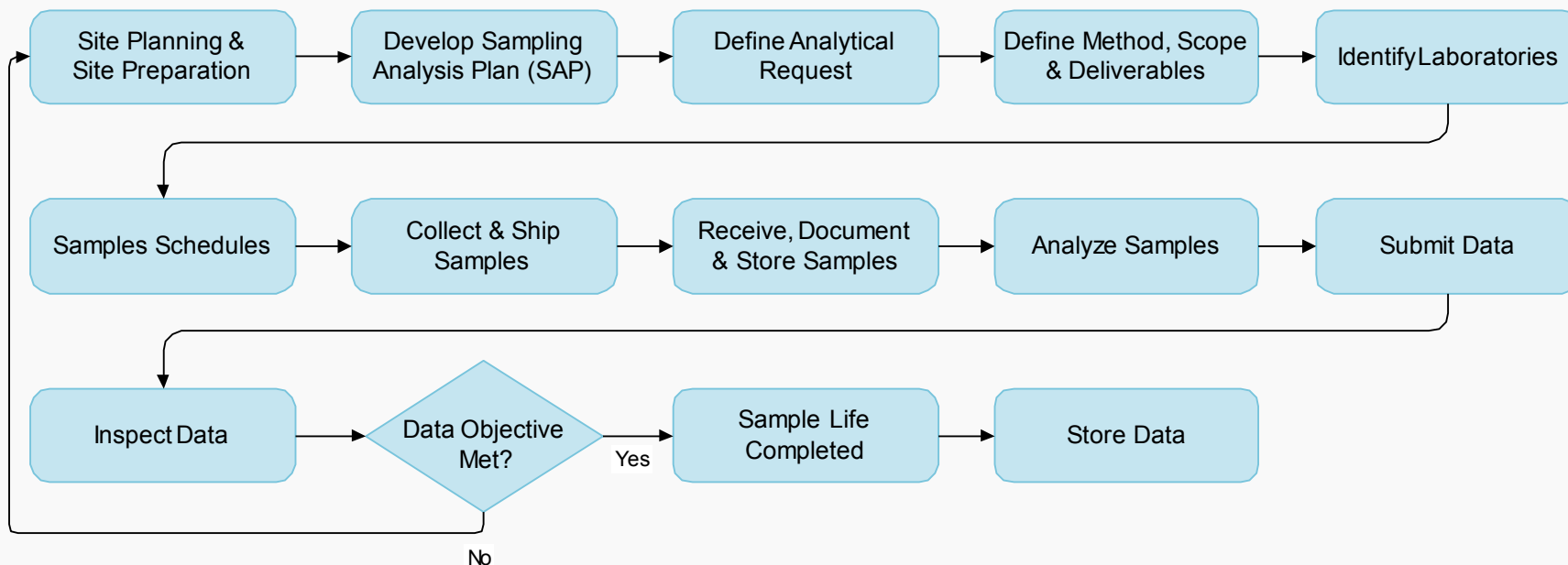
# New Shared Data Assessment and Management Services



Presented by: Nazy Abousaeedi, Science & Engineering Line of Service, CSC

Melanie Hoff, Branch Chief, Analytical Services Branch, USEPA HQ

# Life of a Sample



Note: The sample can be an environmental sample collected from a Superfund site or a sample collected in support of FDA, NIH, DOD, etc.

# Electronic Data Review / Data Assessment Process



- **Method Compliance Assessment:**
  - Self-inspection – performed by a laboratory prior to delivery
  - Performed by a third party to assess compliance with the requested method and data reporting procedures
  - Used by an organization to assess the compliance of their data (State and Regional labs, ORD, etc.)
  - Litigation /OIG
- **Data Usability Assessment:**
  - Used by a third party to assess and establish a data usability determination
  - Used by the organization (State and Regional labs, ORD, etc.)
  - Make educated decision (confidence) on the site or a sampling event (OSCs, RPMs, Health or other agencies)

# What Challenges Data Users Are Currently Facing



- Reduction of available funding to continuously develop, update and maintain an electronic/automated review tool
- Program and Project Managers are required to answer the same pressing questions with shrinking resources and funding pools
- Environmental and human health decisions must be made based on credible data
- The wrong review tool is used
  - Does not allow users the ability to define project quality objectives upfront; forcing them to use set requirements
  - Can only process specific Electronic Data Deliverable (EDD)
  - Only set up for limited methods
- Incorrect implementation of automated review processes
  - No planning
  - No training for laboratory and data user

