

Exchange Network Forum

Partnerships with EPA, States, Tribes & Territories

Thursday, June 13, 2024

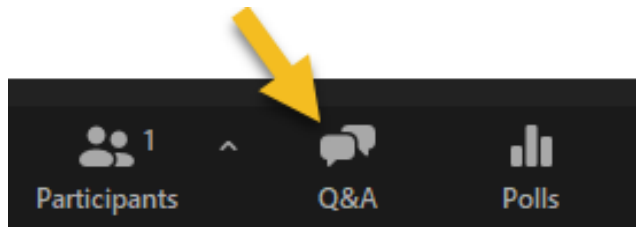
Format

- **This Forum is an open meeting.** We want to encourage open dialogue. Please be respectful.
- **You will hear from Tribes, States, and EPA.** Calls are divided into thirds, with time for each group to push updates and request feedback.
- **We will send polls, surveys to gauge interests.** This is a call run by Exchange Network partners for Exchange Network partners.

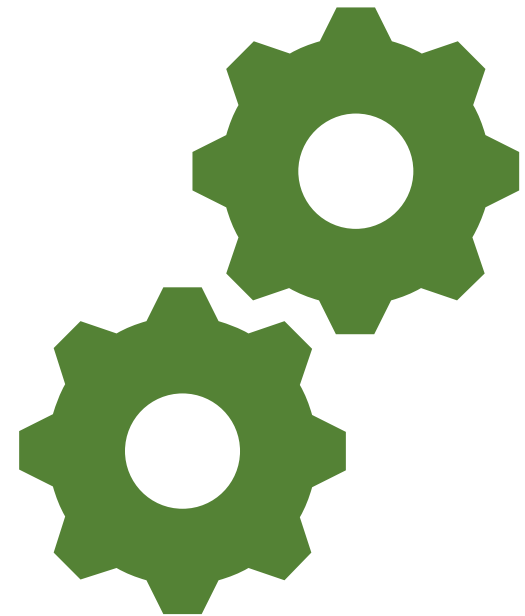


Logistics

- **Introduce yourself!** If or when you speak, please tell us your name the organization you represent.
- **Submit questions using Zoom Q/A Feature.** We will do our best to answer questions during the call.

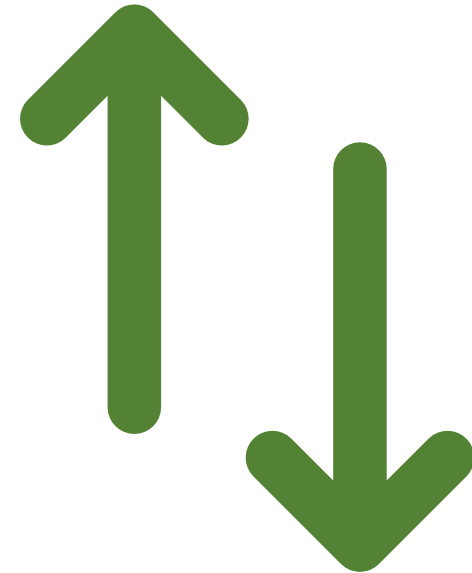


- **Use the chat to share ideas.** You can message the (co)hosts and participants directly.



Meeting Guidelines

- **Choose to be present and participate**
- **Engage actively, raise your hand to speak**
- **Maintain a respectful, open space to share and discuss ideas**
- **Assume positive intent**
- **Be curious and open to new ideas**
- **Listen and question with a desire to understand**
- **Stay on topic**
- **Turn on your camera when speaking**
- **Meetings will be recorded**



Agenda

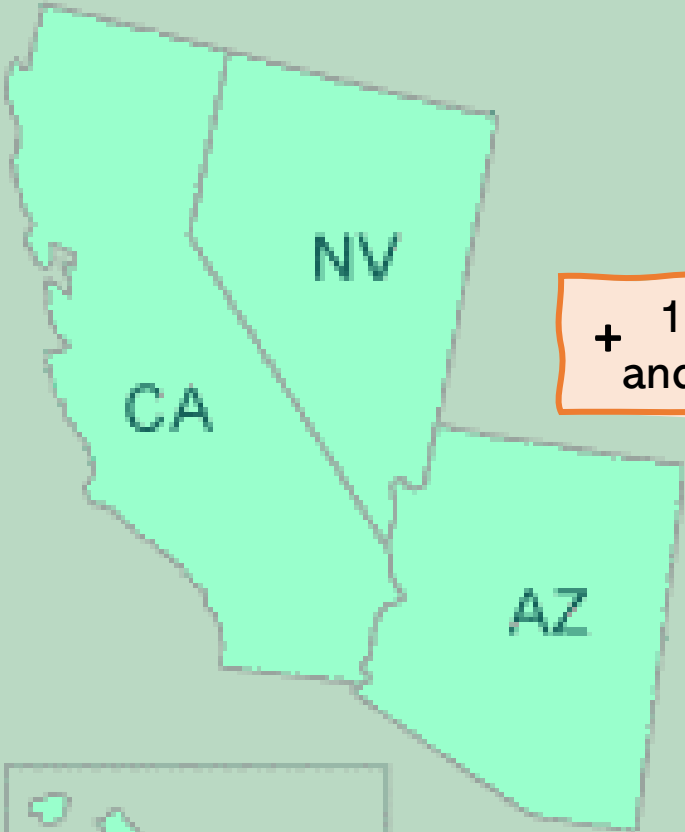
- **Welcome**
- **E2i Conference Update**
- **Meet Your EN Coordinator: Region 9**
- **EN Project Demonstration by Big Valley Rancheria Band of Pomo Indians (Region 9)**
- **Virtual Exchange Service (VES) 101**
- **Open Forum**



