



Automating Electronic Reporting

Supporting Timely Access to Quality Data

OEI Symposium
December 11, 2008



Automated Electronic Reporting Goals

- Quality data delivered to EPA
- Improved timeliness of collection, processing and access
- Reduced burden on industry delegated entities and EPA; Win-Win for everyone



OAR Verify System

Judy Jackson
Office of Transportation and Air Quality's

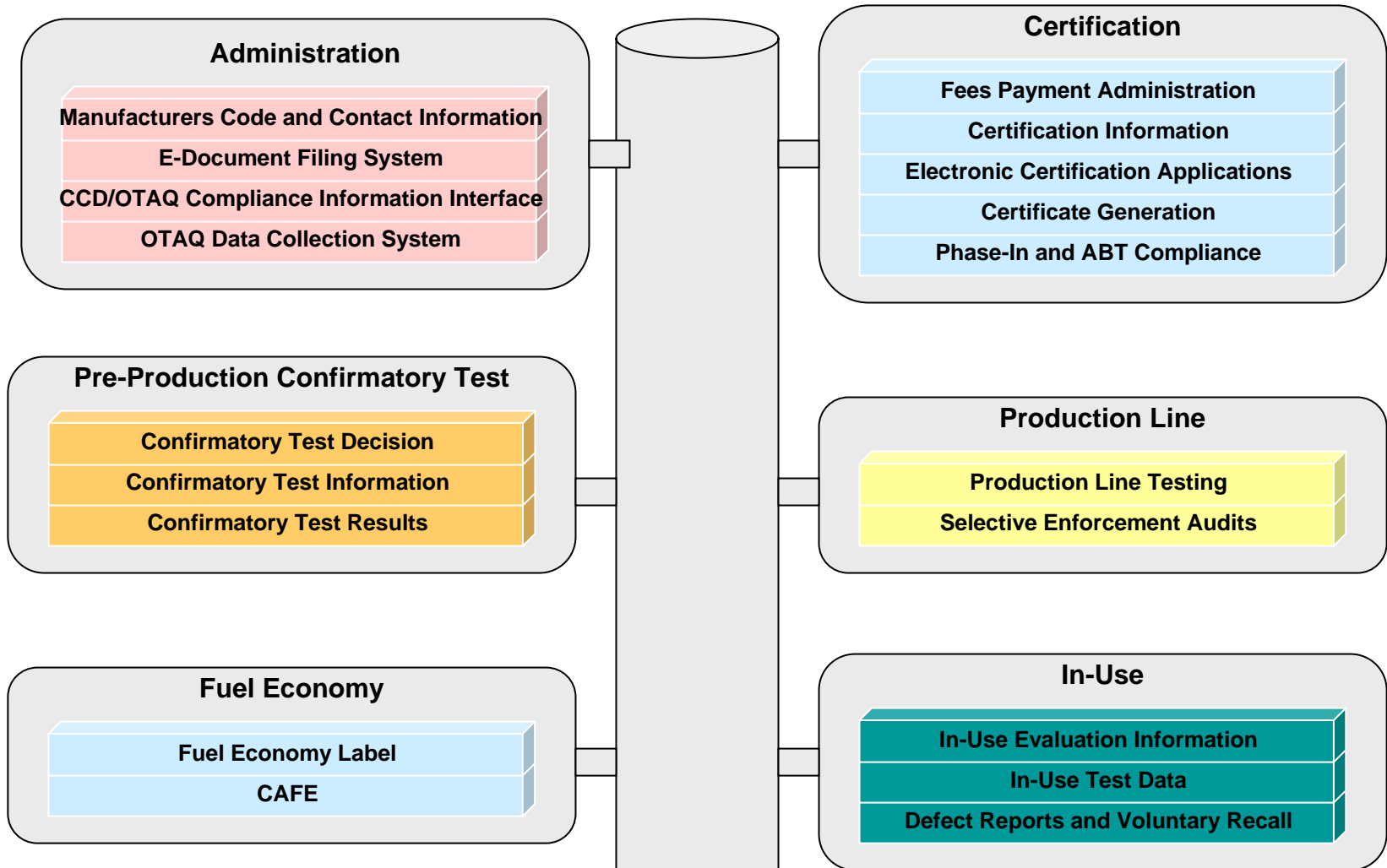


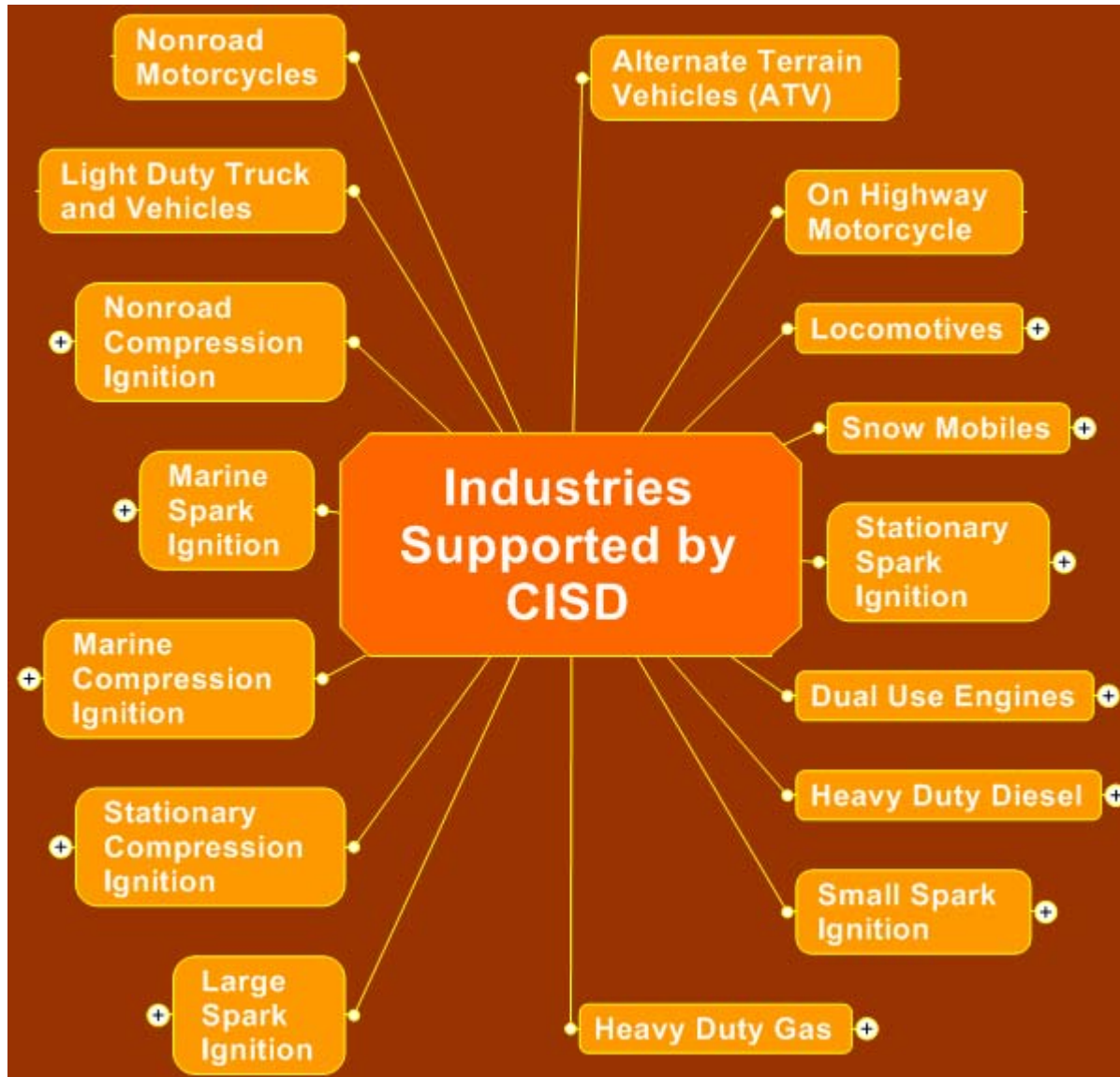
Challenges to Meet

- EPA Office Of Transportation And Air Quality (OTAQ), Compliance And Innovative Strategies Division (CISD) had several discrete systems for collecting and tracking engines and vehicle compliance information which:
 - Used different technologies
 - Not easy to integrate
 - Expensive to maintain
- New regulations also required new system to be developed
- Reduce the complexity of submitted compliance information

CISD Compliance Information System Vision

Supporting All Regulated Industries: Light-Duty, Heavy-Duty, and Non-Road







Verify System Objectives

- ✓ Streamline information collection, review, approval and reporting
- ✓ Support new and changing regulations
- ✓ Consolidate & replace legacy systems
- ✓ Secure confidential business information (CBI)



Verify System Objectives (2)

- ✓ Reduce burden on EPA
- ✓ Reduce burden on manufacturers
- ✓ Support existing and new industries
- ✓ Comply with federal & EPA enterprise architectures



