DART for CSN

(Data Analysis and Reporting Tool for Chemical Speciation Network Data)

Jennifer DeWinter, Steve Brown, and Hilary Hafner
Sonoma Technology, Inc.

Beth Landis
U.S. EPA

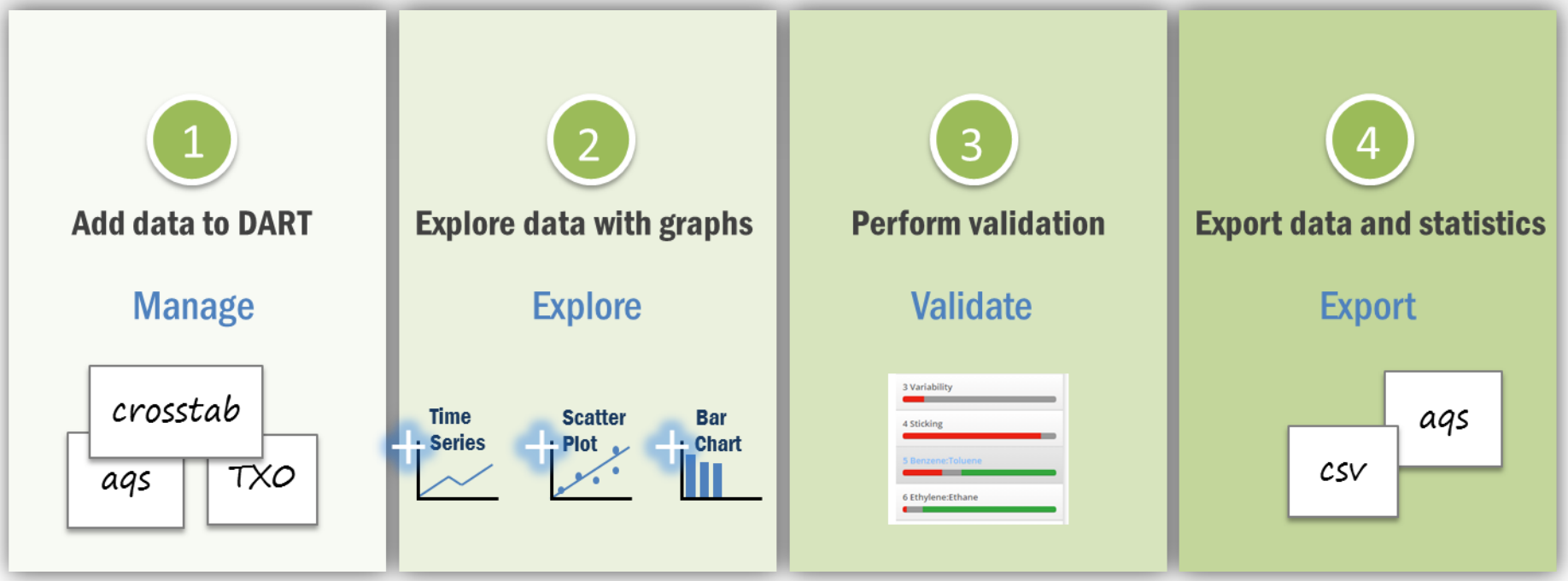
for

National Ambient Air Monitoring Conference
PAMS Session
St. Louis, MO

August 10, 2016

Sonoma Technology, Inc.

Data Analysis & Reporting Tool



- DART is a web-based data validation and analysis tool, and is part of a suite of tools available in EPA's AirNow-Tech.
- DART allows monitoring agencies to manage, explore, validate, and flag data – including automated screening, statistical summaries, and preparation for AQS submittal.

Accessing DART

Requires AirNow-Tech account

http://www.airnowtech.org

Log In

Dashboard | Data | Navigator | Forecasts | Polling | Notifier | Tools | Help

Tools → DART, MetDat

News and Events

The AirNow Discussion Forum

The EPA and the AirNow Data Management Center (DMC) have recently introduced the AirNow Discussion Forum to the community.

Located under the Help tab or at forum.airnowtech.org, the AirNow forum is a place to ask questions and join a discussion on various AirNow topics, including

- NowCast and AQI calculations
- Data Analysis Tools
- Data Delivery & Quality Control
- Forecasting & Reporting Areas
- EnviroFlash
- AirNowAPI

The website is publicly available. However, an AirNow-Tech account is needed to to login and post/reply to topics.

Thank you for your attention.

Posted July 15, 2016 15:41 (PT)

Polling Summary

Color Legend			
Green	Current	Yellow	2 to 6 hrs old
Red	over 6 hrs old	Gray	Unknown status

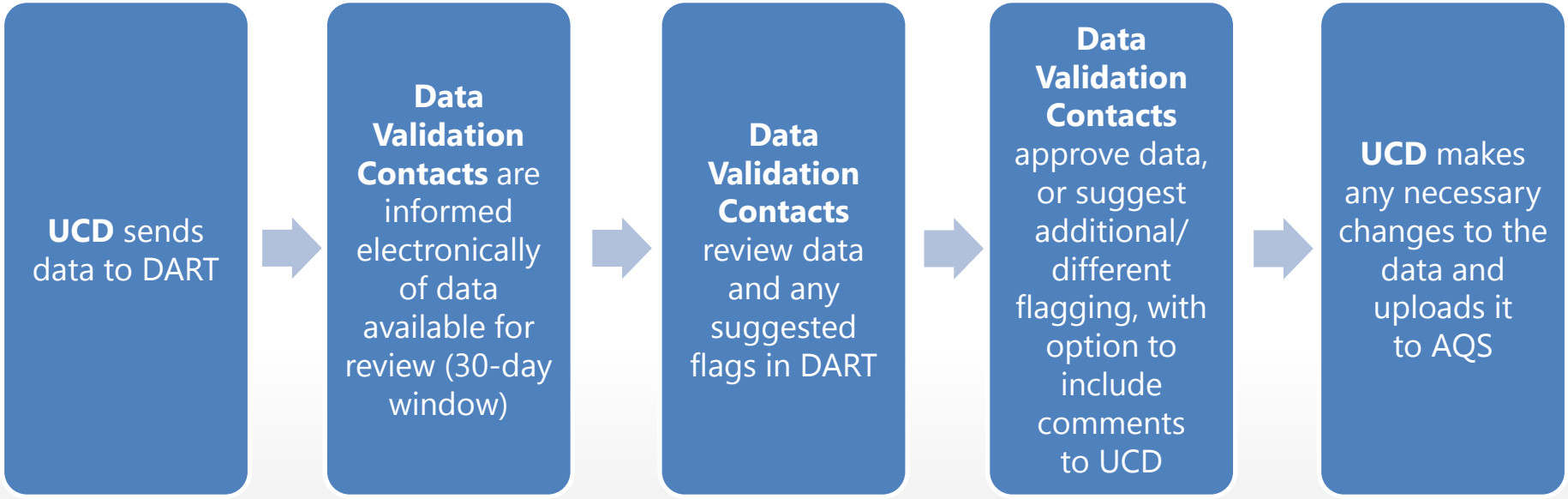
July 15, 2016 18:06 (ET) (All times are in ET)