E2i Conference Update

- Registration is open!
 - September 17-19, 2024, in Kansas City, MO
- E2i Meeting Website: www.e2imeeting.net
 - Working draft agenda
 - Registration & hotel information
 - For state employees, information about travel expense reimbursement opportunities available through ECOS
- Sign up for Exchange Network email alerts for updates about the conference
- For more information, contact Kurt Rakouskas at ECOS at krakouskas@ecos.org

EPA Region 9 – Regional Exchange Network Coordinators (RENCs)



+ 128 Tribal Nations and the Pacific Islands



R9 RENC Overview

Name: Wendy Fong

Job Title (prior): IT Specialist

Time at the Agency: 38 Years, 7 Months

Time in the RENC Role: 4 Years, 1 Month

Other Job (non-RENC) Roles: Lotus Notes and READ Coordinators

Contact Information: fong.wendy@epa.gov
415-972-3631



R9 RENC Overview

Name:	Brian Sheppard
Job Title:	IT Specialist
Time at the Agency:	11 Months
Time in the RENC Role:	6 Months
Other Job (non-RENC) Roles:	Power app developer, IT administration, 508 liaison
Contact Information:	Sheppard.Brian@epa.gov 415-972-3635

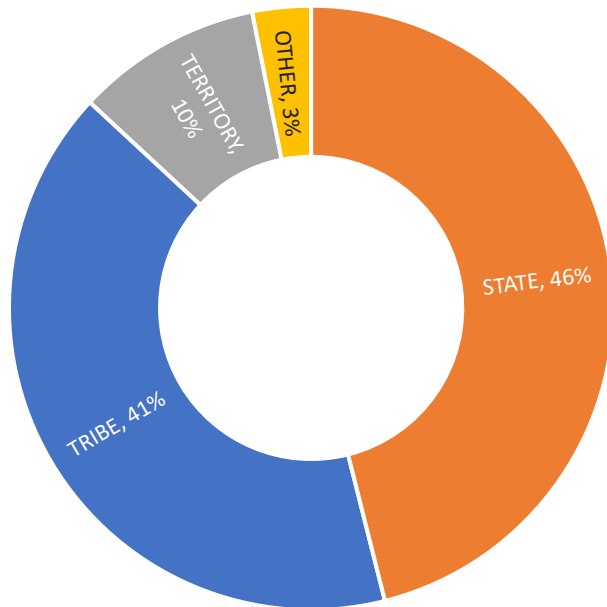


R9 Regional Overview

34 Open Grants

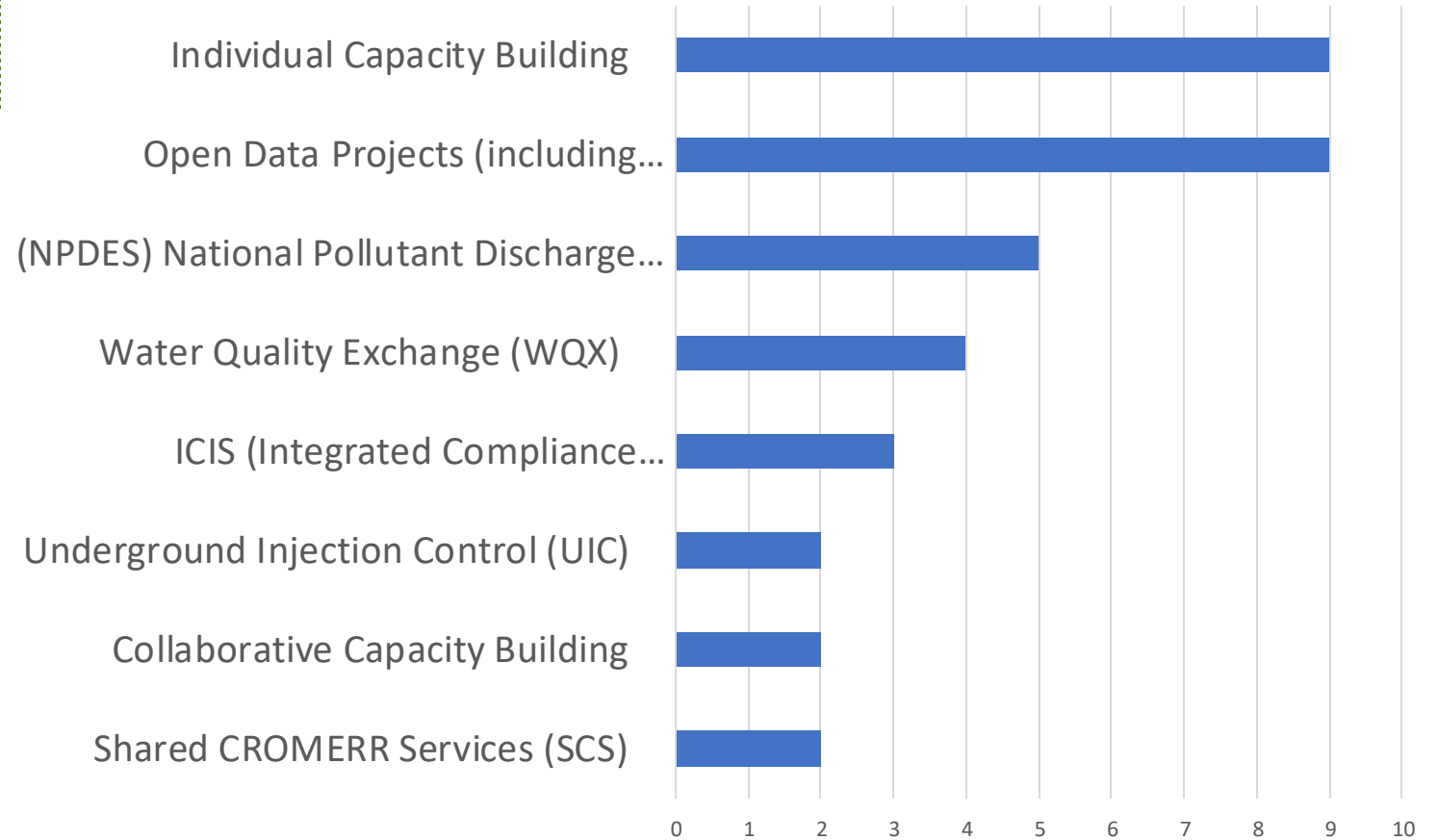
191 Total Grants since 2002

Region 9 Grantees by Applicant Type (2002-2023)



*Other grantee types include universities and instrumentalities of the state or tribe.

FY21-23 Project Trends R9



R9 Project Highlight

Grantee Org: Big Valley Rancheria Band of Pomo Indians

Award Year: 2020

EN Partnership Grant? No

EN Project Opportunity: EN Grant Priorities: 1, 2, and 5

Project Description: Clear Lake Comprehensive Water Quality Monitoring Program

Notable Project Highlights/ Accomplishments:

- A dashboard partially funded by this project is on Big Valley's webpage www.bvrancheria.com/epa and click on the Real Time Data Sondes or go to <https://flowwest.shinyapps.io/bvr-wq-live/>
- Removing obstacles to true adaptive management.
- More focused management and restoration actions to achieve the water quality, native fish populations, and agricultural goals for the basin.
- Empowering the tribe to be a major contributor to the management and restoration of the tributaries and Clear Lake.



BVR WQX Uploader

Presentation by Big Valley Rancheria and FlowWest