Verify System Objectives (3)

- ✓ Integrate electronic signatures into certificates securely
- ✓ Support agency/federal public information web sites
- ✓ Support OTAQ's re-engineered compliance processes
- ✓ Have easy to use interfaces



Manufacturer's Interface



- About CDX
- MyCDX
- Inbox
- Change Password
- Frequently Asked Questions
- Help & Support
- CDX Home
- Terms & Conditions
- Logout

Verify: Engine and Vehicle Compliance System

[MyCDX](#) > [Light-Duty Vehicle & Truck](#) > Vehicle & Test Information

Vehicle and Test Information

- **Vehicle Information**
 - [Start New Dataset](#)
 - [Load Existing Dataset](#)
 - [Submit Batch Dataset](#)
 - [Request Database Report](#)
- **Fuel Properties**
 - [Start New Dataset](#)
 - [Load Existing Dataset](#)
 - [Submit Batch Dataset](#)
 - [Request Database Report](#)
- **Test Information**
 - [Start New Dataset](#)
 - [Load Existing Dataset](#)
 - [Submit Batch Dataset](#)
 - [Request Database Report](#)

Note: Your session will time out after 20 minutes. Any data that has not been saved to your local loss.

ICR# 783



EPA's Interface

Verify: Light-Duty - Microsoft Internet Explorer provided by EPA - version 6

https://verify-as1.nvfel-pmn1.epa.gov:8080/verify-web/ld/home.do

U.S. Environmental Protection Agency

Verify : Engine and Vehicle Compliance System

Welcome, Judy Jackson. Today is Monday, October 27, 2008 (ET)

[Home](#) > Light-Duty Vehicle & Truck

[Back](#) [Help](#) [Logout](#)

