

## Joint-Tribal WQX Project and Collaborating with other Tribes in Oklahoma

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*Muscogee (Creek) Nation*

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Supporting the Business of Environmental Protection

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Sheraton Philadelphia Society Hill Hotel  
Philadelphia, Pennsylvania

<http://www.exchangenetwork.net/en2015>

# ABSTRACT

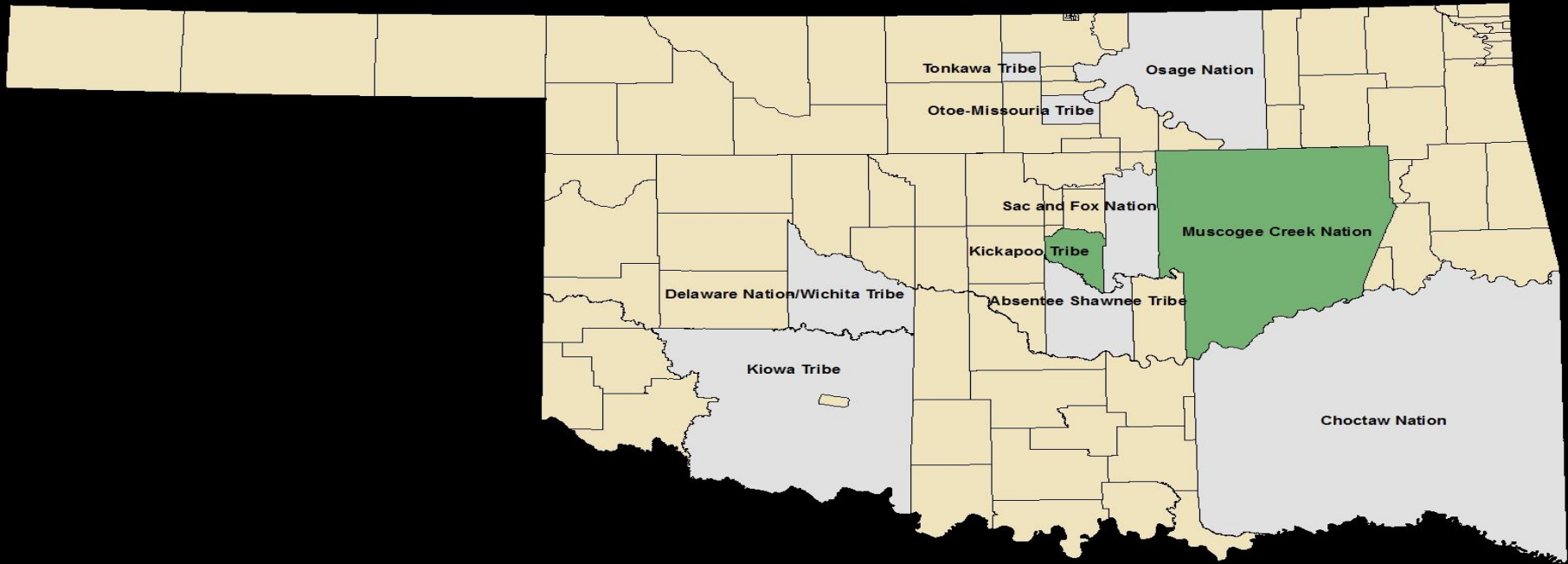
The scope of the project involve the Kickapoo Tribe of Oklahoma securing EPA Region 6 funds under their Clean Water Act section 106 grant to secure a long term WQX web-based solution along with nine (9) other tribes (i.e., Absentee Shawnee, Osage, Tonkawa, Otoe-Missouria, Choctaw, Delaware, Kiowa, Wichita and Affiliated Tribes and Sac and Fox) that would support the flow of tribal water quality data into EPA's WQX system. As a result, Open Environment and Muscogee (Creek) Nation met the tribes' objective as outlined in the presentation.