Issues

- Data entry is extremely time consuming
- Human error prone when there are lots of data from different sources
- Hard to perform qa/qc

Project ID	Monitoring Location ID	Activity ID (CHILD-subset)	Activity ID User Supplied (PARENTs)	Activity Type	Activity Media Name	Activity Start Date	Activity Start Time	AC
2519 MS	MA6	MA-20200922-1004-FM-5evrth		Field Mix/Obs	Water	9/22/2020	10:08 PM	
2540 MS	MA6	MA-20200922-1004-FM-1AccuW		Field Mix/Obs	Water	9/22/2020	10:08 PM	
2541 MS	MA6	MA-20200922-1004-FM-PS-0.618-Hydro		Field Mix/Obs	Water	9/22/2020	10:04 PM	
2542 MS	MA6	MA-20200922-1004-FM-PS-0.618-Hydro		Field Mix/Obs	Water	9/22/2020	10:04 PM	
2543 MS	MA6	MA-20200922-1004-FM-PS-0.618-Hydro		Field Mix/Obs	Water	9/22/2020	10:04 PM	
2544 MS	MA6	MA-20200922-1004-FM-PS-0.618-Hydro		Field Mix/Obs	Water	9/22/2020	10:04 PM	
2545 MS	MA6	MA-20200922-1004-FM-PS-0.618-Hydro		Field Mix/Obs	Water	9/22/2020	10:04 PM	
2546 MS	MA6	MA-20200922-1004-FM-PS-0.618-Hydro		Field Mix/Obs	Water	9/22/2020	10:04 PM	
2547 MS	MA6	MA-20200922-1004-FM-PS-0.618-Hydro		Field Mix/Obs	Water	9/22/2020	10:04 PM	
2548 MS	MA6	MA-20200922-1004-FM-PS-0.618-Hydro		Field Mix/Obs	Water	9/22/2020	10:04 PM	
2549 MS	MA6	MA-20200922-1004-FM-PS-0.618-Hydro		Field Mix/Obs	Water	9/22/2020	10:04 PM	
2550 MS	MA6	MA-20200922-1004-FM-5evrth		Field Mix/Obs	Water	9/22/2020	10:04 PM	
2551 CUM	BVCL2	BVCL2-20200922-0850-FM-1AccuW		Field Mix/Obs	Water	9/22/2020	8:50 PM	
2552 CUM	BVCL2	BVCL2-20200922-0850-FM-PS-0.175-Hydro		Field Mix/Obs	Water	9/22/2020	8:50 PM	
2553 CUM	BVCL2	BVCL2-20200922-0850-FM-PS-0.175-Hydro		Field Mix/Obs	Water	9/22/2020	8:50 PM	
2554 CUM	BVCL2	BVCL2-20200922-0850-FM-PS-0.175-Hydro		Field Mix/Obs	Water	9/22/2020	8:50 PM	
2555 CUM	BVCL2	BVCL2-20200922-0850-FM-PS-0.175-Hydro		Field Mix/Obs	Water	9/22/2020	8:50 PM	
2556 CUM	BVCL2	BVCL2-20200922-0850-FM-PS-0.175-Hydro		Field Mix/Obs	Water	9/22/2020	8:50 PM	
2557 CUM	BVCL2	BVCL2-20200922-0850-FM-PS-0.175-Hydro		Field Mix/Obs	Water	9/22/2020	8:50 PM	
2558 CUM	BVCL2	BVCL2-20200922-0850-FM-PS-0.175-Hydro		Field Mix/Obs	Water	9/22/2020	8:50 PM	
2559 CUM	BVCL2	BVCL2-20200922-0850-FM-PS-0.175-Hydro		Field Mix/Obs	Water	9/22/2020	8:50 PM	
2560 CUM	BVCL2	BVCL2-20200922-0850-FM-PS-0.175-Hydro		Field Mix/Obs	Water	9/22/2020	8:50 PM	