<p>Vehicle and Test Information</p> <ul style="list-style-type: none">Test Information & Reports Search <p>Confirmatory Test Information</p> <ul style="list-style-type: none">Decision Information QueueDecision Information SearchScheduled Confirmatory Tests <p>Certificate Request</p> <ul style="list-style-type: none">Request for Certificate QueueCertificate Request Search <p>Certification</p> <ul style="list-style-type: none">Certificate Signing QueueCertificate SearchCSI SearchCertificate LogTest Group Watch List <p>Fuel Economy</p> <ul style="list-style-type: none">FE Label Dataset DetailsCAFE Dataset Details	<p>In-Use Verification Program (IUVP)</p> <ul style="list-style-type: none">Vehicle and Test Information Dataset SearchTest Information with Failures ReportNon-Submitting Manufacturers ReportIUVP Emissions Statistics Summary ReportIUVP Test Group Summary ReportSearch IUVP Change Logs <p>Compliance Documents</p> <ul style="list-style-type: none">Document SearchUpdate Linked DocumentsUpdate Document Metadata <p>Compliance Administration</p> <ul style="list-style-type: none">Manufacturer Search/UpdateAll Manufacturers
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[EPA@Work Home](#) | [EPA Home](#) | [Accessibility](#)

URL: https://verify-as1.nvfel-pmn1.epa.gov:8080/verify-web/ld/home.do



EPA's Interface (2)

Search for Test Information - Microsoft Internet Explorer provided by EPA - version 6

https://verify-as1.nvfel-pmn1.epa.gov:8080/verify-web/cft/ld/testInfoSearch.do

File Edit View Favorites Tools Help

Google G Go Bookmarks 14 blocked Check AutoLink AutoFill Send to Settings

Search for Test Information

U.S. Environmental Protection Agency

Verify: Engine and Vehicle Compliance System

Welcome, Judy Jackson. Today is Monday, October 27, 2008 (ET)

[Home](#) > [Light-Duty Vehicle & Truck](#) > Search for Test Information [Back](#) [Help](#) [Logout](#)

Search for Test Information

+ = CTRL-click to select multiple values

Industry	LIGHT-DUTY VEHICLE & TRUCK
Test Number	<input type="text"/>
Exhaust/Evaporative Test Number Link	<input type="text"/>
Manufacturer Name+	<input type="text" value="All"/> <ul style="list-style-type: none"> Alpina Burkhard Bovensiepen GmbH + Co. KG (ABB) Altech Technology Group (ATG) Altech-Eco Corporation (AEC) American CNG, LLC (AMN)
Manufacturer Code+	<input type="text" value="All"/> <ul style="list-style-type: none"> ABB (Alpina Burkhard Bovensiepen GmbH + Co. KG) ATG (Altech Technology Group) AEC (Altech-Eco Corporation) AMN (American CNG, LLC)
Vehicle ID	<input type="text"/>
Vehicle Configuration	<input type="text"/>
Assigned Test Date (MM/DD/YYYY)	From: <input type="text"/> <input type="button" value="Calendar"/> To: <input type="text"/> <input type="button" value="Calendar"/>
Submit/Modify Date (MM/DD/YYYY)	From: <input type="text"/> <input type="button" value="Calendar"/> To: <input type="text"/> <input type="button" value="Calendar"/>
Test Procedure+	<input type="text" value="All"/> <ul style="list-style-type: none"> 32- Federal Fuel Running Loss 37- California Fuel Running Loss
Test Fuel Type+	<input type="text" value="All"/> <ul style="list-style-type: none"> 1- Indolene 30 7- Industrial Unleaded 100 Octane

Done Local intranet 100%

Start Judy Jackson ... 4 Windows E... 2 Microsoft ... VERIFY Home... Verify Docu... https://verify-... Verify: Motorc... Search for T... docDisplayDoc... << 10:17 AM



EPA's Interface (3)

Test Information Search Result - Microsoft Internet Explorer provided by EPA - version 6

https://verify-as1.nvfel-pmn1.epa.gov:8080/verify-web/cft/ld/testInfoSearchResult.do

File Edit View Favorites Tools Help

Google G Go 14 blocked Check AutoLink AutoFill Send to Settings

Test Information Search Result

Verify: Engine and Vehicle Compliance System

Home > Light-Duty Vehicle & Truck > Search for Test Information > Test Information Search Result

Search Criteria:
 Model Year: 2007
 Mfr Name: Toyota Motor Corporation
 Test Information Status: A

Test Information Search Results

7 items found, displaying all items.1

Manufacturer	Test Number & Exhaust/Evap Test Number Link	Vehicle ID & Configuration	Test Group	Evaporative/Refueling Family	Model Year	Test Procedure	Test Fuel Type	Test Date	Selected for EPA Testing	Certification Disposition Code	Test Status
Toyota Motor Corporation	7TYX01071206 (4TYX01049681)	04-ACU1 / 3	7TYXT02.4AHN	7TYXR0165P22	2007	2-day evap	Tier 2 Cert Test Gasoline	06/26/2006	No	Pass	N/A
Toyota Motor Corporation	7TYX01071207 (4TYX01049684)	04-ACU1 / 3	7TYXT02.4AHN	7TYXR0165P22	2007	Federal fuel 3-day evap	Tier 2 Cert Test Gasoline	06/26/2006	No	Pass	N/A
Toyota Motor Corporation	7TYX01066911 (4TYX01049515)	04-ACV1 / 4	7TYXV02.4BEB	7TYXR0130A12	2007	Federal fuel 3-day evap	Tier 2 Cert Test Gasoline	08/20/2004	No	Pass	N/A
Toyota Motor Corporation	7TYX01066912 (4TYX01049517)	04-ACV1 / 4	7TYXV02.4BEB	7TYXR0130A12	2007	2-day evap	Tier 2 Cert Test Gasoline	08/20/2004	No	Pass	N/A
Toyota Motor Corporation	7TYX10000082 (4TYX01049515)	04-ACV1 / 4	7TYXV02.4BEB	7TYXR0130A12	2007	Federal Fuel Running Loss	Tier 2 Cert Test Gasoline	08/20/2004	No	Pass	N/A

