

FUDSChem - From laboratory to database: Journey of FUDS Data

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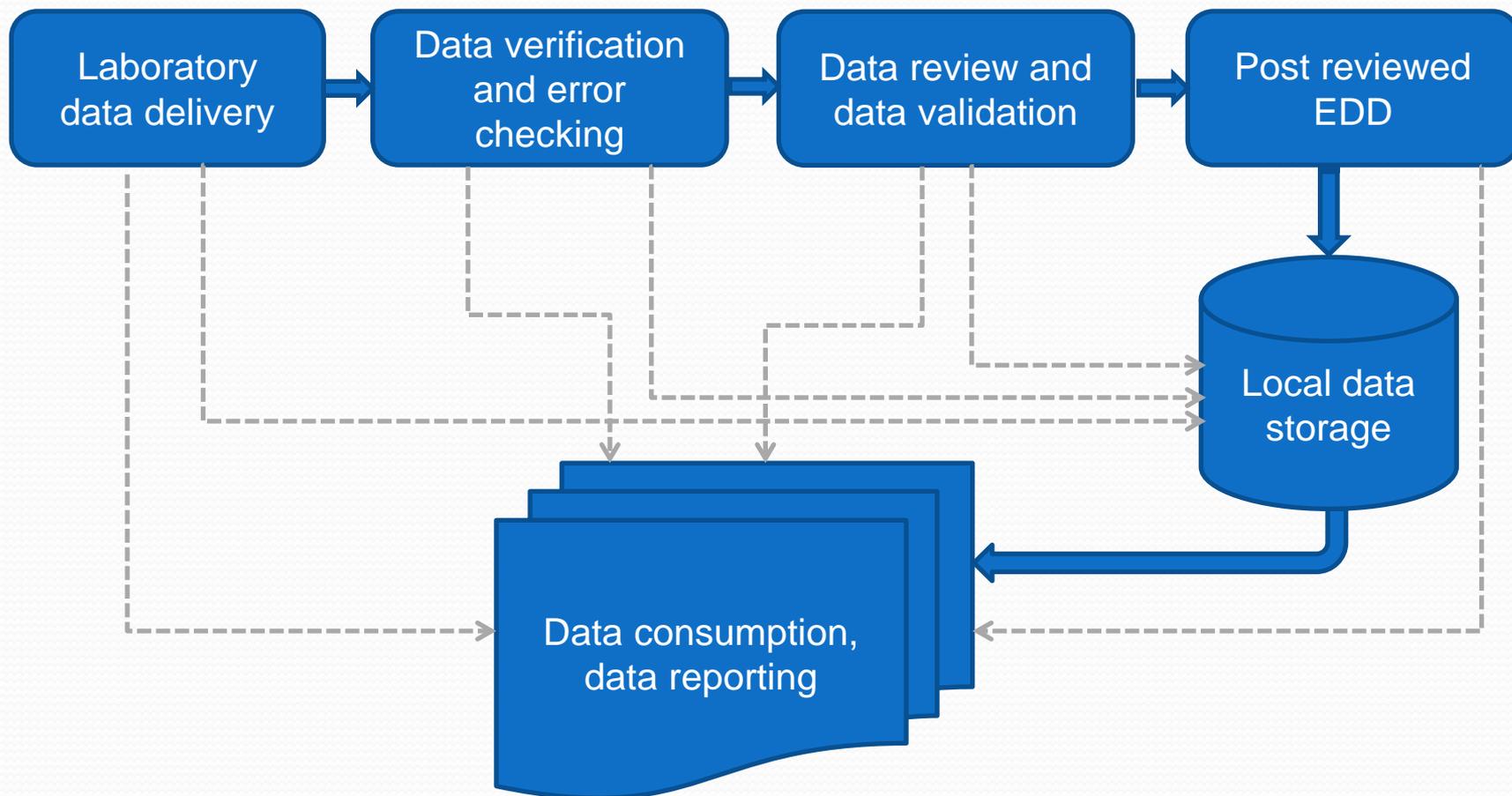


