Overcoming the Challenges of Data Migration & Management, A 300-Site Case Study

Kyle Power, Environmental Chemist • August 18th, 2020 • 2:30PM

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Conversation at a Glance

- The Data
- Migrating the Data
- Organizing/Accessing the Data
- Navigating/Understanding the Data
- Exporting/Reporting the Data
- Managing the Data

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The Data

- Groundwater and leachate data from 300+ U.S. landfill sites, including analytical, fluid-level, and field parameter data for organic, inorganic, and general chemistry constituents
  - 31 million + data point as of today (spanning more than 30 years)

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Previous Database

- Previously stored in a one-person-managed database with no access for the client/consultants
  - All query outputs and inquiries had to be performed by the database manager
  - All data outputs were in a restricted format
  - Lack of precise, quality assurance and quality control checks

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Migrating the Data

- New Location: Trihydro's in-house database called Project Direct
- Match up parameters from previous database to Project Direct
- Resolving duplicate data issues
- Work with client when data would not match valid values
  - Locations, analytes, site names, etc.
- Millions of data points migrated in Fall of 2017

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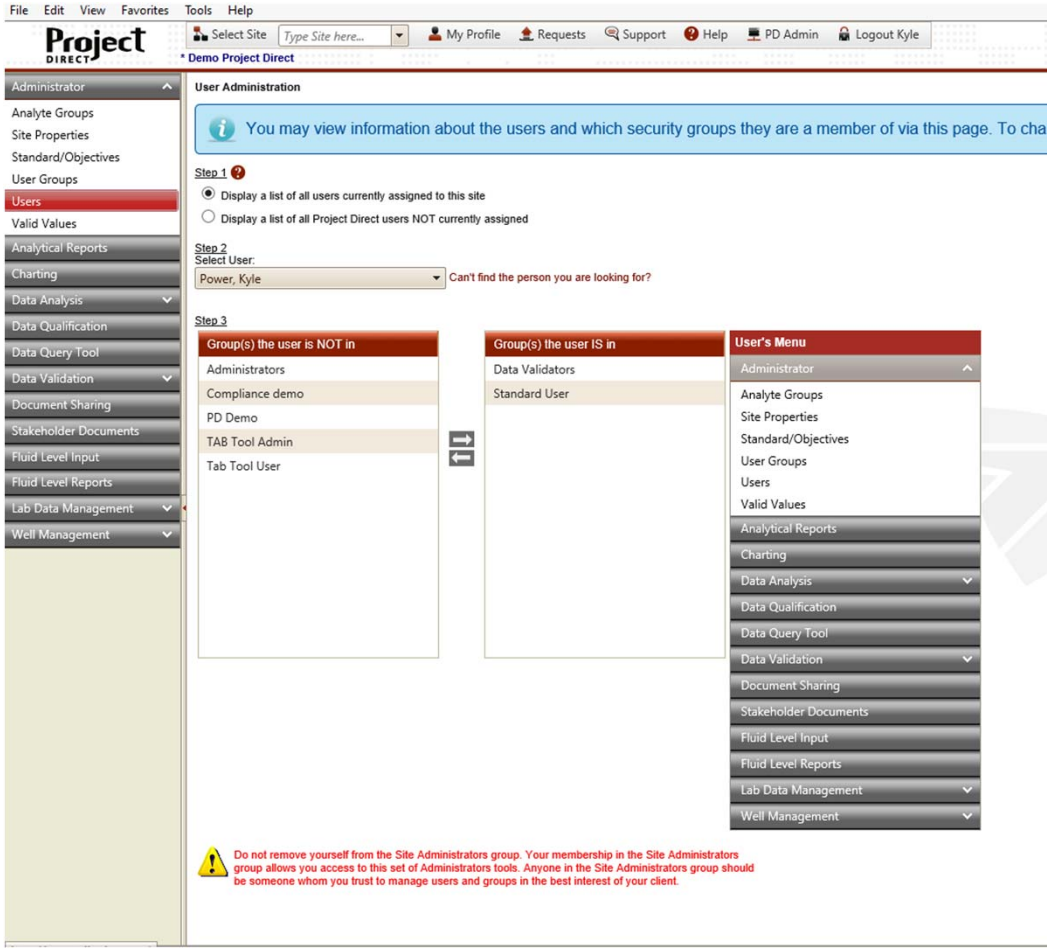
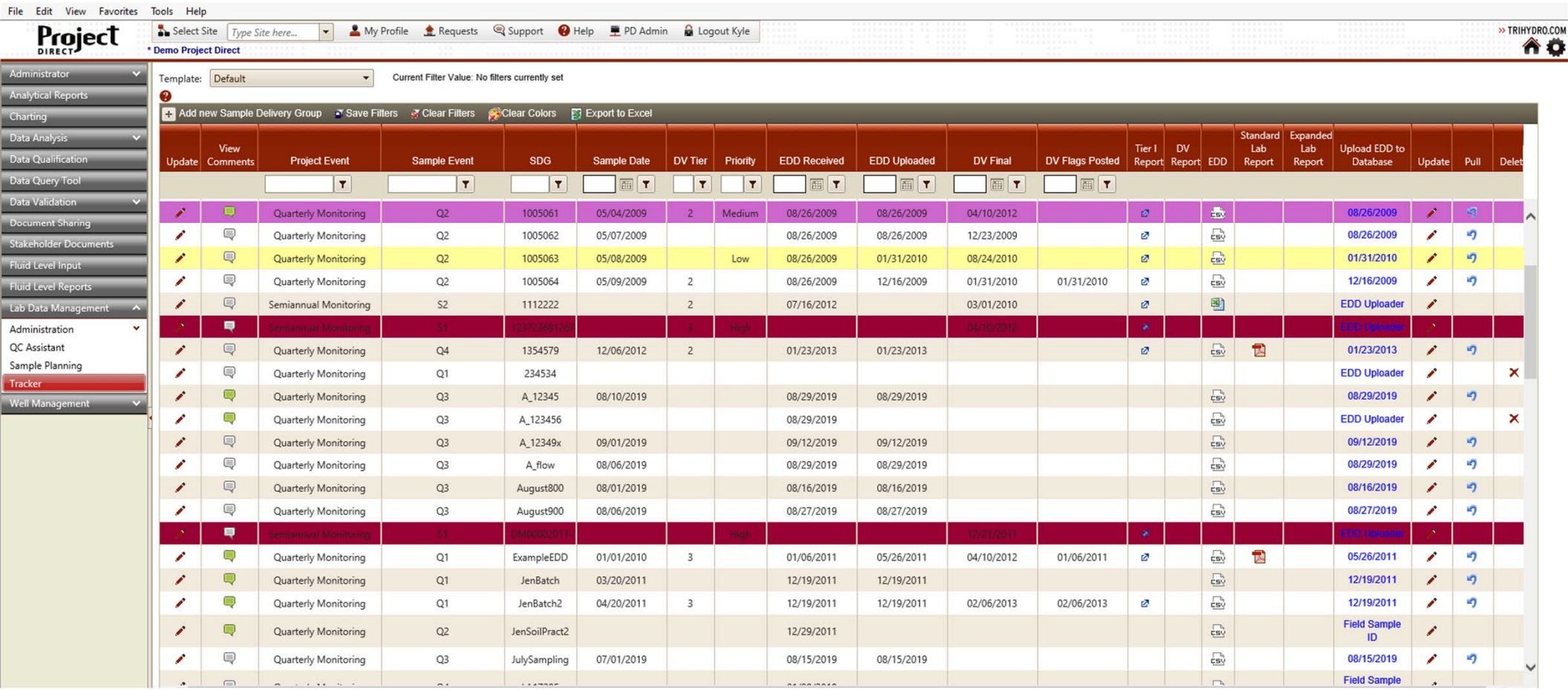
Organizing/Accessing the Data

- Each project site's data is stored in its own secure database
  - Give individual access to clients and consultants
  - Set up permissions to those individuals based on their position
  - Access specific data using unique modules
- Store inactive sites elsewhere, but still accessible if needed



ORGANIZING THE FLOW OF DATA



Understanding and Navigating the Data

- Training
  - Provide specific trainings for client managers and consultants on the different Project Direct modules and where to access these modules
  - Record these training sessions for future database users who need access
  - Provide contact information if/when database users need assistance
  - Provide refresher trainings for future years
- Make navigation through site modules easy to understand for users