Beal Genetics, LLC
217 Sycamore Drive, Ste. 110
Sacramento, CA 95821
Tel: (916) 259-2544

Date: 8/30/2022
Request: Analysis for Toxigenic Cyclospores
From: Tim Orma, Laboratory Director
Site: South River Environmental Clean Up Site (also based on these labels)
Testing results are attached for ELISA and qPCR analysis conducted on 20 samples collected between 8/9/2022 and 8/14/2022. All An Toxin are listed and are considered **Not**
Analysis included in this report:
• Quantification of total cyclospores (genomes), microcytic, and toxigenic-producing cyclospores by real-time quantitative polymerase chain reaction (qPCR) method.
• Quantification of total microcytic isolates by enzyme linked immunosorbent assay (ELISA) method.

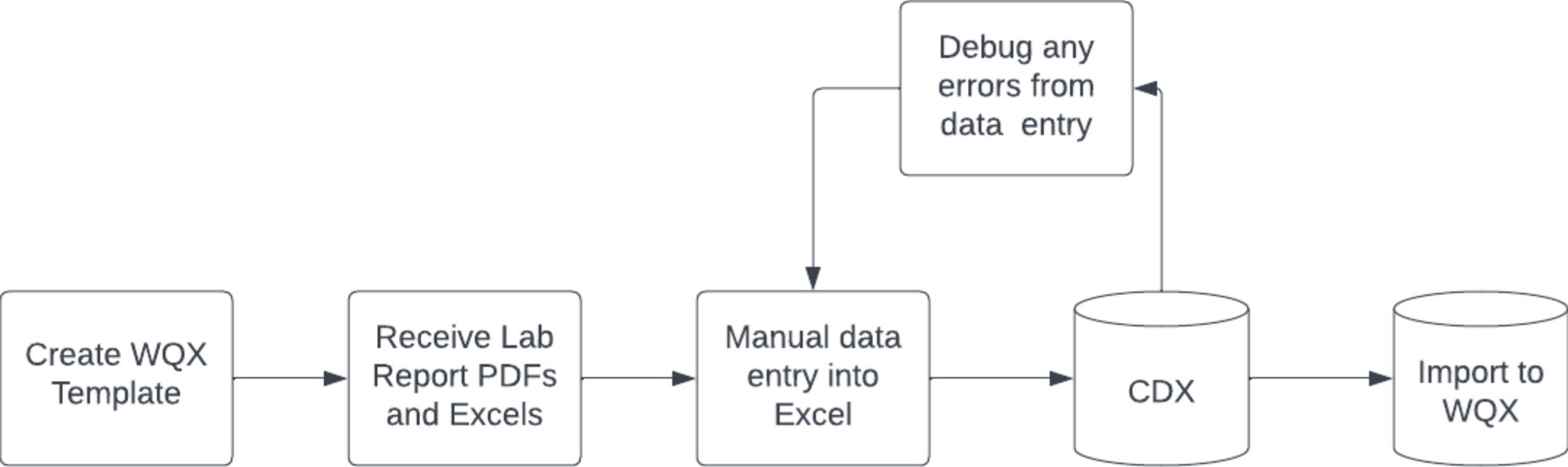
Sample ID	Location	Date Collected	Date Reported	Matrix	Preserved	MSL #
101	SL4540	8/9/2022 8:00	8/9/2022 8:00	Water	Y	8/9/22
102	SL4540	8/9/2022 8:00	8/9/2022 8:00	Water	Y	8/9/22
103	SL4540	8/9/2022 8:00	8/9/2022 8:00	Water	Y	8/9/22
104	SL4540	8/9/2022 8:00	8/9/2022 8:00	Water	Y	8/9/22
105	SL4540	8/9/2022 8:00	8/9/2022 8:00	Water	Y	8/9/22
106	SL4540	8/9/2022 8:00	8/9/2022 8:00	Water	Y	8/9/22
107	SL4540	8/9/2022 8:00	8/9/2022 8:00	Water	Y	8/9/22
108	SL4540	8/9/2022 8:00	8/9/2022 8:00	Water	Y	8/9/22
109	SL4540	8/9/2022 8:00	8/9/2022 8:00	Water	Y	8/9/22
110	SL4540	8/9/2022 8:00	8/9/2022 8:00	Water	Y	8/9/22