Agency	Ozone	$PM_{2.5}$	PM_{10}
AB1	07/15 16:00	07/15 16:00	02/25 09:00
AIR			
AK1	07/15 16:00	07/15 16:00	07/15 16:00
AL1	07/15 16:00	07/15 16:00	10/28 13:00
AL2	07/15 16:00	07/15 16:00	07/15 16:00
AL3			
AL4	07/15 16:00	07/15 16:00	
AR1	07/15 16:00	07/15 16:00	
AZ1	07/15 16:00	07/15 16:00	07/15 16:00
AZ2	07/15 16:00	07/15 16:00	07/15 16:00

CSN Data Review Process

1. UC Davis (UCD) generates laboratory data; acquires mass data from continuous FEMs (as available) from AirNow-Tech.
2. UCD conducts data validation (details on next slide).
3. UCD sends the data batch to DART.
4. DART ingests the batch data, then automatically alerts CSN data reviewers (details on following slides) that data are available in DART.
5. CSN data reviewers then have 30 days to review and approve the data.
6. After 30 days, the data are sent back to UCD for final review and submission to AQS.

DART Data Flow for CSN



CSN Data Validators

- One agency is responsible for data validation for each site (e.g., the New York Department of Environmental Conservation will review Rochester site data).
- For each site, EPA provided a list of data validators and their associated agencies.
- All listed data validators for an individual agency have access to the agency data in DART; no one has access to data that are not for their agency.
- Once data are available for review in DART, the data validators will automatically be contacted via email.

CSN Data Review in DART

- Once data are in DART, validators have 30 days to review and approve the CSN batch.
- DART provides summary statistics
  - Flags and comments applied by UCD
  - Other data characteristics (percent complete, percent above detection limit, etc.)
- In DART, validators can flag and comment on data for UCD to review, and use sortable tables to review the CSN batch.
- Time series and bar plots are linked to the data table so validators can also graph the data.

CSN Data Review in DART

From: Dart Email Notification [mailto:noreply@airnowtech.org]
Sent: Friday, June 24, 2016 10:33 AM
To: Angela L. Ekstrand
Subject: Current batch of CSN data expires in 14 days!

Automated Notification Via Email

Dear DART User,

Please disregard this email if you have already completed your review.

You currently have a batch of CSN data waiting for you to approve in DART. These data are available until 11:59 pm on **Saturday, July 23, 2016**; upon expiration, the data are returned to the laboratory and submitted to AQS.

"Review By"

Your current batch has 2 sites.

QUEENS COLLEGE 2 (360810124) has 14 samples from 11/20/2015 00:00:00 to 12/29/2015 00:00:00.

PINNACLE STATE PARK (361010003) has 14 samples from 11/20/2015 00:00:00 to 12/29/2015 00:00:00.

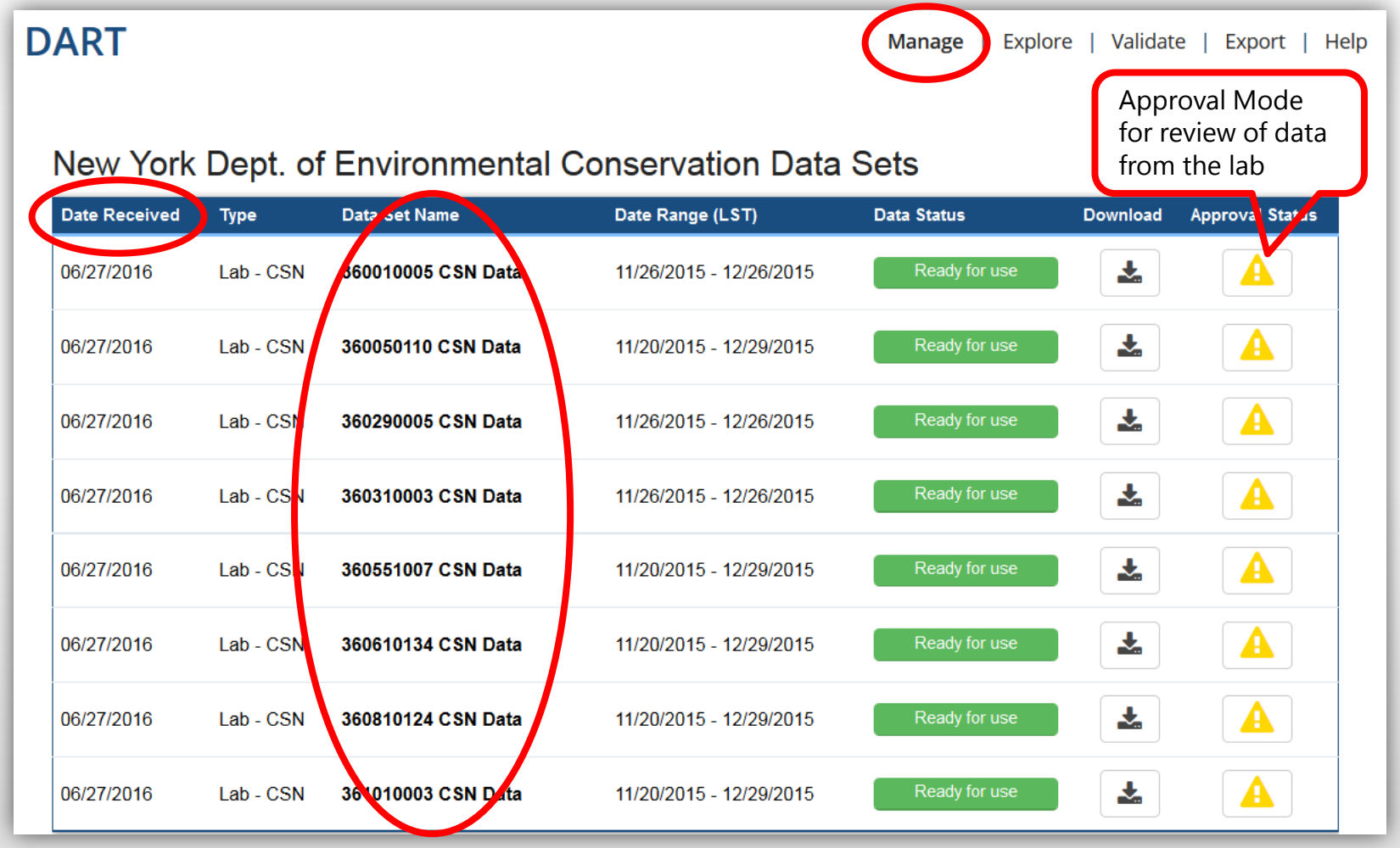
Data sets

Please email CSNsupport@sonomatech.com if you have questions or trouble accessing your data.