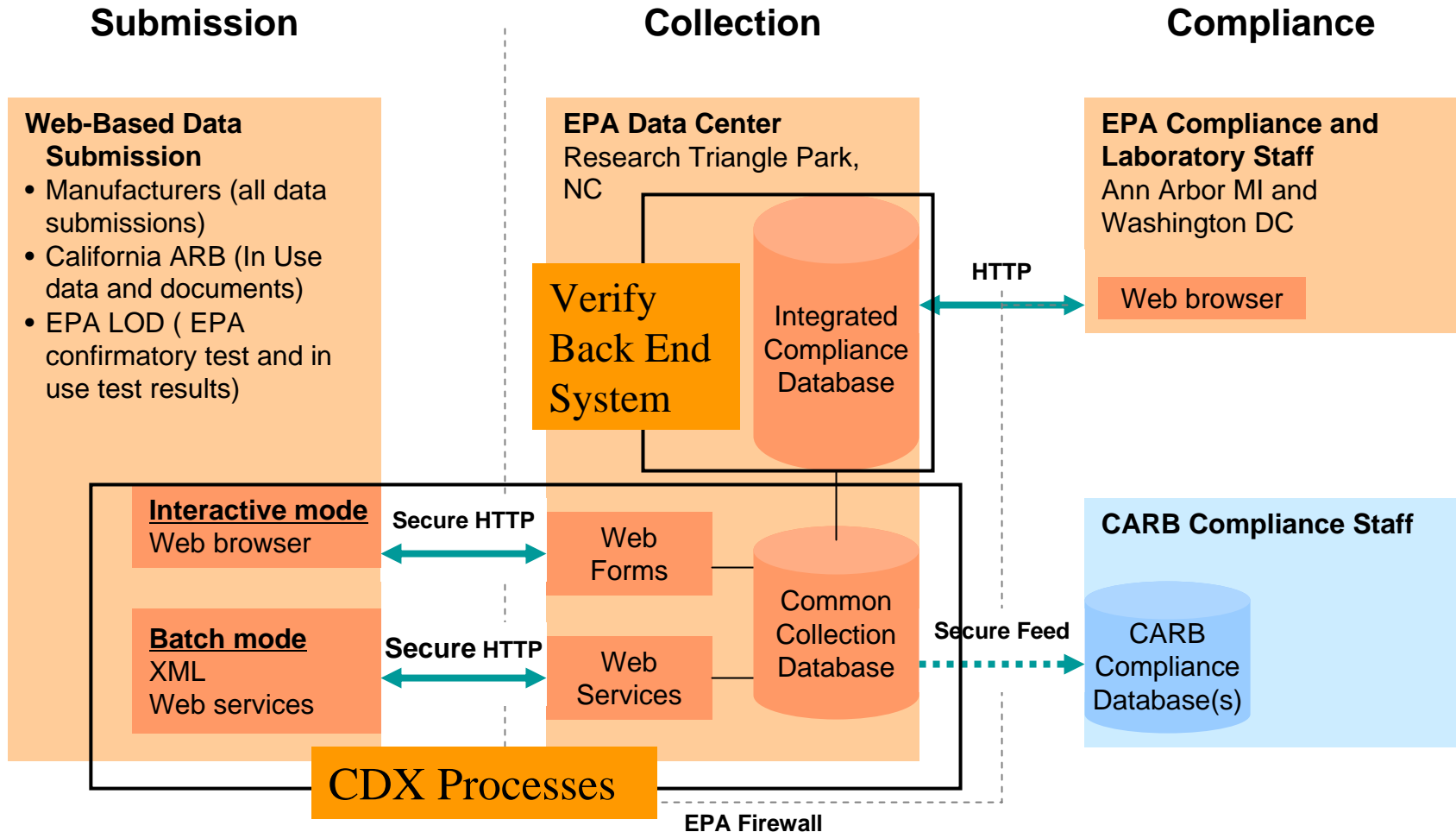
Local intranet 100%

Start Judy Jackson ... 4 Windows E... 2 Microsoft ... VERIFY Home... Verify Docum... https://Verify-... Verify: Motorc... Test Inform... docDisplayDoc... 10:21 AM



Verify and CDX

Verify System Architecture





Verify Works With CDX

- Timeliness
- Access
- Quality



Timeliness

- Processing Certificate Application Information
 - Before CDX/Verify
 - Information came in different formats (hard copy, spreadsheets, etc)
 - EPA had to manually input several times for different systems
 - Average processing time in some sectors 15 to 30 days.
 - Smaller manufacturers who infrequently submitted forgot how to use system and depended on EPA to “walk” them through the process



Timeliness

- Processing Certificate Application Information
 - After CDX/Verify
 - One validated format
 - Manufacturers upload XML file or use web forms
 - Integrated help in web forms makes submission self-explanatory
 - Average processing time 1 – 2 hours



Timeliness

- Scheduling Engine/Vehicle Tests at EPA Lab
 - Before CDX/Verify
 - Hard copy forms received
 - Manual Inputs
 - Fax information to/from the lab
 - Fax schedule back to manufacturer
 - Average – 2 to 3 day turnaround



Timeliness

- Scheduling Engine/Vehicle Tests at Lab
 - After CDX/Verify
 - Test information submitted through CDX
 - Lab is notified and schedules tests
 - Manufacturer receives schedule through CDX
 - Average – 1 to 2 day turnaround



Timeliness

- Distributing Certificates
 - Before CDX/Verify
 - Certificates were checked for errors
 - Certificates were printed and signed
 - Signed certificates were scanned and emailed or faxed
 - Hard Copy certificates were logged and filed
 - Average – 1 to 2 day turnaround