Alpha Analytical Laboratory Inc.
10000 River Road, Ukiah, CA 99925 • Phone: (707) 848-8822 • Fax: (707) 848-8287
10000 River Road, Ukiah, CA 99925 • Phone: (707) 848-8822 • Fax: (707) 848-8287
10000 River Road, Ukiah, CA 99925 • Phone: (707) 848-8822 • Fax: (707) 848-8287

Sample ID	Location	Date	Time	Result
101	SL4540	8/9/2022	8:00	8/9/2022 8:00
102	SL4540	8/9/2022	8:00	8/9/2022 8:00
103	SL4540	8/9/2022	8:00	8/9/2022 8:00
104	SL4540	8/9/2022	8:00	8/9/2022 8:00
105	SL4540	8/9/2022	8:00	8/9/2022 8:00
106	SL4540	8/9/2022	8:00	8/9/2022 8:00
107	SL4540	8/9/2022	8:00	8/9/2022 8:00
108	SL4540	8/9/2022	8:00	8/9/2022 8:00
109	SL4540	8/9/2022	8:00	8/9/2022 8:00
110	SL4540	8/9/2022	8:00	8/9/2022 8:00

Date	Time	BVSL-4	Temp	Depth-10	SpCond	Res	Sal	TDS	DOC	DO	pH
MMDDYY	HHMMSS	Volts	°C	meters	mS/cm	M-cm	gpt	g/L	mg/L	mg/L	Units
8/22/2020	9:56:48	7.9	18.31	0.256	0.411	2.32	0.21	0.2758	124.9	11.5	6.9
8/22/2020	12:21:52	7.9	20.71	0.313	0.4718	2.119	0.23	0.302	76.7	6.86	7.12
8/22/2020	10:22:07	7.4	21	0.192	0.5067	1.973	0.25	0.3243	48.5	4.3	6.88

Manual WQX Upload Process

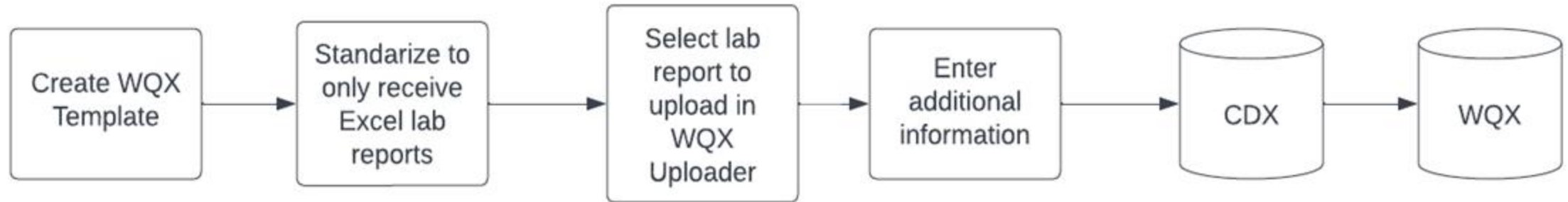


Goals

- Standardize external data formats by working with laboratories
- Build upon standardized formats by automating data processing
- Develop a user interface to facilitate processing and adoption of automations
- Allow users to easily add and edit information
- Ability to directly upload to WQX from app