# Overview

- KTO/MCN Background
- Problem
- Timeline
- Project Description
- Expected Outcomes

# KTO/MCN

- ◎ The Kickapoo Tribe (KTO) is located in central Oklahoma, near the boundaries of the Absentee Shawnee Tribe, Citizen Potawatomi Nation, Sac & Fox Nation and Iowa Tribe
  - > Over 5,000 acres of tribal trust and allotted lands extend into Lincoln, Pottawatomie, and Oklahoma Counties
  - > Approx. 2,689 Tribal members
- ◎ The Muscogee Creek Nation (MCN) is located in East-Central Oklahoma with 11 counties of tribal jurisdiction
  - > Over 6,000 acres of trust land and 127,000 allotted lands
  - > With approximately 78,310 tribal members



# Problem

- ◎ Eight (8) out of ten (10) tribes received technical support to utilize a web-based water quality data management under a former Exchange Network Grantee...until grant agreement expired in September 2014...tribes weren't ready to budget vendor's maintenance cost and TA
  - > Some tribal capacity-building was only data entry
  - > Tribes were not expected to pay for a long-term cost
  - > Most CWA 106 grants require data upload into STORET

# Timeline

- Problem reported to EPA Water Quality Division June 2014
- EPA requested R6 RTOC to select one (1) tribe to assist with project management of hosting fees toward a WQX web data management....Kickapoo Tribe of OK
- KTO sent a RFP to four (4) different vendors in Nov 2014
- KTO selected Open Environment in partnership with the MCN in Dec 2014
- Signed a contract in Jan 2015

# Project Description

- ◉ Open Waters – (Open Source) Flexible Water Quality Management Solution
- ◉ Data Management/Node solution all-in-one; Most are 2 step process where node and data management are 2 separate applications
- ◉ Administer Node/User Log-ins
- ◉ Tribe completely controls data and data submission
- ◉ Tools and mapping to analyze data



# Project Description

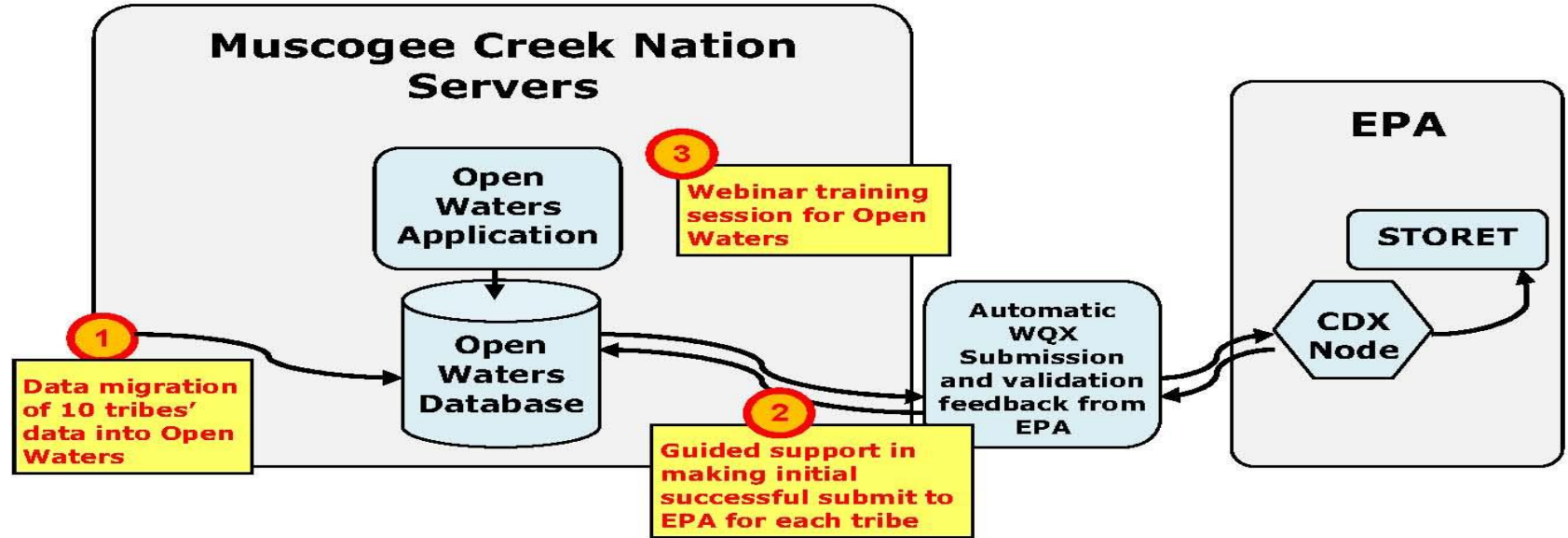


Figure 1: Proposed Solution

Login to Open Waters

Username:

Password:

[Log In](#) [Forgot Password?](#)

# Open Waters: Water Quality Management

## Step 1: Create Account

## Step 2: Create or join an organization

### OPEN WATERS DASHBOARD

Data Collection Metrics	
Organizations Using Open Waters:	12
Mississippi Creek Nation Data Counts	
Number of Projects:	9
Number of Samples:	348
Samples Pending Transfer to EPA:	0
Number of Results:	4233

Admin Tasks	
No Admin tasks at this time.	

### Getting Started Guide

- 1 Create or Join an Organization
- 2 Authorize Open Waters to Submit Data
- 3 Enter 1 or more monitoring locations
- 4 Enter 1 or more projects
- 5 Pick default settings for your Organization
- 6 Enter 1 or more activities

# Begin entering data

- Water Quality
  - Organizations
  - Monitoring Locs
  - Projects
  - Activities**
  - Import Data
  - WQX History
- Data Analysis
  - Map
  - Graphs

## ACTIVITIES (SAMPLES)

**Data Filters**

Monitoring Location:  Activity Type:   Display Deleted Activities

Date Range:  to  Project:  WQX Status:  All Records

Edit	Activity ID	Monitoring Loc.	Project	Type	Media	Sub-Media	Sample Date	Comment	Send to EPA
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	FC_013	FC	2013 Sampling	Field Mr/Obs	Water		7/2/2013 1:10:00 PM	Fair skies and calm. No breeze. Stage was slightly elevated and falling.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	AC_013	AC	2013 Sampling	Field Mr/Obs	Water		7/2/2013 12:40:00 PM	Fair skies and calm. Stream clean, Stage low and falling.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	JC_069	JC	2013 Sampling	Field Mr/Obs	Water		7/2/2013 11:40:00 AM	Fair skies and calm. No breeze. Creek stage is at base flow and is stable. No new trash.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	CC2_013	CC2	2013 Sampling	Field Mr/Obs	Water		7/2/2013 10:55:00 AM		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	CC1_013	CC1	2013 Sampling	Field Mr/Obs	Water		7/2/2013 10:30:00 AM		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	OC	OC	2013 Sampling	Field Mr/Obs	Water		7/2/2013 10:00:00 AM	Fair skies and calm; no breeze. No flow, and the stage is stable.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	UNT_060	UNT	2013 Sampling	Field Mr/Obs	Water		7/2/2013 9:30:00 AM		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	PC_013	PC	2013 Sampling	Field Mr/Obs	Water		7/2/2013 12:15:00 AM	No new trash observed; still a lot of large woody debris left from last month's flood. Stage is low to no flow and falling.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	OC	OC	2013 Sampling	Field Mr/Obs	Water		6/18/2013 2:30:00 PM		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	JC_069	JC	2013 Sampling	Field Mr/Obs	Water		6/18/2013 1:00:00 PM		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	AC_013	AC	2013 Sampling	Field Mr/Obs	Water		6/18/2013 11:55:00 AM		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	FC_013	FC	2013 Sampling	Field Mr/Obs	Water		6/18/2013 11:05:00 AM		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	CC1_013	CC1	2013 Sampling	Field Mr/Obs	Water	Surface Water	6/18/2013 10:20:00 AM		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	CC2_013	CC2	2013 Sampling	Field Mr/Obs	Water		6/18/2013 9:55:00 AM		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	UNT_060	UNT	2013 Sampling	Field Mr/Obs	Water		6/18/2013 2:45:00 AM		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	PC_013	PC	2013 Sampling	Field Mr/Obs	Water		6/18/2013 12:15:00 AM	Sampling day was about a week post a flood event. Evidence of overbank flow that topped a 15ft bridge, and evidence of bridge washout on the SW corner of bridge.	