US Army Corps of Engineers

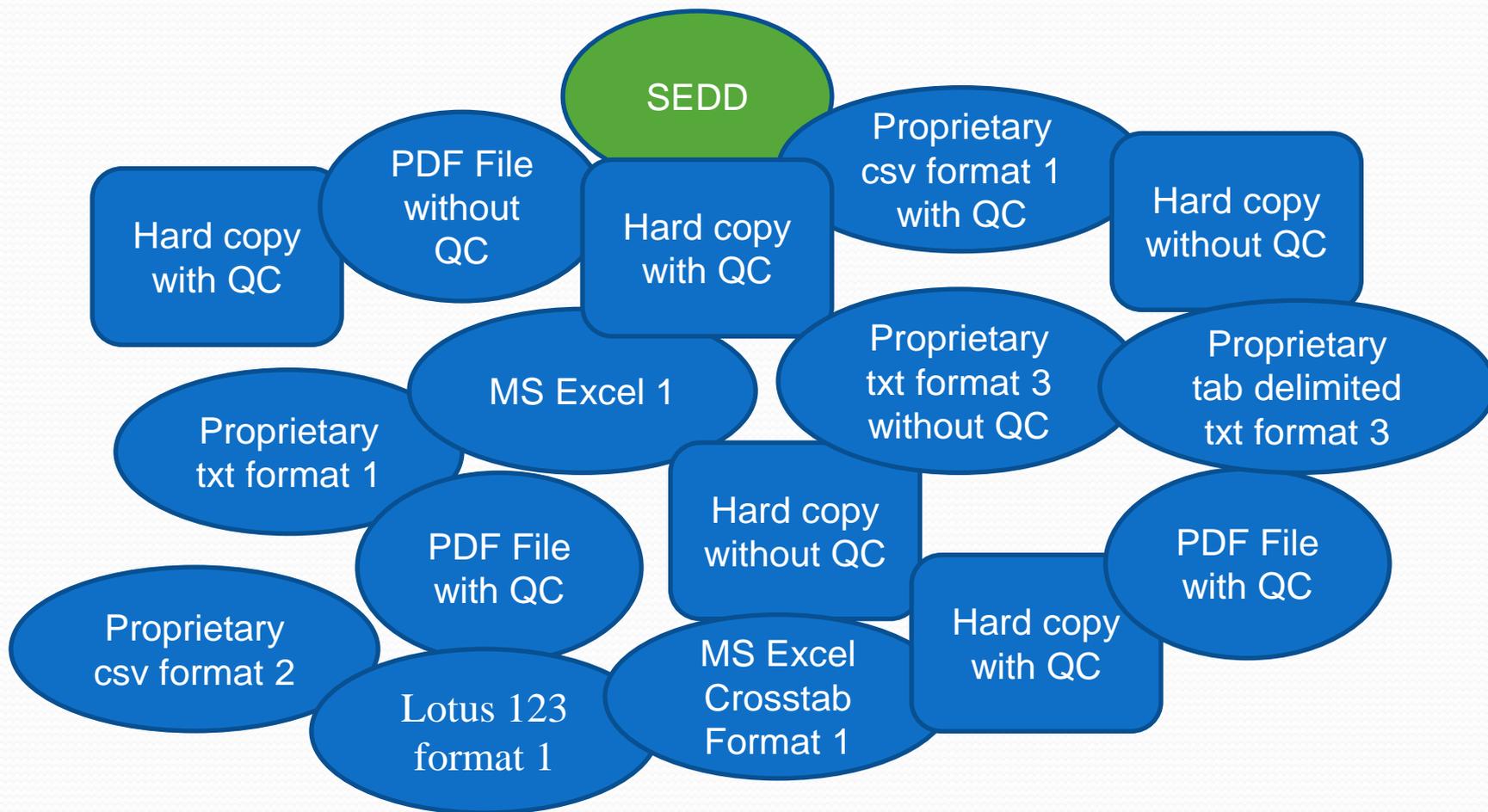
LDC, Inc.



FUDS Data: The uncertain and beaten path(s)

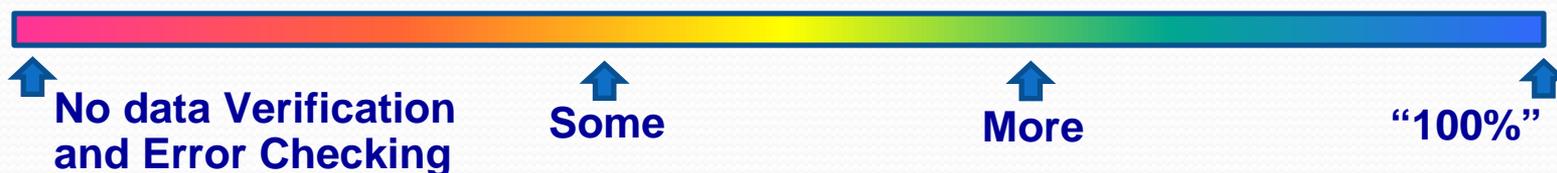


FUDS Data: The uncertain and beaten path(s) Laboratory Data Deliverables



FUDS Data: The uncertain and beaten path(s)

Data Verification and Error Checking



Examples:

- All project required target analytes reported?
- All method required QC samples and analytes reported?
- All required spike analytes reported?
- QSM required content reported (ie. LOQ/LOD/DL)?
- Required LODs achieved?
- Consistent content (FUDS Properties, Projects, Locations, analyte names, etc.)?
- Content formatted correctly (Dates, numbers, field lengths, etc.)