Timeliness

- Distributing Certificates
 - After CDX/Verify
 - Certificates are created with CDX validated data
 - Certificates are electronically signed in Verify
 - Signed certificates are stored and sent to manufacturers CDX inbox
 - Average – < 20 minutes



Access

- Submission of Data and Files
 - Before CDX/Verify
 - Manufacturers submitted information in different forms (structured data, spread sheets, Filemaker Pro templates, hard copy)
 - Manufacturers sent information through various delivery systems (FTP transfers, email, fax, postal service, hand delivered)



Access

- Submission of Data and Files
 - After CDX/Verify
 - Manufacturers submit standard XML – formatted files through CDX
 - Manufacturers can submit the raw XML file or they can build the XML file through web forms in CDX
 - Manufacturers receive transaction reports in XML that can be viewed with web browser in “human readable format” through their CDX inbox



Access

- EPA Reviews Data and Files
 - Before CDX/Verify
 - EPA did not have a common place to view compliance information
 - EPA could not easily query compliance information
 - The EPA lab did not have easy access to compliance information



Access

- EPA Reviews Data and Files
 - After CDX/Verify
 - EPA is notified electronically when information is ready for review
 - EPA can go to a common place to review information
 - EPA can easily query compliance information
 - The lab has easy access to compliance information



Access

- EPA works with California Air Resource Board (CARB)
 - Before CDX/Verify
 - EPA had to query and send manufacturers in-use reporting information to CARB
 - Manufacturers had to send essentially the same motorcycle/alternate terrain vehicle certification information to CARB and EPA in different formats



Access

- EPA works with California Air Resource Board (CARB)
 - After CDX/Verify
 - Manufacturers send in-use reporting information to EPA and CARB in the same submission through CDX
 - Manufacturers send motorcycle/alternate terrain vehicle certification information to CARB and EPA at the same time with the same XML format.



Quality

- EPA validates information
 - Before CDX/Verify
 - Locomotive and motorcycle/atv had to be reviewed manually to check the quality of data
 - Manufacturers would continually resend vehicle information making minor changes until the system accepted it



Quality

- EPA validates information
 - After CDX/Verify
 - Data validation occurs through CDX before information can be submitted to Verify. No need for manual data review
 - Additional Verify business rules assists further with the “does this make sense” review



Contact

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Or go to the Verify Website:
<http://www.epa.gov/otaq/verify>



The Underground Injection Control (UIC) Program

**Carl Reeverts
Office of Groundwater and Drinking
Water**

December 11, 2008, Phoenix AZ



UIC Agenda

1. Introduction – Using CDX to Flow State UIC Data to EPA
2. Overview of UIC Program
3. The UIC Database -- Background and Accomplishments to Date
4. Implementation Challenge
5. Technical Challenge
6. Program Challenge



1. Introduction – Using CDX to Flow UIC State Data To EPA



Why We Developed a New UIC Database

- **Purpose:**
 - Provides single Agency resource for all UIC data
- **Benefits:**
 - Provides tools for basic program management
 - Meets needs of new initiatives (CO₂, DWTR)
 - Facilitates program integration
 - Allows programs access to reporting tools
 - Decreases reporting burden



2. Overview of UIC Program



Overview of the UIC Program

- Designed to protect underground sources of drinking water and provide a safe and cost effective means for industries, municipalities, and small businesses to dispose of their wastes
- More than 750 billion gallons of fluid are injected each year
- The number of injection wells range between 660,000 and 845,000

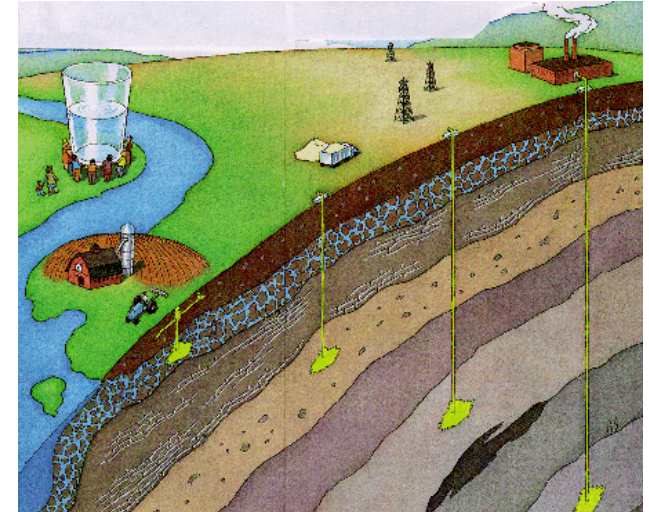




Responsibilities of the UIC Program

What is Underground Injection?

- The practice of placing fluids (*injectate*) underground, in porous formations of rock and/or soil, through wells or other similar conveyance systems.