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	UNT_060	UNT	2013 Sampling	Field Mr/Obs	Water	Surface Water	5/7/2013 3:00:00 PM	Equipment failure with the Eureka Mantra and Amphibian. The YSI was not available for use. It is off for repairs. Unable to collect data for conductivity, salinity, TDS, water temp. and D	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	OC	OC	2013 Sampling	Field Mr/Obs	Water	Surface Water	5/7/2013 2:45:00 PM	Equipment failure with the Eureka Mantra and Amphibian. The YSI was not available for use. It is off for repairs. Unable to collect data for conductivity, salinity, TDS, water temp. and D	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	PC_013	PC	2013 Sampling	Field Mr/Obs	Water	Surface Water	5/7/2013 1:30:00 PM	Equipment failure with the Eureka Mantra and Amphibian. The YSI was not available for use. It is off for repairs. Unable to collect data for conductivity, salinity, TDS, water temp. and DO	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	AC_013	AC	2013 Sampling	Field Mr/Obs	Water	Surface Water	5/7/2013 1:00:00 PM	Equipment failure with the Eureka Mantra and Amphibian. The YSI was not available for use. It is off for repairs. Unable to collect data for conductivity, salinity, TDS, water temp. and D	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	FC_013	FC	2013 Sampling	Field Mr/Obs	Water	Surface Water	5/7/2013 12:15:00 PM	Equipment failure with the Eureka Mantra and Amphibian. The YSI was not available for use. It is off for repairs. Unable to collect data for conductivity, salinity, TDS, water temp. and D	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	JC_069	JC	2013 Sampling	Field Mr/Obs	Water	Surface Water	5/7/2013 11:15:00 AM	Equipment failure with the Eureka Mantra and Amphibian. The YSI was not available for use. It is off for repairs. Unable to collect data for conductivity, salinity, TDS, water temp. and D	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	CC2_013	CC2	2013 Sampling	Field Mr/Obs	Water	Surface Water	5/7/2013 10:30:00 AM	Equipment failure with the Eureka Mantra and Amphibian. The YSI was not available for use. It is off for repairs. Unable to collect data for conductivity, salinity, TDS, water temp. and D	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>			2013	Field	Water	Surface	5/7/2013 10:00:00	Equipment failure with the Eureka Mantra and Amphibian. The YSI was not available for use. It is off for repairs. Unable to collect data for conductivity, salinity, TDS,	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

# Open Waters Features

## Open Waters water quality data management

Home | Water Quality | Reference Data | Administration | My Account | Help

Organization: **Muscogee Creek Nation**

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- Water Quality
  - Organizations
  - Monitoring Locs
  - Projects
  - Activities
  - Import Data
  - WQX History
- Data Analysis
  - Map**
  - Graphs



### MOST RECENT RESULTS

View	Location	Last Sampled	Alkalinity (mg/l)	Ammonia (mg/l)	E coli	Nitrate (mg/l)	Nitrite (mg/l)	pH	Phosphorus (mg/l)	Salinity (ppt)	Conductance (mS/cm)	Air Temp (F)	Water Temp (C)	TDS (g/l)	Turbidity
	Coal Creek	2/25/2011	70	ND	44	ND	ND	8.8	0.15	0.15	0.312	96	10.05	0.203	60
	Coal Creek #1	7/2/2013	65	0.11	40	0.06	0.006	7.62	1.37	0.31	0.636	74	23.64	0.414	12.4
	Coal Creek #2	7/2/2013	101	0.10		0.02	0.004	7.83	0.23	0.15	0.305	76	21.8	0.198	3.5
	Unnamed Tributary	7/2/2013	130	1.35	2419	0.10	0.009	7.74	0.61	0.19	0.399	73	19.14	0.260	28.1
	Okmulgee Creek	7/2/2013	108	1.59	29	0.03	0.015	7.62	2.21	0	0.003	73	20.39	0.002	31.1
	Josie Creek	7/2/2013	42	0.2	179	ND	ND	8.06	0.54	0.05	0.114	81	19.42	0.74	45.3
	Fish Creek	7/2/2013	49	0.8	49	0.13	0.004	7.84	0.71	0.05	0.119	82	25.76	0.077	31.2
	Alabama Creek	7/2/2013	97	0.23	10	0.01	0.003	7.65	0.28	0.42	0.856	82	26.29	0.556	6.87
	Parsley Creek	7/2/2013		0.45	41	ND	0.003		0.39	0.06	0.123	79	23.79	0.080	16.9