# Electronic / Automated Data Review Tools



- Automated/electronic data review tools currently on the market:
  - Accept a limited set of EDD formats (one or two)
  - Perform data review based on only existing methods and/or specifications – can only pick one of the listed methods
  - The tests/checks performed are hardcoded/set –making changes costly and time consuming
  - Limited scalability
  - If any of the above requirements change, the tool will need major updates or a complete redo
- What is missing/needed:
  - Format neutral data review tool
  - Provide data users with the ability to modify review spec based on their needs
  - User friendly web User Interfaces (UI) to set up requirements and customize on an as-needed basis – real time – no development delay
  - Ability to recalculate/verify results
  - Scalable and configurable

# What Sets Enhanced EXES Apart from Other Tools on the Market



- Efficiently evaluates analytical data **regardless of the format of the data deliverable** that is submitted.
- Provides users with advanced customization capabilities to **review, edit, and add evaluation parameters, tests, Method Quality Objectives (MQOs)**, and Quality Assurance Project Plan (QAPP) requirements.
- The Enhanced EXES is comprised of **a dynamic test creation core** working in tandem with an expandable reference data set that is not limited to specific analytical processes and procedures.

# Better Data; Better Preparedness; Lower Cost



- Applies to any large monitoring program that involves laboratory analysis of samples — food, clinical, environmental, agricultural, or forensic
- Scalable processes for managing sample or specimen collection and laboratory analysis through a centralized system
- Leverage technology to reduce costs and improve quality
- Minimizes cost while simultaneously maximizing data quality and ensuring legal defensibility
- **Better data:** ASB's Electronic data eXchange and Evaluation System (EXES) provides independent assessment and validation of laboratory data
- **Lower costs:** During the past 15 years, EXES has saved EPA *more than \$60 million* through automation

# How Does It Work?



- A Web-based data assessment/validation and management tool that can evaluate analytical data. It uses:
  - Format neutral domain and data model
  - Re-usable Process Flow Libraries (PFL)
  - Method Evaluation Libraries (MELs)
  - Method Evaluation Procedures (MEPs)
  - UI for custom test creation
- It is capable of supporting federal, state and commercial laboratory data assessment needs.