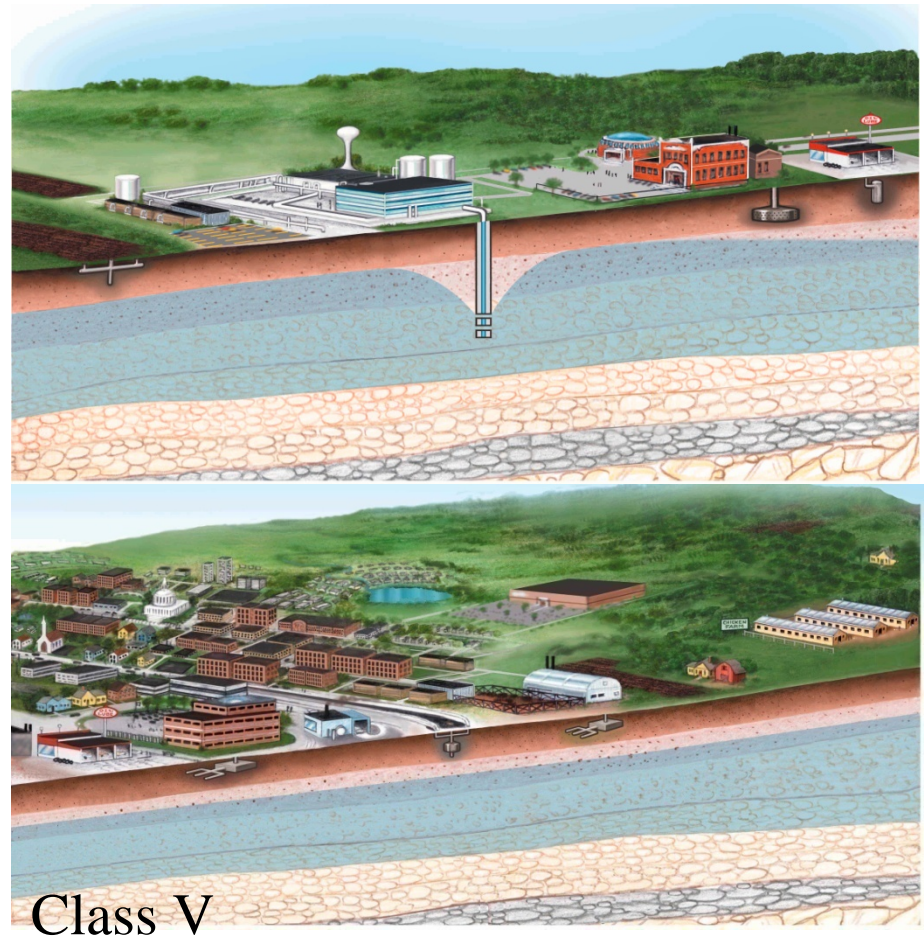
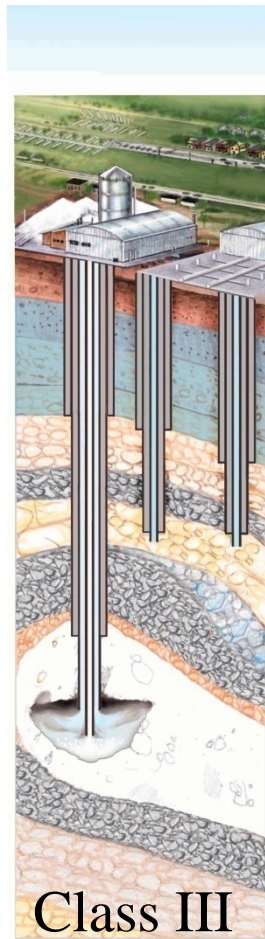
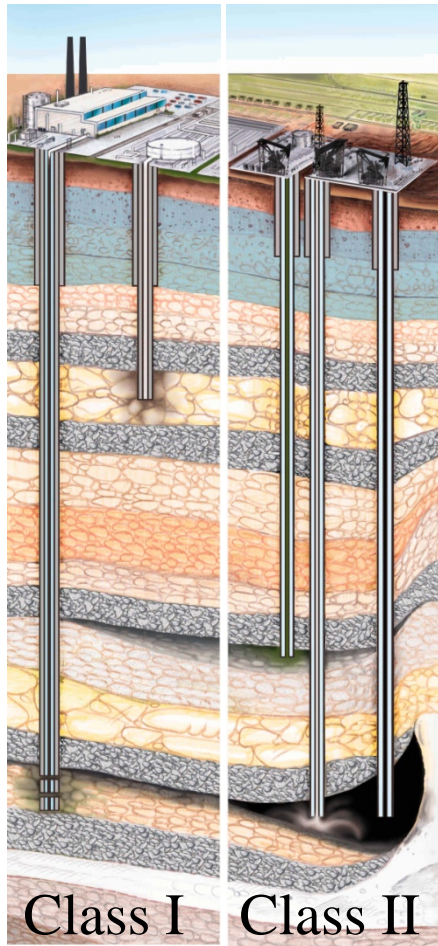


- Underground Injection is linked with:

Some of the nation's most important industries (mining, oil & gas, petrochemical & industrial manufacturing); Many common-place practices that Americans rely upon daily (e.g., waste disposal in septic systems; storm water drainage) .