Project ID	Monitoring Activity ID	Activity ID	Activity Ty	Activity M	Activity St	Activity Sr	Activity Dr	Activity De	Sample Co	Sample Co	Sample Co	Sample Co	Characteri	Characteri	Method S	Result	Det	Result Val	Result Uni	Result Ma	Result San	Re
2	SW	HSP	HSP-12012022-0738-1	Sample-Rc	Water	#####	7:38	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Oil and Grease		Not Detected					Total	Fu
3	SW	HSP	HSP-12012022-0738-1	Sample-Rc	Water	#####	7:38	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Nitrate + Nitrite	as N			0.31	mg/L		Total	Fu
4	SW	HSP	HSP-12012022-0738-1	Sample-Rc	Water	#####	7:38	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Phosphorus	as P			0.35	mg/L		Total	Fu
5	SW	HSP	HSP-12012022-0738-1	Sample-Rc	Water	#####	7:38	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Organic carbon				3.69	mg/L		Total	Fu
6	SW	BVSWDI	BVSWDS-12012022-0	Sample-Rc	Water	#####	7:11	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Oil and Grease		Not Detected					Total	Fu
7	SW	BVSWDI	BVSWDS-12012022-0	Sample-Rc	Water	#####	7:11	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Nitrate + Nitrite	as N			0.7	mg/L		Total	Fu
8	SW	BVSWDI	BVSWDS-12012022-0	Sample-Rc	Water	#####	7:11	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Phosphorus	as P			0.02	mg/L		Total	Fu
9	SW	BVSWDI	BVSWDS-12012022-0	Sample-Rc	Water	#####	7:11	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Organic carbon				3.69	mg/L		Total	Fu
10	SW	RSFCC	RSFCC-12012022-075	Sample-Rc	Water	#####	7:56	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Oil and Grease		Not Detected					Total	Fu
11	SW	RSFCC	RSFCC-12012022-075	Sample-Rc	Water	#####	7:56	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Nitrate + Nitrite	as N			Not Detected			Total	Fu
12	SW	RSFCC	RSFCC-12012022-075	Sample-Rc	Water	#####	7:56	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Phosphorus	as P			0.89	mg/L		Total	Fu
13	SW	RSFCC	RSFCC-12012022-075	Sample-Rc	Water	#####	7:56	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Organic carbon				11.3	mg/L		Total	Fu
14	SW	BVCL3	BVCL3-05042023-084	Sample-Rc	Water	1/4/2023	8:40	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Oil and Grease				6.5	mg/L		Total	Fu
15	SW	BVCL3	BVCL3-05042023-084	Sample-Rc	Water	1/4/2023	8:40	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Total Kjeldahl Nitrogen as N				1.8	mg/L		Total	Fu
16	SW	BVCL3	BVCL3-05042023-084	Sample-Rc	Water	1/4/2023	8:40	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Phosphorus	as P			0.99	mg/L		Total	Fu
17	SW	BVCL3	BVCL3-05042023-084	Sample-Rc	Water	1/4/2023	8:40	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Organic carbon				11.7	mg/L		Total	Fu
18	SW	BVCL3	BVCL3-05042023-084	Sample-Rc	Water	1/4/2023	8:40	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Total Coliforms				13000	MPN/100mL		Total	Fu
19	SW	BVCL3	BVCL3-05042023-084	Sample-Rc	Water	1/4/2023	8:40	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Fecal Coliforms				400	MPN/100mL		Total	Fu
20	SW	BVSWDI	BVSWDS-05042023-0	Sample-Rc	Water	1/4/2023	8:45	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Total Coliforms				13000	MPN/100mL		Total	Fu
21	SW	BVSWDI	BVSWDS-05042023-0	Sample-Rc	Water	1/4/2023	8:45	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Fecal Coliforms				2000	MPN/100mL		Total	Fu
22	SW	HSP	HSP-05042023-0850-5	Sample-Rc	Water	1/4/2023	8:50	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Total Coliforms				48000	MPN/100mL		Total	Fu
23	SW	HSP	HSP-05042023-0850-5	Sample-Rc	Water	1/4/2023	8:50	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Fecal Coliforms				13000	MPN/100mL		Total	Fu
24	SW	BVRTC1	BVRTC1-03082023-3C	Sample-Rc	Water	3/8/2023	10:30	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Total Coliforms				14000	MPN/100mL		Total	Fu
25	SW	BVRTC1	BVRTC1-03082023-3C	Sample-Rc	Water	3/8/2023	10:30	PST	0.352	m	BVR	SWQJ_CA_BVR	Water Bottle	Fecal Coliforms				14	MPN/100mL		Total	Fu

WQX Upload Process Through Shiny App



The WQX Uploader Tool (demo at the end)

Select Hydro Lab File
Browse... FCS.CSV
Reset

Qa/Qc Enter Additional Data Formatted Data

This section provides view of raw data, as well as results for Qa/Qc checks. Verify that all validations pass, and proceed to next tab when ready. Click on "Reset" to clear all saved data and values in application.

Raw Data

Show 10 entries Search:

Date	Time	IBVSvr4	Temp	Depth10	SpCond	Res	Sal	TDS	DO%	DO	
1	06/14/23	09:12:20	7.9	22.73	.223	.3405	2.937	.16	.2179	37.3	3.2
2	06/29/23	12:03:37	8	23.75	.139	.3579	2.794	.17	.2291	44.9	3.7

Showing 1 to 2 of 2 entries Previous 1 Next

Select Hydro Lab File
Browse... FCS.CSV
Reset

Qa/Qc Enter Additional Data Formatted Data

Review WQX formatted data. Click "Download" and then "Upload to WQX" when ready.