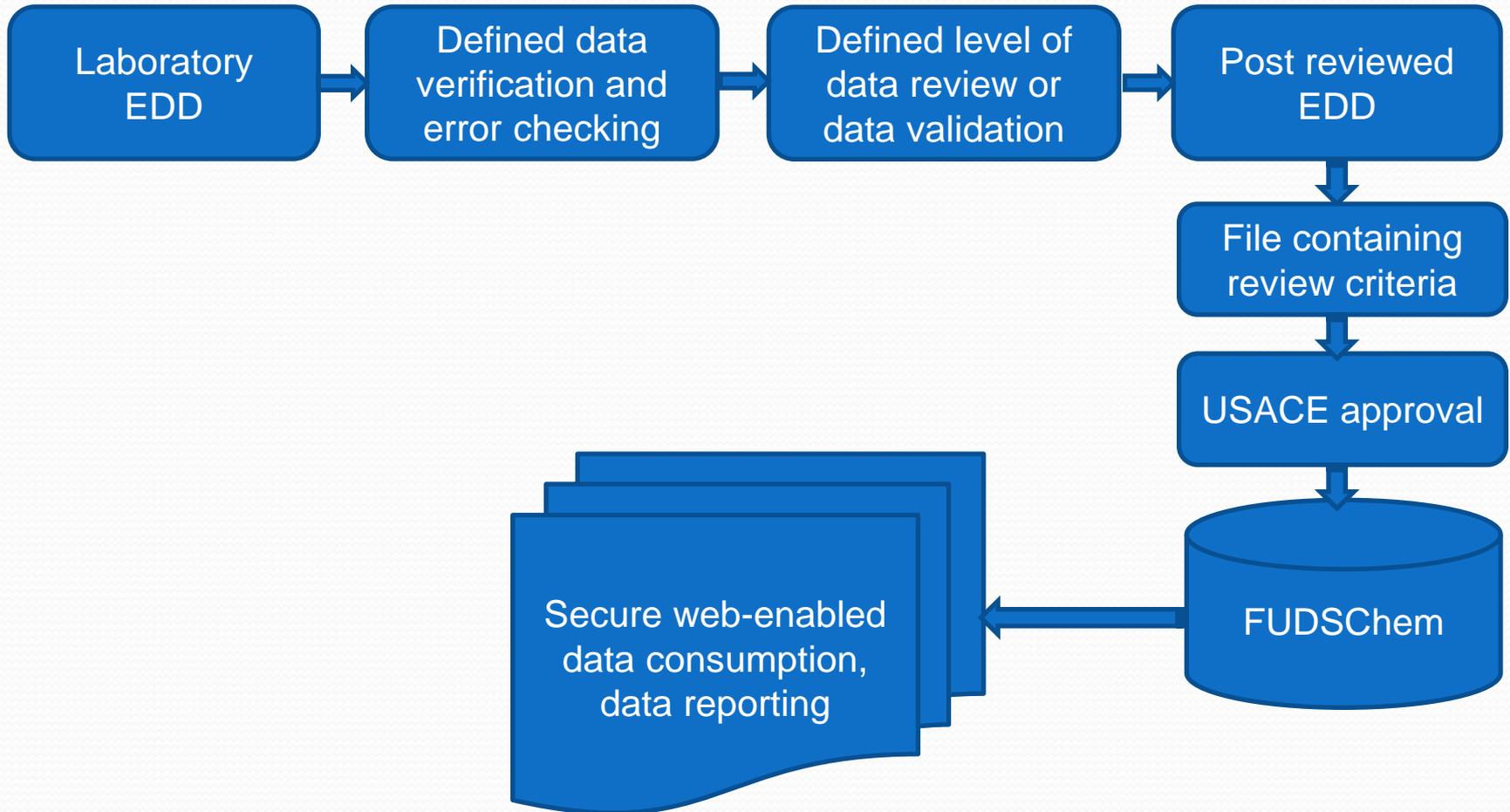
FUDS Data: The uncertain and beaten path(s) Data Review, “Data Validation”