UIC Program Framework

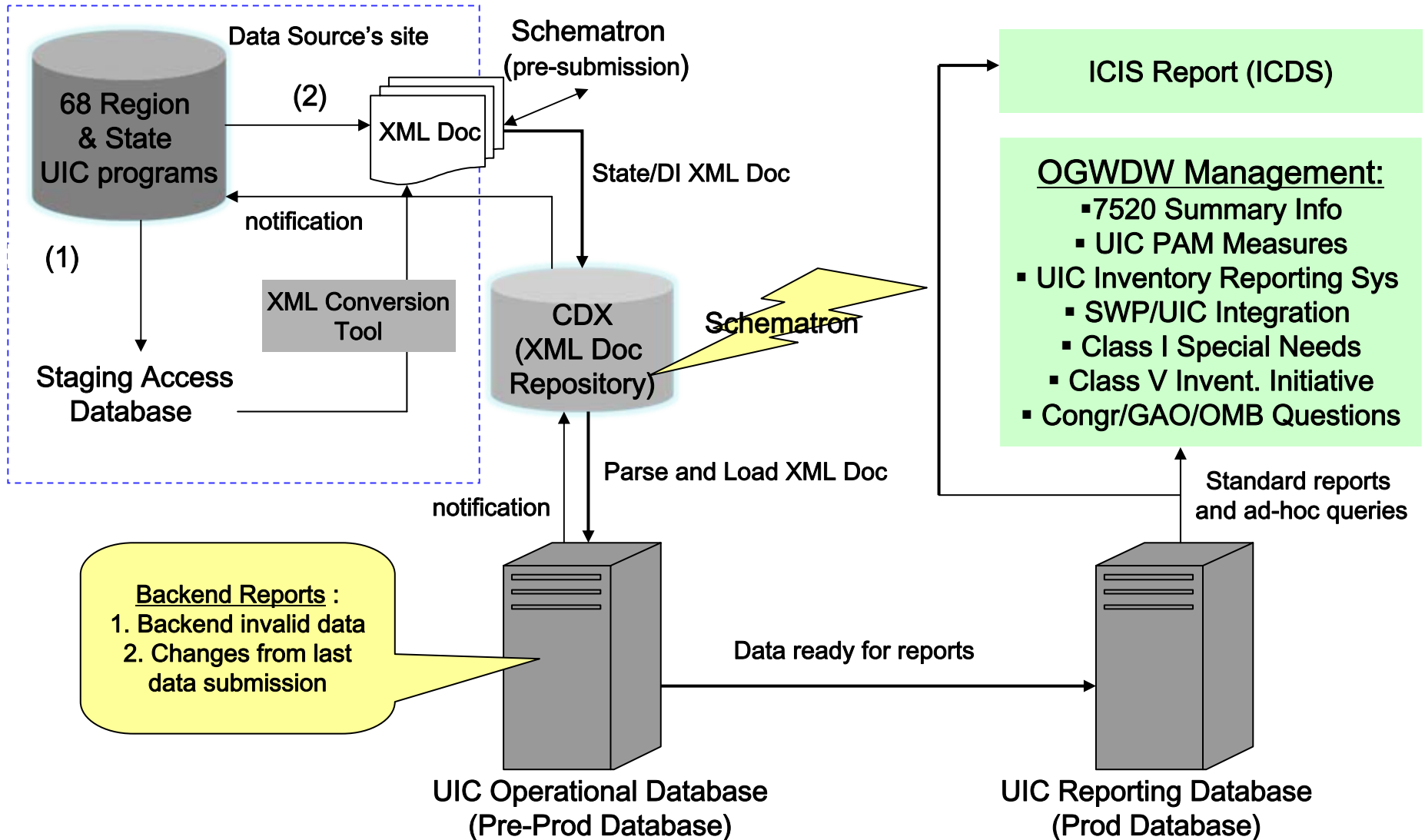




3. The UIC Database – Background and Accomplishments to Date



UIC Dataflow thru CDX





Multiple State Collaborative Outreach Effort

- **State/EPA Data Management Steering Committee**
 - Promotes participation in national database, oversees changes, weighs in on data use and interpretation, tech transfer
- **Regional Data Management Coordinator**
 - Regional participation to help the states submit and perform QA/QC is critical
- **Integrated Project Team 2 starting in January**
 - Hard work gets done in this group
 - Consists of new network exchange grantees



One Year After UIC DB Launch..... **What Returns Have We Seen**

- Data system running successfully for 5 submission cycles (4 FY quarters)
- 98,000 wells data or 14% total UIC well inventory in the country (from 11 programs)
- Paper report burden reduction:
 - 2 ready to eliminate paper reports
 - 4 on their way
- Improvements on data management of state programs and OEI
- Achieving e-government goal



Integrated Project Team: Development Partners

Montana – Board of Oil and Gas Conservation

Wyoming – Department of Environmental Quality

Utah – Department of Environmental Quality

Delaware – Department of Natural Resources &
Environmental Control

Region 3 DI – PA, VA, DC

Region 4 DI – KY, TN, FL (Class 2), Tribes

Region 5 DI – MI, MN, IN, Tribes

Region 6 DI – Tribes

Region 7 DI – Iowa, Tribes

Region 8 DI – CO, SD, Tribes

Region 9 DI – AS, AZ, CA, HI, Tribes



Unintended Successes

- Increasing consistency
- Identifying gaps/deficiencies
- Structuring Class V data
- Partnering with RBDMS Programs & GWPC
- Expanding communication network
- OEI Recognition



4. Implementation Challenge:

Shift to electronic commerce to flow UIC data to EPA is a “cultural change” requiring unique state/EPA solutions

Successful implementation into the program depends on how effective and “user friendly” CDX is in flowing the UIC data into EPA and what benefits are realized from the shift to e-reporting.



5. Technical Challenge:

How to Ensure High Quality, Timely, Complete UIC Data Flow In from 68 Separate State Programs