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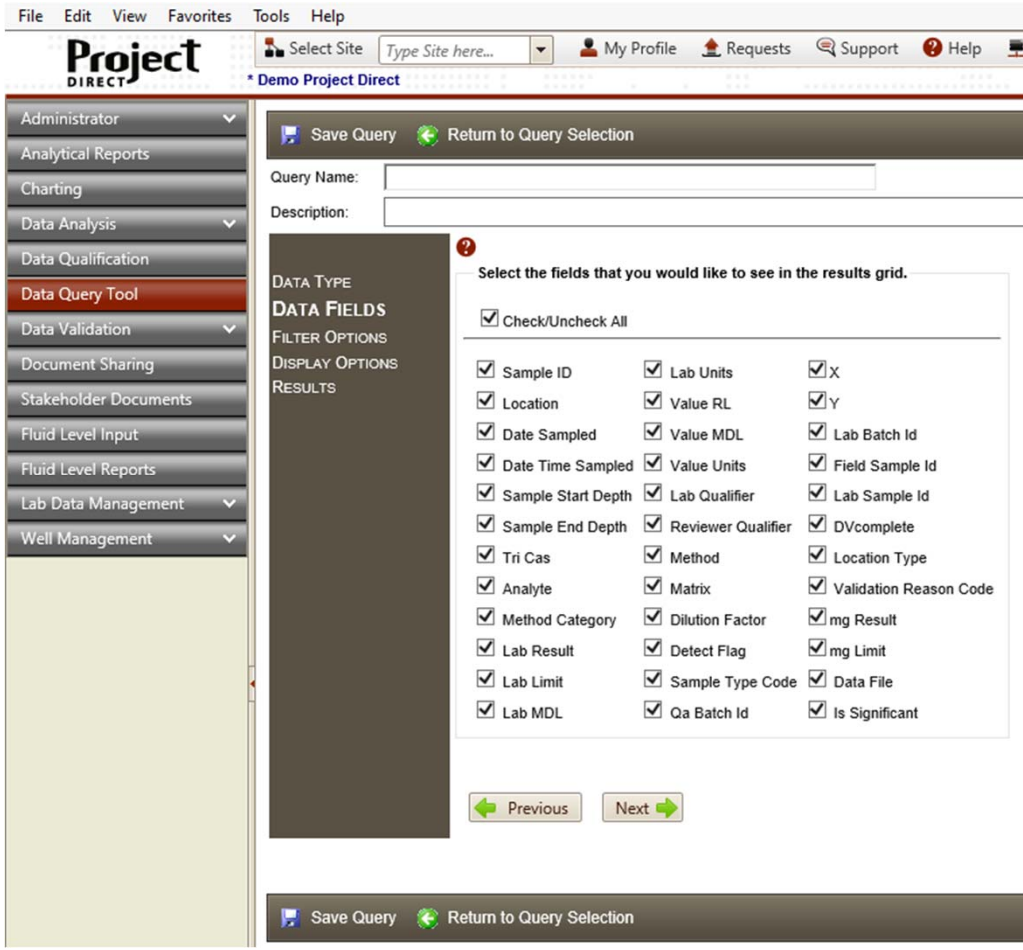
Exporting/Reporting the Data

- Client managers and consultants can access data using unique modules
  - Data Query Tool
    - Thousands of data points at a time
    - Custom export format
  - Analytical Reporting/Charting
  - Sample Planning
    - Create a plan now to compare that against incoming datasets later



Managing the Data

- Designated data manager with assistance upon absence
- Uploading for Past/Current/Future Data
- Revisions for Past Data
- Auditing
  - Valid values
  - User permissions
  - Tracking and statistics

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Conclusions and Other Tips

- Management of 300+ sites is possible!
- Managing these sites for 2+ years and going strong
- Be thorough, but also quick to plan and act
  - Prepare migration/implementation/management well ahead of time
  - Don’t be afraid to divert effort for a better solution
  - Don’t procrastinate in training, responses, or management

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Conclusions and Other Tips

- Be Vigilant
  - Pay attention to everyone involved in the system
  - Be more proactive than reactive
  - Ask users for advice or things they would like to see in the database
- Keep a well-oiled machine (database)
  - Keep up to date on new technologies/advancements
  - Consider client needs rather than your own

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Code of the West

Trihydro adopted the "Code of the West" in 2005 as our corporate code of conduct, and we use it to guide our business each day.

1. Live Each Day With Courage
2. Take Pride in Your Work
3. Always Finish What You Start
4. Do What Has To Be Done
5. Be Tough, But Fair
6. When You Make A Promise, Keep It
7. Ride For The Brand
8. Talk Less And Say More
9. Remember That Some Things Aren't For Sale
10. Know Where To Draw The Line

From "Cowboy Ethics" by James P. Owen