Examples:

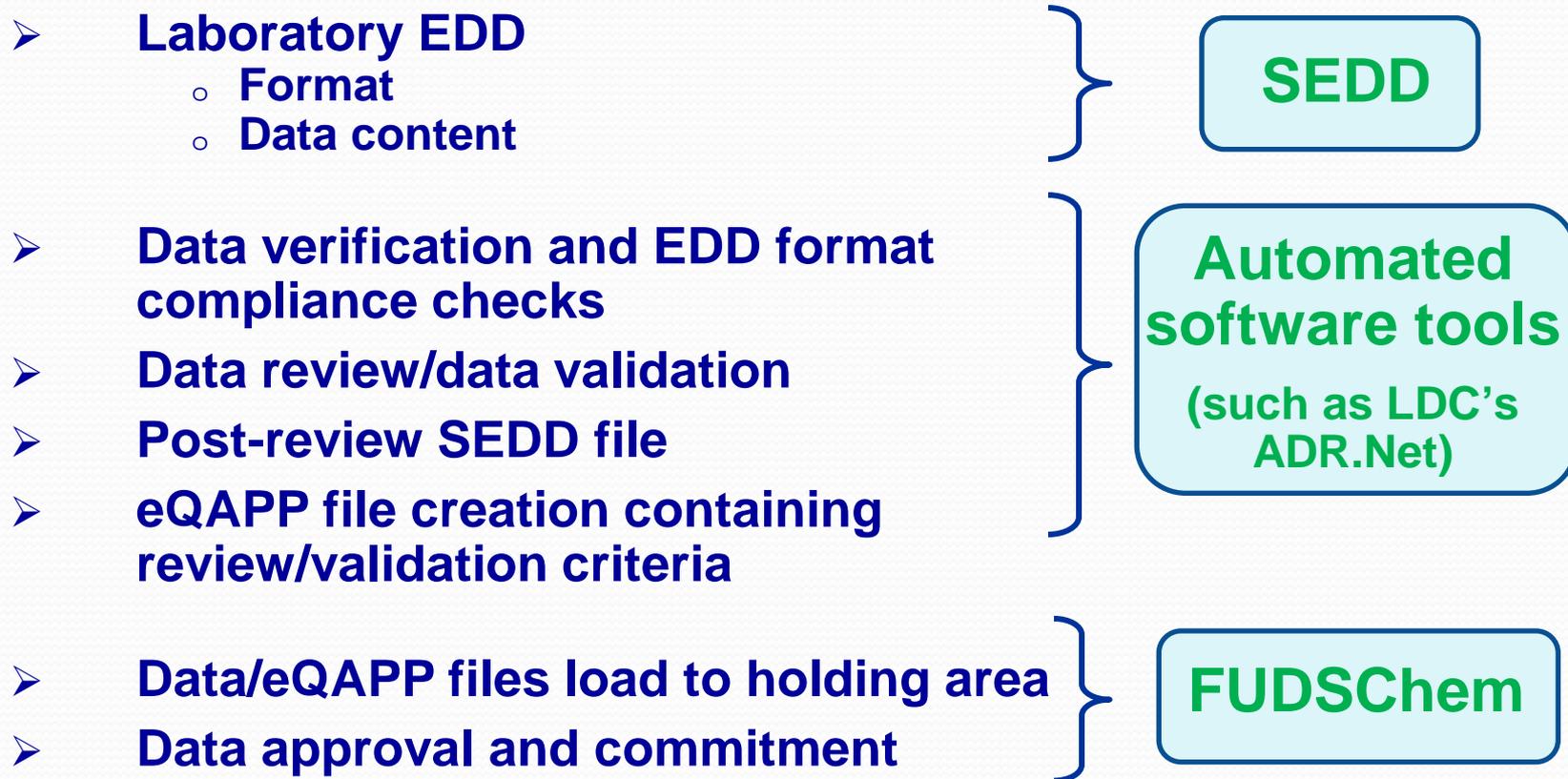
- All project required target analytes reported?
- All method required QC samples and analytes reported?
- All required spike analytes reported?
- QSM required content reported (ie. LOQ/LOD/DL)?
- Required LODs achieved?
- Recalculations performed, chromatograms/spectra evaluated

FUDS Data: A clearer road ahead



FUDS Data: A clearer road ahead.....