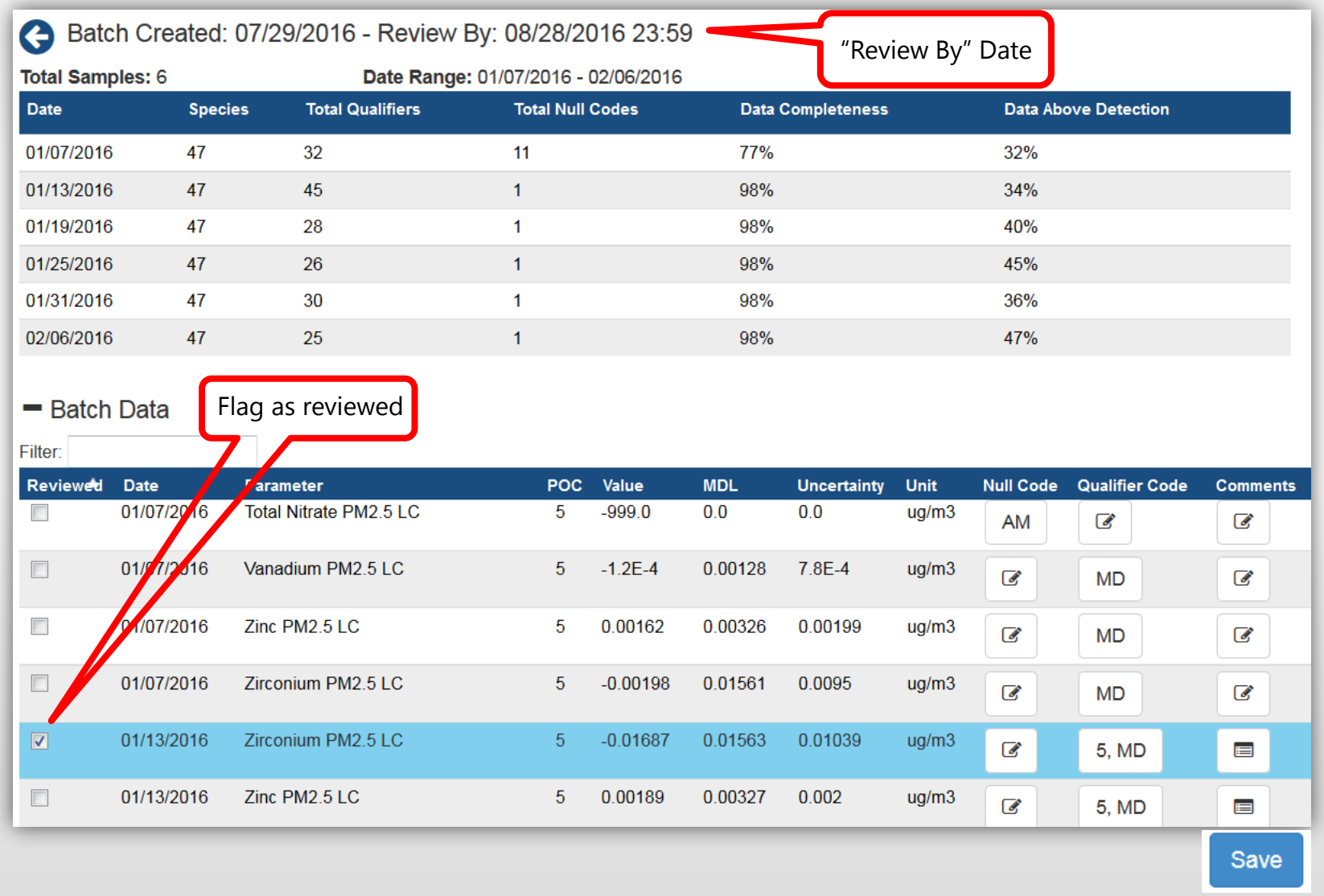
Help!