Download Upload to WQX

Preview Final Upload

Show 10 entries Search:

Monitoring Location ID	Activity ID (CHILD-subset)	Activity ID User Supplied(PARENTs)	Activity Type	Activity Media Name
FC3	FC3:06142023:0912:FM:PS:0.223:Hydro		Field	Water

Select Hydro Lab File
Browse... FCS.CSV
Reset

Hydro Lab Data
Bend Genetics
Alpha Lab

Enter Additional Data Formatted Data

Select Monitoring Location:
FC3

Select Monitoring Day:
06/14/2023

Enter Air Temperature Measurement

Enter additional AccuWeather "Temperature, Air" measurement and "Result Comment" for each date and location in the sidebar panel.

Edit Data

Show 10 entries Search:

Project ID	Monitoring Location ID	Activity ID (CHILD-subset)	Activity ID User Supplied(PARENTs)	Activity Type	Activity Media Name
1	CS	FC3	FC3:06142023:0912:FM::AccuW	Field	Wat

Manage WQX Credentials

Load Credential

Username
inigopeng

API Key
VD6TwKas6BtCd1UjJC1knV4RvUJ50yHgPv

Config ID
8415

wqxtools

Water Quality Exchange (WQX) API Wrapper

Table of Contents

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- [Acknowledgements](#)

About

This library allows you to quickly use the RESTful Web Service Methods provided by [WQX](#) without having to worry about configurations.

Quick Start

```
from wqxtools.cdx import CDX

API_KEY = YOUR_API_KEY
USER_ID = YOUR_USER_ID
FILE_PATH = YOUR_FILE_PATH
FILE_NAME = YOUR_FILE_NAME
CONFIG_ID = YOUR_CONFIG_ID

# Create a session instance.
session = CDX(USER_ID, API_KEY, FILE_PATH, FILE_NAME)

# Upload the file and retrieve a file_id
file_id = session.upload()

# using the file_id and config_id start importing the file.
dataset_id = session.start_import(file_id, CONFIG_ID)

# Get status returns the most recent status of the process.
current_status = session.get_status(dataset_id)
```

wqxWeb (R package)

wqxWeb

WQX Web is a service provided by the EPA CDX to facilitate the submission of data to the WQX through CDX. This R package aims at providing an easy to use interface to all endpoints defined by the WQX Web REST API.

Installation

You can install wqxWeb with the following:

```
remotes::install_github("flowwest/wqxWeb")
```



Note that wqxWeb relies on python ≥ 3.6 and therefore a version must be available. Furthermore, the `wqxtools` python package is bundled with this repository as a git submodule, therefore a command-line git interface must be available in order for `remotes` to properly install this package.

wqxWeb is in early development, and we hope to streamline the installation process among other components in the near future.

Getting Started

Prerequisites

wqxWeb exports a function for each of the endpoints provided by the WQX Web API.

Resources

bvr-wqx-uploader repo: <https://github.com/FlowWest/bvr-wqx-uploader/releases/tag/v1.4>

wqxWeb repo: <https://github.com/FlowWest/wqxWeb>

wqxtools repo: <https://github.com/FlowWest/wqxtools>

Virtual Exchange Service

Joe Carioti, EPA

Virtual Exchange Service (VES)

- Released in 2015
- What is it?
 - A centralized solution that replaces the need for Exchange Network partners to install and administer their own node
- Purpose
 - Reduce burden on partners for sharing regulatory data with EPA

What is a Node?

- Exchange Network Partner's presence on the network
- Enables the exchange of information with other partners on the network
- Must Comply with the [Node Functional Specifications](#)
 - A standard way of communicating environmental business
- [Node Basics | The Exchange Network](#)

Current Usage (FY22 - Present)