# Open Waters Features

**Open Waters**  
water quality data management

Home | Water Quality | Reference Data | Administration | My Account | Help

Organization: Muscogee Creek Nation

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Select Reference Table: **Well Type** Search Data:

Edit		Description	Active	Last Updated
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	--ORGANIZATION--			
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Tribes			
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	--PROJECTS--	Anode	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Sampling Design Type	Dewater	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	--MONITORING LOCATION--			
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	County	Drainage	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Country	Geothermal	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Horizontal Collection Method	Heat Reservoir	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Horizontal Reference Datum	Injection	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Monitoring Location Type	Irrigation	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	State	Monitoring	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Vertical Collection Method	Observation	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Vertical Reference Datum	Other	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Well Formation Type	Recharge	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Well Type	Remediation	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	--ACTIVITY--	Repressurization	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Activity Media	Seismic	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Activity Media Subdivision	Soil Vapor Extraction	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Activity Type	Soil Vapor Monitoring	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		Test Hole	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		Waste Disposal	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		Water Quality Assessment	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		Water Supply/Production	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		Oil/ Gas Production	True	1/8/2014 3:27:14 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		Well-Temporary	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		Withdrawal of Water	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		Capture	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		Oil/Gas Production	True	3/25/2015 7:13:51 PM
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		Piezometer	True	3/25/2015 7:13:51 PM

# Open Waters Features

Open Waters  
water quality data management

Home | Water Quality | Reference Data | Administration | My Account | Help

Organization: Muscogee Creek Nation

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- Admin
  - User Management
  - Role Management
  - App Settings**
  - Data Synchron

## GENERAL APPLICATION SETTINGS

This page allows administrators to edit global application settings.

	ID	Setting Name	Setting Value
<a href="#">Edit</a>	2	CDX Submission URL	[REDACTED]
<a href="#">Edit</a>	3	CDX Ref Data URL	http://cdx.epa.gov/WQXWeb/services.asmx
<a href="#">Edit</a>	4	CDX Submitter	[REDACTED]
<a href="#">Edit</a>	5	CDX Submitter Password	[REDACTED]
<a href="#">Edit</a>	6	Default Timezone	Central Standard Time
<a href="#">Edit</a>	7	Log Level	DEBUG
<a href="#">Edit</a>	8	Email From	fharjo@mcn-nsn.gov
<a href="#">Edit</a>	9	Email Server	[REDACTED]
<a href="#">Edit</a>	14	Default State	OK
<a href="#">Edit</a>	16	Email Port	25
<a href="#">Edit</a>	17	Email Secure User	[REDACTED]
<a href="#">Edit</a>	18	Email Secure Pwd	[REDACTED]
<a href="#">Edit</a>	19	Public App Path	[REDACTED]
<a href="#">Edit</a>	20	Allow Self Reg	Y
<a href="#">Edit</a>	21	Beta Program	N
<a href="#">Edit</a>	22	Beta Invite Code	[REDACTED]
<a href="#">Edit</a>	23	Task App Path	C:\ExchangeNetwork\OpenWatersSvc

http://cdx.epa.gov/WQXWeb/services.asmx

# Expected Outcomes

- ◉ No hosting or maintenance cost
- ◉ Utilize free open-source software; Collaboration
- ◉ Ease-of-use: Water Quality Database and Submission all-in-one

# Contact Information

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