Thanks,
DART Support Team

CSN Data Review in DART



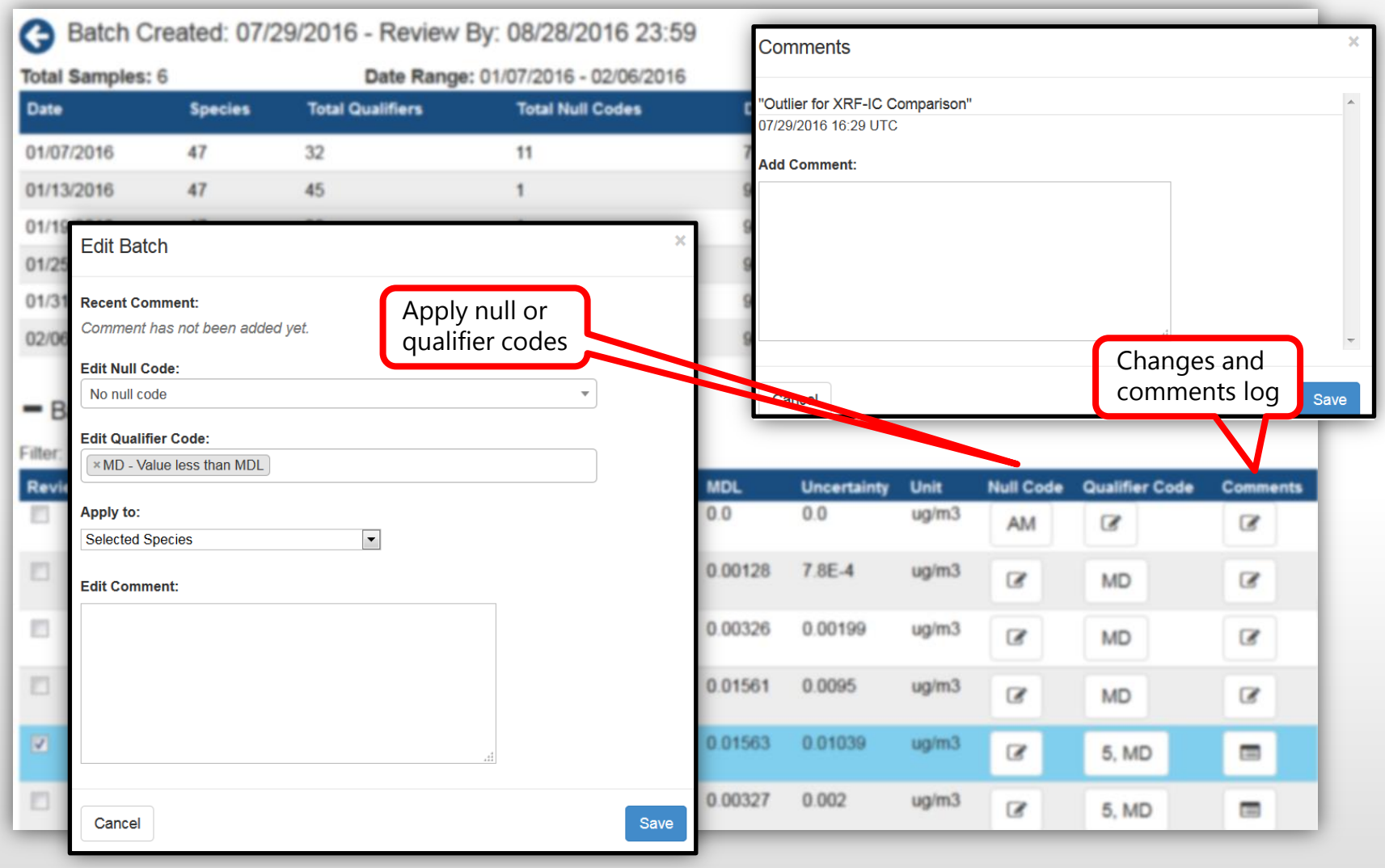
CSN Data Review in DART



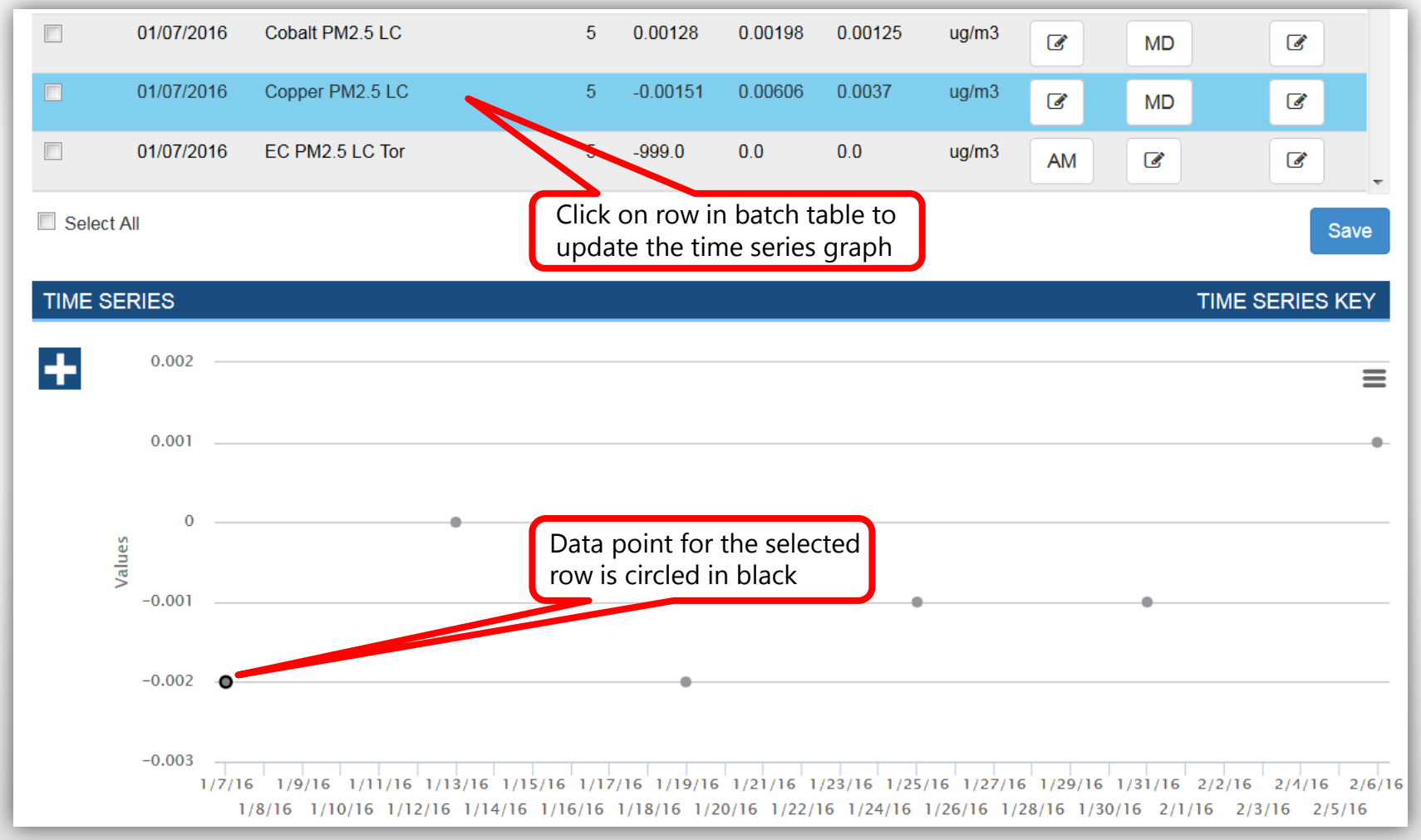
Date	Species	Total Qualifiers	Total Null Codes	Data Completeness	Data Above Detection
01/07/2016	47	32	11	77%	32%
01/13/2016	47	45	1	98%	34%
01/19/2016	47	28	1	98%	40%
01/25/2016	47	26	1	98%	45%
01/31/2016	47	30	1	98%	36%
02/06/2016	47	25	1	98%	47%