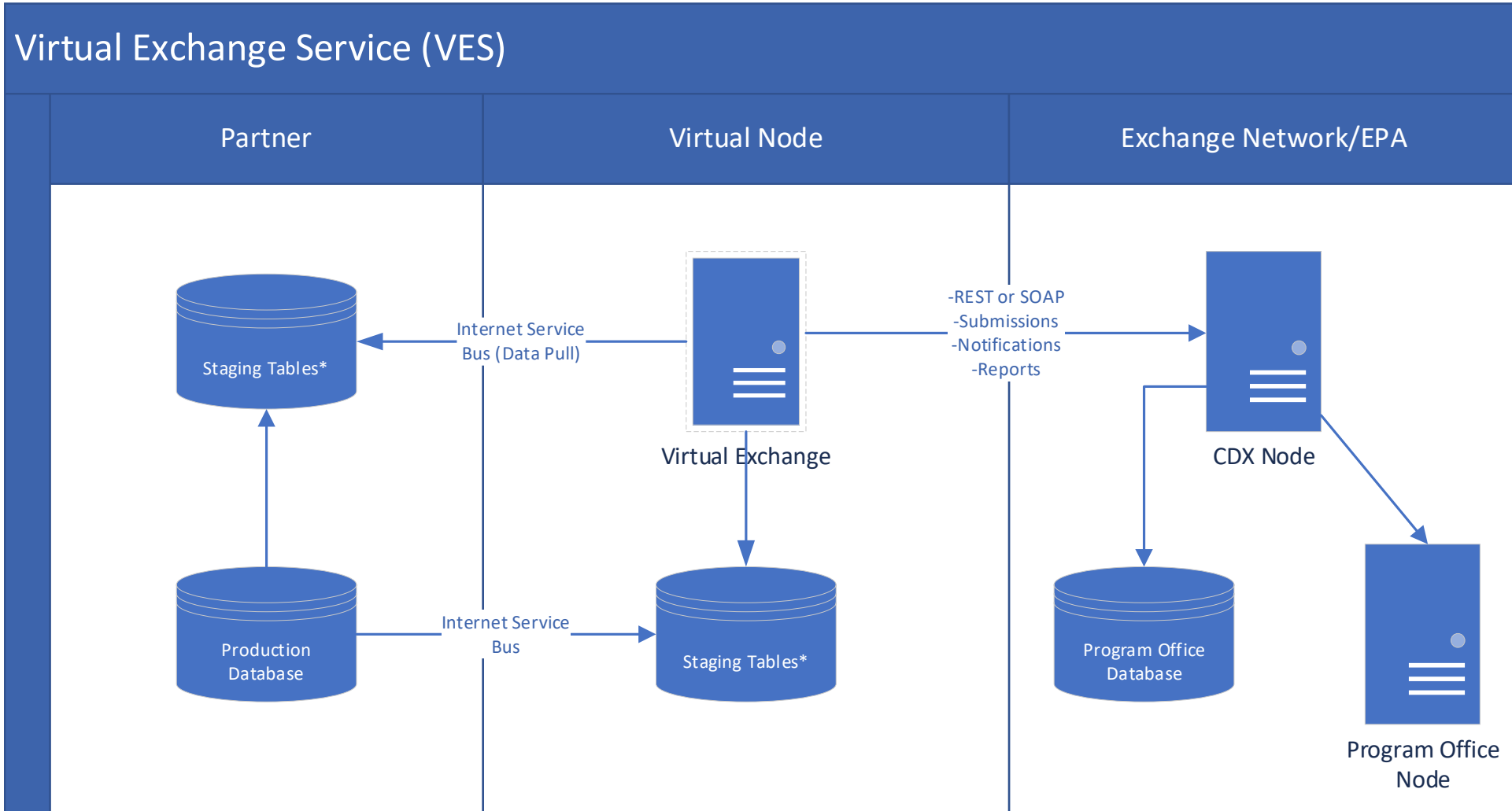
Partners with the most usage

Partner	Production Transactions
Texas	78,353
South Dakota	40,230
Maine	14,175
Georgia	4,588
Maricopa County	3,720
Oregon	2,793
San Joaquin Valley APCD	2,584
Colorado	1,558

Dataflows with the most usage

Dataflow	Production Transactions
ICIS-AIR	41,465
ICIS NPDES	17,771
ICISDA	4,700
RCRA	1,668
TRI	340
ATTAINS	247
EIS	175
FACID	105

How does VES Work?



VES: Advantages and Disadvantages

Advantages

- Common Architecture: New features will be shared by all nodes
- Can inherit dataflow configurations from the shared node (e.g., ICIS-AIR)
- Services can be cataloged in ENDS (Exchange Network Discovery Service) automatically
- Centralizes Node Maintenance, upgrades, patching, etc.

Disadvantages

- Generic approach to dataflow implementation limits performance optimizations for large payloads
- Non-standard connectivity makes troubleshooting extremely difficult

What's Next?

- Bringing VES into compliance with security mandates
 - October 2024
 - Middleware Refactoring (*Existing partners may be impacted*)
 - TLS 1.0 and 1.1 Support Removal
 - Creating a Test Environment
- Exchange Network Modernization
 - Evaluate business moving forward
 - Currently not accepting grant applications for VES

Questions?

Contact Information:

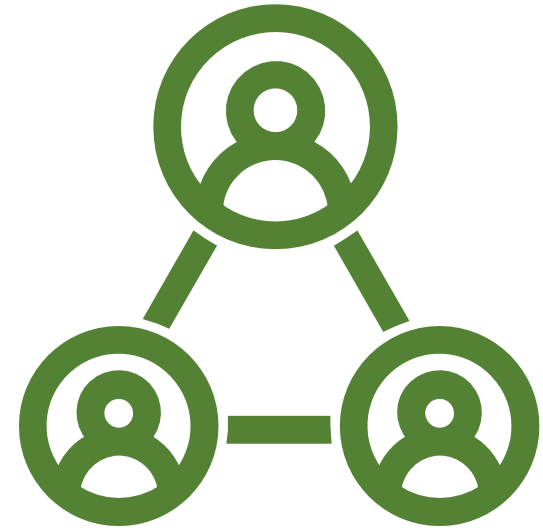
Joe Carioti: Carioti.Joe@epa.gov

Additional Resources:

[Virtual Exchange Service | The Exchange Network](#)
[Getting Started with VES](#)

Open Forum

- **Submit questions using Zoom Q/A Feature.**
We will do our best to answer questions during the call. If not, we will follow up with you directly or during the next Forum.



Thank you!

Questions?