Data Mapping Process

1. Agree on Data to Transfer



2. Perform Logical Mapping



3. Conduct Physical Mapping



4. Validate XML File



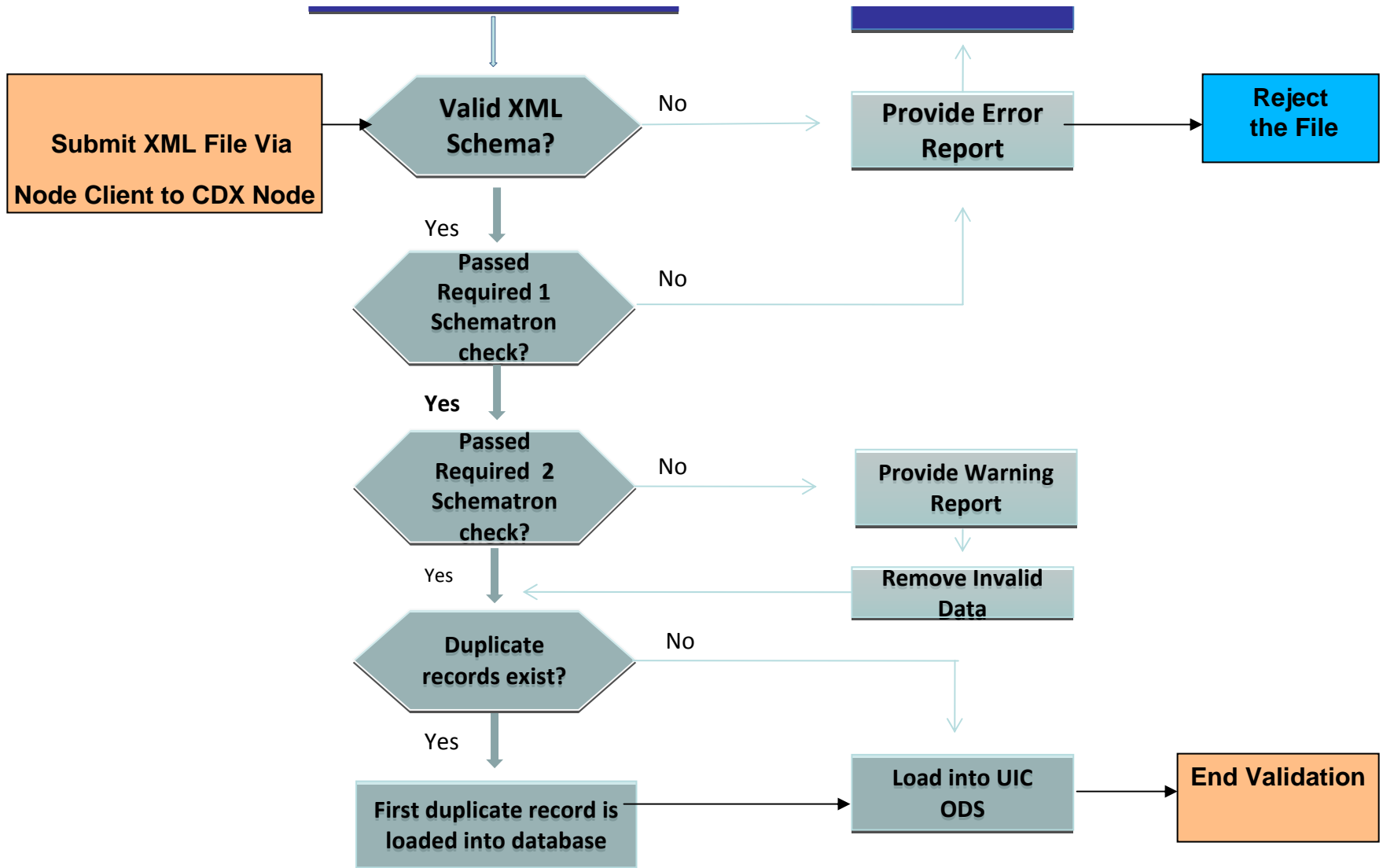
5. Submit XML File to CDX



UIC Business Rules

- A set of requirements that ensure:
 - the referential integrity of the database structure
 - the existence of core information for national UIC program reports
- Two types of data requirements: Required 1 (mandatory) and Required 2 (required but not mandatory)
- Required data types are set at hierarchy level: table and data element

UIC Submission Validation Process





Early Implementation “Bumps in the Road”

- **Early hiccups resolved**

- Change in data model, users not tech-savvy, Schematron reporting service was unmanageable

- **Schematron**

- Used to validate UIC business rules required significant modification to meet program requirements

- **CDX Production Issues**

- Elapsed time to submit data through the exchange network to our new data base was significantly slower than expected – *An analysis of the problem and its solution is currently underway*

- **Program Databases Incomplete**

- Initial data sets received from 11 States and DI programs were not complete or consistent with business rules, requiring longer phase in to replace existing reporting than anticipated



6. Program Challenge:

How to Get All UIC Programs to Share Data to Fully Populate UIC Database by 2012



Universe of Data Submitters

There are 68 state/DI programs with data that need to flow UIC database

- DI programs for state/tribes = 10
- Primacy programs with data = 58 (includes oil and gas agencies)
 - **Example: Texas has 2 programs: TCEQ for Classes I, III, IV, and V and TRRC (oil and gas) for Class II**



Strategy to Populate UIC Database

Goal: Fully populate with existing information by 2012

Metrics: Inventory and # of States

• Network Exchange Grantees	17% (107,487)/19
• Regional DI Programs	28% (179,161)/10
• High-Inventory States	
– Texas	12% (80,049)/2
– Florida	8% (55,266)/1
• Remaining States	35% (229,547)/36
TOTALS:	100% (651,510)/68



Contacts: UIC Data Core Team

Technical Questions

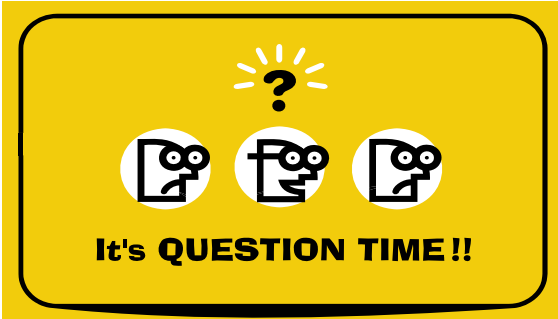
- Carl Reeverts - (202) 564-4632
- Trang Le - (202) 564-1572

Program Questions

- Robert Smith - (202) 564-3880

Regional Support, Data Security Questions

- Towana Dorsey - (202) 564-4099



Questions?