Reviewed	Date	Parameter	POC	Value	MDL	Uncertainty	Unit	Null Code	Qualifier Code	Comments
☐	01/07/2016	Total Nitrate PM2.5 LC	5	-999.0	0.0	0.0	ug/m3	AM		
☐	01/07/2016	Vanadium PM2.5 LC	5	-1.2E-4	0.00128	7.8E-4	ug/m3		MD	
☐	01/07/2016	Zinc PM2.5 LC	5	0.00162	0.00326	0.00199	ug/m3		MD	
☐	01/07/2016	Zirconium PM2.5 LC	5	-0.00198	0.01561	0.0095	ug/m3		MD	
☑	01/13/2016	Zirconium PM2.5 LC	5	-0.01687	0.01563	0.01039	ug/m3		5, MD	
☐	01/13/2016	Zinc PM2.5 LC	5	0.00189	0.00327	0.002	ug/m3		5, MD	

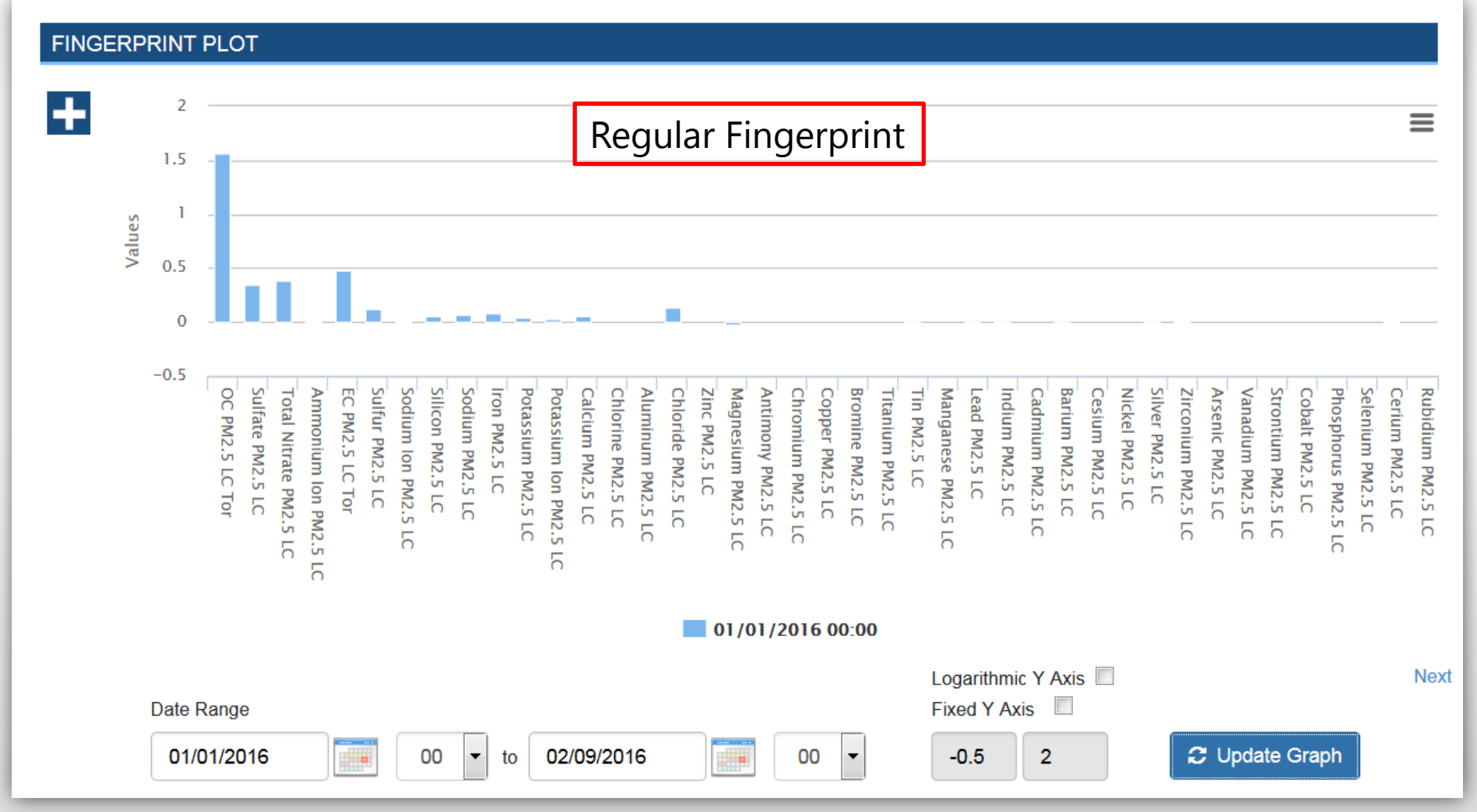
CSN Data Review in DART



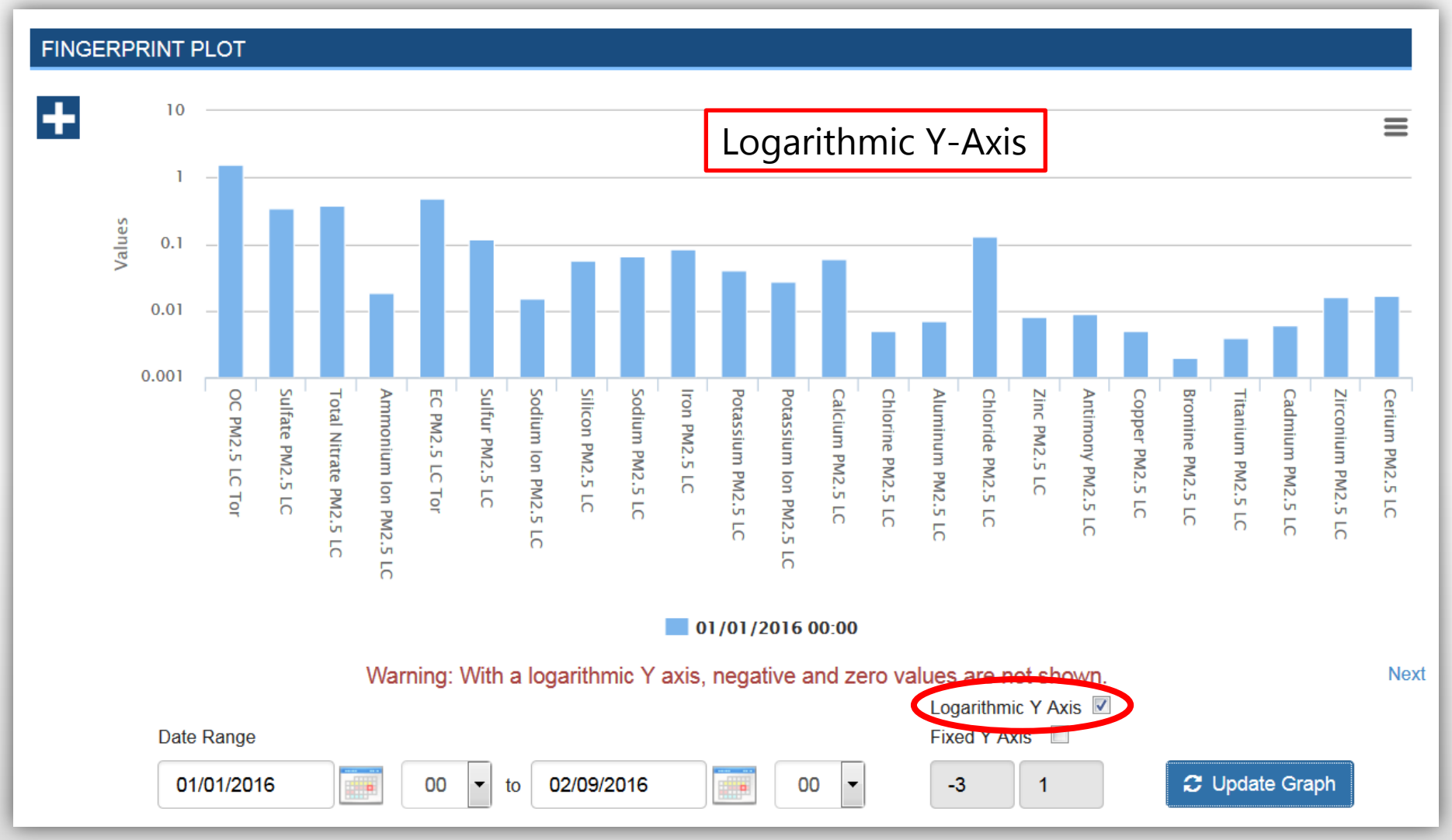