Vehicles for the journey



FUDSChem: Journey of FUDS Data

FUDS Data: A clearer road ahead

Staged Electronic Data Deliverable (SEDD)

- **Well established format used by EPA and USACE**
 - SEDD specifications and data dictionary available on SEDD website
 - SEDD valid values used within FUDSChem
 - QSM 5.0 content (ie. Methods, analytes, LOQ/LOD/DL) used within FUDSChem and compatible with SEDD
- **Allows reconstruction of analytical process**

FUDSChem: Journey of FUDS Data

FUDS Data: A clearer road ahead

Staged Electronic Data Deliverable (SEDD)

- **Applicable to various matrices (ie. Soil, water, air, tissue, wipes, etc) and analytical methods and parameters (VOCs, explosives, metals, radiochemistry)**
- **Open data standard (XML)**
 - Independent of proprietary systems**
- **Common transmission standard (W3C)**
- **Post-review SEDD files are archived within FUDSChem to allow subsequent reconstruction**

FUDSChem: Journey of FUDS Data

FUDS Data: A clearer road ahead

Automated Data Review Tools (such as ADR.Net)

- **Automated data checker performs typical database checks**
 - Valid values
 - FUDS Property, FUDS Project
 - Locations
 - Analyte naming conventions, etc.
 - Field lengths
 - Required content
 - Data format (dates, numbers, etc.)
- **Project-specific eQAPPs can be constructed for use in data verification, error checking and data review/data validation**
- **eQAPPs exported for upload with reviewed SEDD files in FUDSChem**

FUDS Data: A clearer road ahead

Automated Data Review Tools (such as ADR.Net)

- **Incorporates master eQAPP containing all QSM 5.0 methods, analytes and QC criteria**
 - Serves as a starting point for creation of project-specific eQAPPs
- **Laboratories can perform automated compliance checks against project-specific eQAPPs**
 - Helps expedite delivery, review and upload of data
- **Data verification performed on the contents of SEDD files using project-specific eQAPP**
 - Ensures data completeness relative to project requirements and QSM 5.0 requirements (eg. LOQ/LOD/DL)

FUDS Data: A clearer road ahead

Automated Data Review Tools (such as ADR.Net)

- **Data review or validation performed on contents of SEDD files**
 - **Uses project-specific eQAPP and QSM 5.0 compliant criteria**
- **Data qualifiers automatically**
 - **Software allows reviewers/validators to modify qualifiers based on professional judgment**
- **EPA Validation Label is assigned to all data to indicate the level of review or validation**
- **Review performed on 100% of analytical data**

FUDS Data: A clearer road ahead

FUDSChem

- **Central repository for all FUDS analytical data**
- **An extension of FUDSMIS behind USACE firewall**
 - **Same look and feel as FUDSMIS**
- **All data must be associated with a valid FUDSMIS Property**
- **Web interface allows real time secure access to FUDS data throughout USACE**
- **Provides multiple layers of organization including access roles established by USACE Headquarters, Divisions and Districts**

FUDS Data: A clearer road ahead

FUDSChem

- **Central repository for field measurement data as well as analytical data**
- **Data consistency**
- **Archival of post-reviewed SEDD and eQAPP allows reconstruction of analytical and data review processes**
- **All data identified with EPA Validation Level**
 - **Allows users to know the level to which data has been reviewed/validated**

FUDS Data: A clearer road ahead

FUDSChem

- **Custom query engine**
 - Customized content and format
 - Sorting, filtering, grouping
 - Multiple data layers allow data to be queried within a FUDS Property, a FUDS Project, a Division, a District, or across layers

- **Data export**
 - Data can be exported directly to Excel (or text)

- **Reports**
 - Common reports; list will grow over time based on needs
 - Can be exported as Word, PDF, Excel, etc. for subsequent use or editing

FUDSChem status and the next steps

- **FUDSChem was brought online in 2013**
- **Division and District Administrator access has been provided**
 - **Administrators provide access within their Division or District**
- **Web-based training has been provided**
 - **Additional training available for new and existing user**
- **Current status allows for manageable steps forward**

FUDSChem status and the next steps

- **Data loading in progress**
 - **Focus is on current and new data !!**
 - **Current data: Convert to FUDSChem VVLs (LDC assisting)**
 - **New data: Convert existing eQAPPs to FUDSChem VVLs (LDC assisting)**
- **Alaska District SEDD import**
- **Field data collection and import routines**
- **Additional reports**

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