# EXES Deployment Timeline



**Self-inspection**  
12/2012

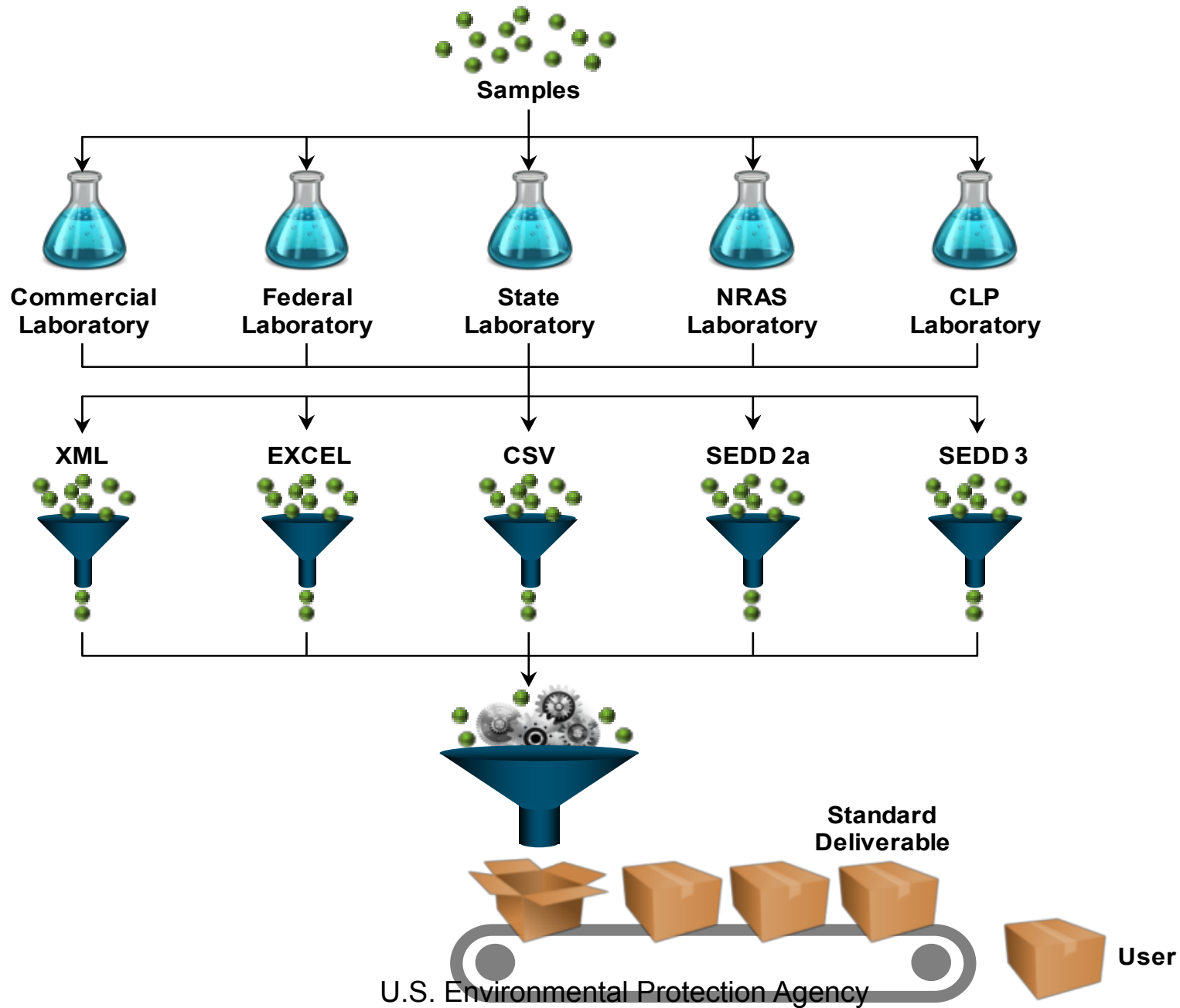
**Full Method Compliance**  
03/2014

**Data Validation**  
09/2014

**Self-inspection:** Allowing labs and vendors to check EDDs for compliance to a method.

**Full Method Compliance:** Full method compliance including calculation of all reported results with the ability to post lab deliverables and compliance reports to EXES Data Manager (EDM) for retrieval.

**Data Validation:** Generation of data validation reports and spreadsheets with the ability to post to EDM for retrieval.



# EXES Benefits/New Features – You Are in Control



**Flexible** - user interfaces that enable you to create test rules, data review criteria and reports dynamically; **select and create your desired level of assessments.**



**Reusable** - features allow users the ability to create new libraries or search and modify existing libraries; saving time and effort, and resulting in cost savings.



**Consistent** - reproducible and independent electronic review improves overall project transparency.



**Customizable** - tailored deliverable process flow to meet your specific analytical evaluation needs. **Capability to support multiple programs with different program needs.**

# The Key Architectural Principles



**Modern and Simple to Use** - Allows users to specify desired data assessment outputs in terms of reports and assessment results that can be standardized or customized according to the user's needs.



**Easily Extendable Component** - Data driven and modular approach allows for rapid expansion in response to new program/client needs with minimum to no development effort and cost.



**Format Neutral** – Accepts all types of EDDs – XML, EXCEL, CSV, etc.)



**Data Manager**– The only automated data review tool with a data management component serving as a Web-based secure data & report repository – completely paperless

# What is EXES Data Manager (EDM)?



- EDM provides a Web-based/centralized data management tool:
  - Stores all laboratory deliverables
  - Data assessment/validation reports available within minutes of data upload
  - Spreadsheets and outputs include both field and analytical data ready for upload to databases and mapping tools
  - Provides results based on data user's assessment criteria
  - Allows users to edit and regenerate all dynamic reports
  - Provides an audit tracking log of all changes made by user name and date/time
  - Who can have access to what portion of data or reports in EDM can be set based on data user's request

# Contact Information



- **EPA**
  - Sara Goehl, Analytical Services Branch OSWER/OSRTI
  - Phone: (703)603-9097
  - email: [Goehl.Sara@epa.gov](mailto:Goehl.Sara@epa.gov)
- **CSC**
  - Nazy Abousaeedi, Sr. Manager, Science & Engineering Line of Service
  - Phone: (703)818-4233
  - email: [nazy@fedcsc.com](mailto:nazy@fedcsc.com)