CSN Data Review in DART



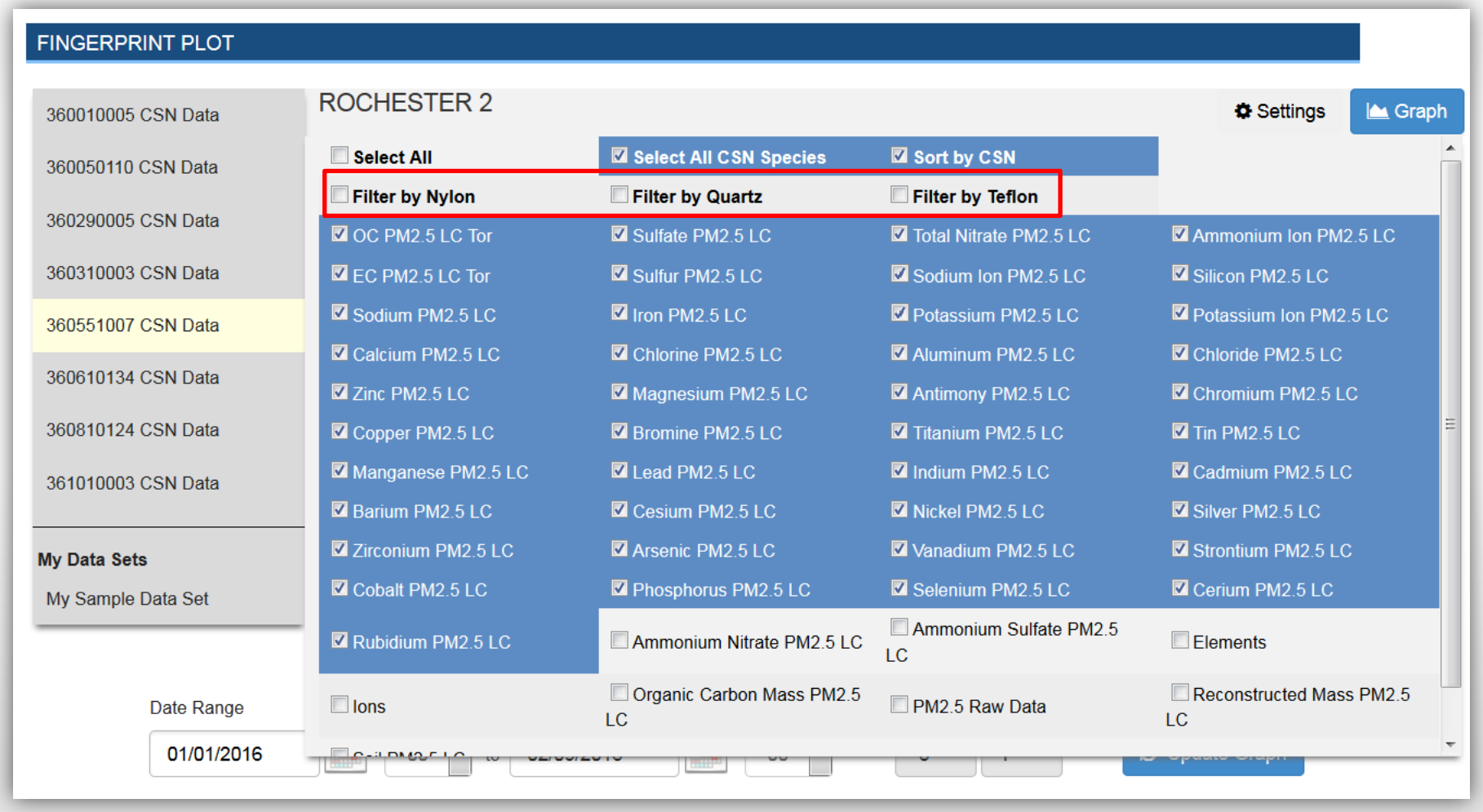
CSN Data Review in DART



CSN Data Review in DART

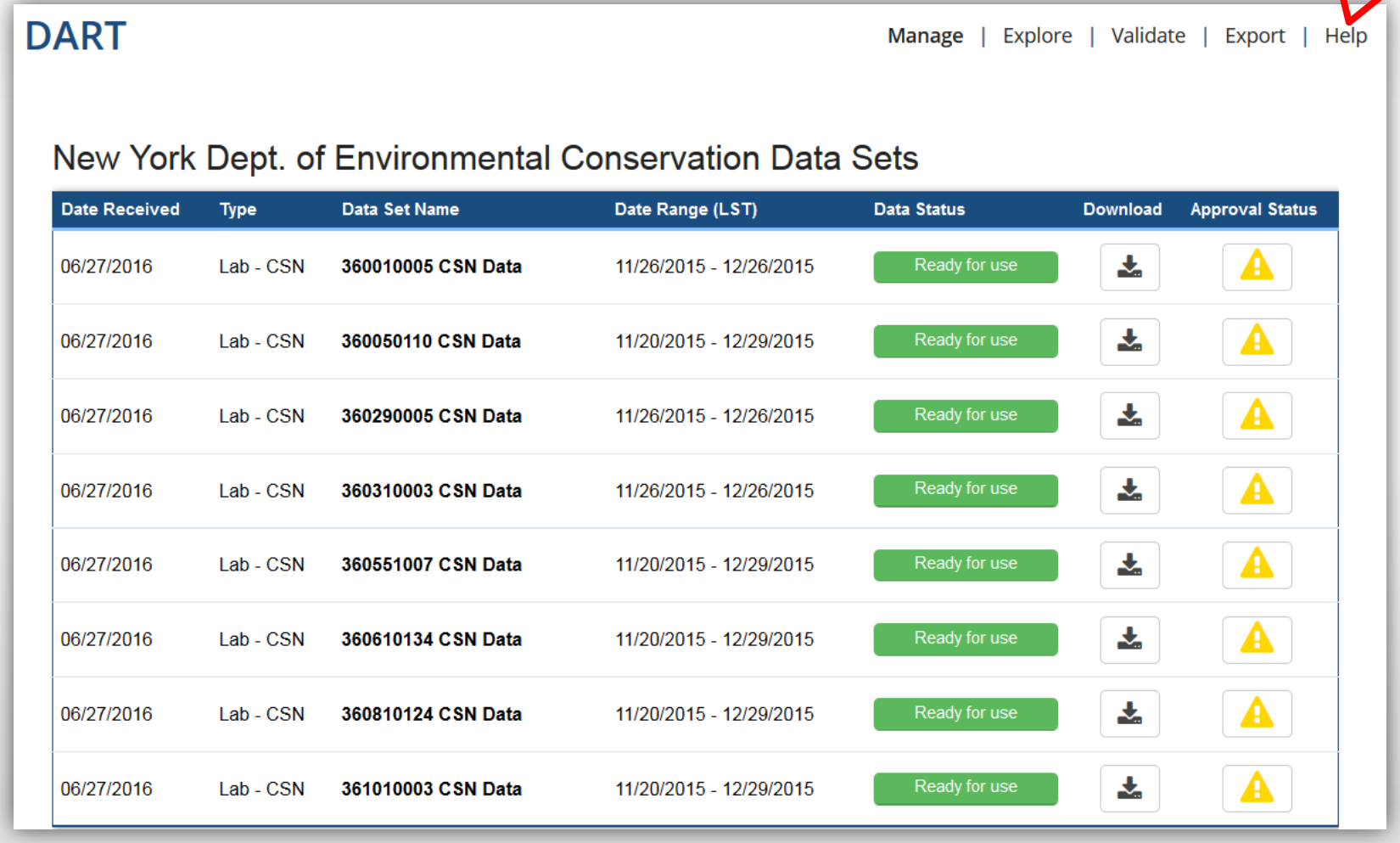


CSN Data Review in DART



Getting Help

Access the online Help from any page in DART



Section 4.1.2 describes using DART for CSN data review.

Getting Help

DART

Search

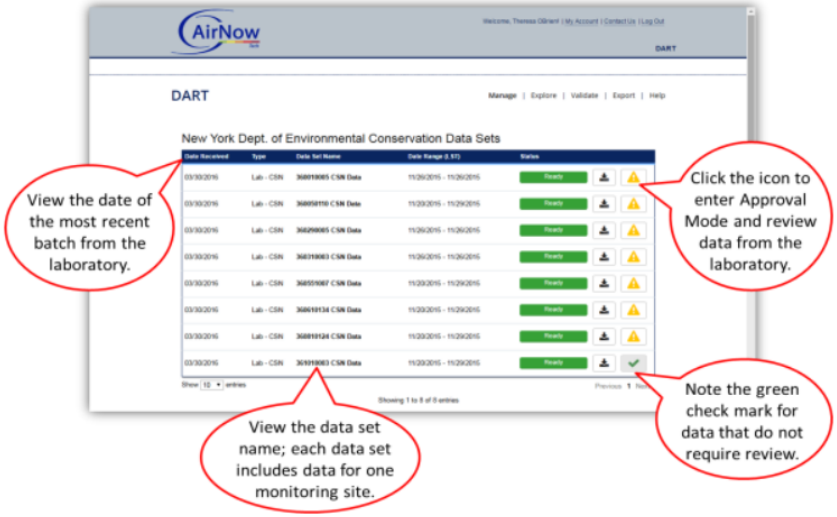
Contents

(Previous Topic: 4.1.1 Supported File Formats)

4.1.2 Agency Data Sets from a Laboratory

In addition to ingesting file uploads and AQS requests, DART can ingest data directly from an air quality laboratory. Data from a laboratory can be provided to DART via File Transfer Protocol (FTP) and are automatically made available in the correct DART user accounts.

Currently, $PM_{2.5}$ speciation data collected as part of the Chemical Speciation Network (CSN) program are transferred to DART from the Crocker Nuclear Laboratory at the University of California, Davis. CSN data are listed in the **Agency** table on the **Manage** screen, in the DART user accounts that are registered to the appropriate agency. Data are received from the laboratory in batches and are available for review and validation using the DART **Approval Mode** screen.



Important CSN Contacts

CSNSupport@sonomatech.com

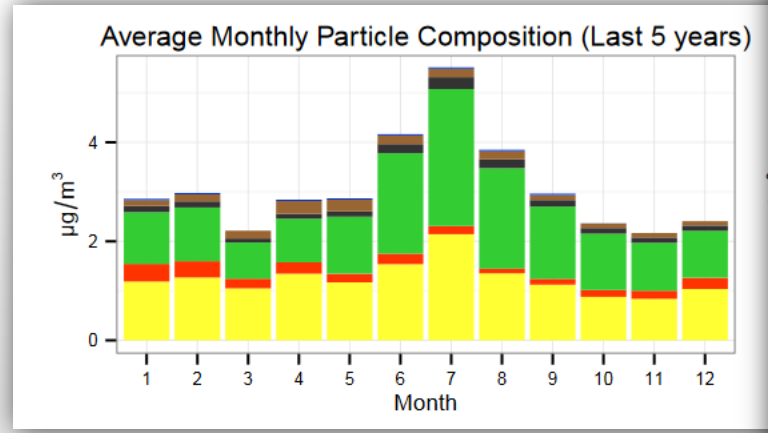
Role	*Contact*	*Phone Number*	*Email*
EPA Project Officer	Jeff Yane	919-541-2962	yane.jeff@epa.gov
EPA Project Manager	Elizabeth Landis	919-541-2262	landis.elizabeth@epa.gov
EPA QA Officer	Jenia Tufts	919-541-0371	tufts.jenia@epa.gov
Shipping & Handling (Amec)	Justin Knoll	352-333-6621	justin.knoll@amecfw.com
Gravimetric Analysis (Amec)	Bill Barnard	352-333-6617	bill.barnard@amecfw.com
Laboratory Analysis (UCD)	Nicole Hyslop	530-754-8979	nmhyslop@ucdavis.edu
DART (STI)	Jennifer DeWinter Steve Brown	707-665-9900	jdewinter@sonomatech.com steveb@sonomatech.com

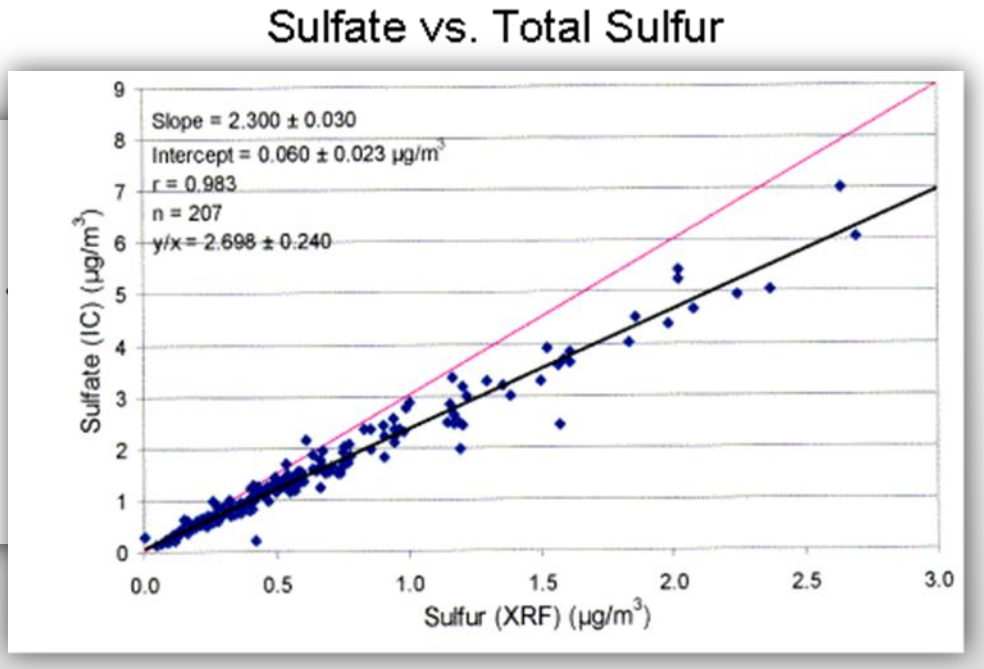
CSN Regional Representatives

R1 - Alan VanArsdale & Catie Taylor
R2 – Mazeeda Khan
R3 – Lori Hyden
R4 – Keith Harris
R5 – Scott Hamilton
R6 – Frances Verhalen
R7 – Leland Grooms
R8 – Joshua Rickard
R9 – Anna Mebust & Dena Vallano
R10 – Chris Hall & Keith Rose

Potential New Features

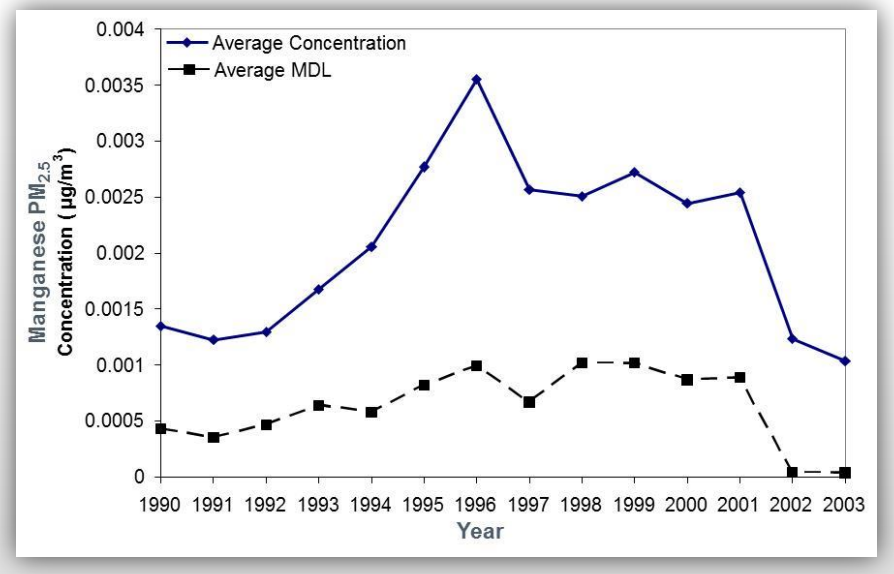
- Interactive map for Data Mart AQS requests
- Compare site data to national statistics
- New analyses and plot types





Potential New Features

- Plot concentrations with MDL values
- Plot concentrations with annual averages
- Support for more import file formats
- Stacked bar plots in approval mode
- Pollution and wind roses



Acknowledgments

- Kevin Cavender, Work Assignment Manager, EPA
- Beth Landis and Joann Rice, CSN Program Support, EPA
- National Association of Clean Air Agencies Steering Committee
- Nick Mangus and Robert Coats, AQS Support, EPA

Contact Us

Jennifer DeWinter

DART Project Manager (STI)
jdewinter@sonomatech.com

Beth Landis

EPA CSN Program Lead
landis.elizabeth@epa.gov

Sonoma Technology, Inc.
Environmental Science and Innovative Solutions