

EPA Safe Drinking Water Challenge Quick Start Guide

Data and API Overview

What is EPA's role in monitoring Public Water Systems (PWSs)?

Regulation

National Primary Drinking Water Regulations (NPDWRs), or primary standards, are legally enforceable standards that apply to public water systems. Primary standards protect public health by limiting the levels of certain contaminants in drinking water. EPA sets a Maximum Contamination Limit (MCL) for every regulated contaminant. When public water systems are found to contain contaminants in amounts exceeding the MCL, they are in violation and must take action to restore the quality of their water. For more information about EPA regulated drinking water contaminants visit

<http://water.epa.gov/drink/contaminants/#List>

Public Notification

Public water systems that serve the same customers year round are required to mail water quality reports, called Consumer Confidence Reports (CCRs), to their customers annually. These reports explain what, if any, contaminants were found in their drinking water supply and the potential health effects of consuming these contaminants. For more information on CCRs visit

<http://water.epa.gov/lawsregs/rulesregs/sdwa/ccr/index.cfm>

What other drinking water information should I consider?

- SDWIS Hotline - 1-800-426-4791: <http://water.epa.gov/drink/hotline/index.cfm>
- Information on home water testing:
http://water.epa.gov/drink/info/upload/2005_09_14_faq_fs_homewatertesting.pdf
- Non-EPA information on water filtration

How can I learn specifically about the Safe Drinking Water Information System (SDWIS) Data?

Review the Envirofacts SDWIS Reports:

To familiarize yourself with the information provided by SDWIS data, start by reviewing some public water system reports on the Envirofacts website: <http://www.epa.gov/enviro/facts/sdwis/search.html>

1. Select a state from the map
2. In the report that follows, select a county from the drop-down menu and click "search"
3. Select a water system from the list that appears for the county selected
4. The following report will show any health-based violations that have been reported for that water system

Try a zip code or city/state search from here: <http://www.epa.gov/enviro/facts/topicsearch.html#water>

Review the SDWIS Metadata:

Review the data elements and their definitions by reviewing the SDWIS data model:

<http://www.epa.gov/enviro/facts/sdwis/model.html>

1. Click on one of the tables in the model and the following screen will provide links to all the data elements in the selected table
2. Below the data elements, the API will display a sample excel return to provide additional context (the actual API call is linked above the sample table)
3. Get a sense of what each table provides:
 - a. **PWS**: Includes public water system name, location, and contact information.
 - b. **PWS_COUNTY**: Includes data associating public water systems with the counties (and some cities) that they serve.
 - c. **VIOLATION**: Includes data on the types of violations and contaminants associated with public water systems.
 - d. **ENFORCEMENT**: Includes data on enforcement actions taken against public water systems found in violation, as well as the dates of such actions
 - e. **SDW_COUNTY_SERVED**: This view combines data from the PWS and PWS_COUNTY tables
 - f. **SDW_VIOL_ENFORCEMENT**: This view combines data from the VIOLATION and ENFORCEMENT tables and includes contaminant definitions, health effects, and contaminant source data
 - g. **SDW_CONTAM_VIOL_ZIP**: This view is similar to SDW_VIOL_ENFORCEMENT with the addition of a geolocational zip code lookup that associates a county with a zip code of interest.
 - h. **SDW_CONTAM_VIOL_CITY**: This view is similar to SDW_VIOL_ENFORCEMENT with the addition of a geolocational city lookup that associates a county with a city of interest.
4. Take the time to understand some important data elements:
 - a. **PWSID** – The unique identifier for public water systems. This data element is in all SDWIS tables.
 - b. **ViolID** – The unique identifier for the violations associated with public water systems
 - c. **CCODE** – The unique identifier for contaminant names, as well as their associate definitions and health effects.
 - d. **CNAME** – The name of the contaminant
 - e. **CountyServed** – Counties served by a public water system. A single water system can serve multiple counties.
 - f. **CompPerBeginDate** – Signifies the start date for a compliance monitoring period
 - g. **CompPerEndDate** – Signifies the end date for a compliance monitoring period. This element does not signify whether a public water system achieved compliance.
 - h. **EnfID** – The unique identifier for enforcement actions taken against a public water system. The EnfID's "FOX," "EOX," and "SOX" signify that a public water system has achieved compliance for a particular violation.
 - i. **EnfActionName** – The name of the enforcement action. This data element, along with the EnfID, will show if a public water system has achieved compliance.

- j. **Definitions** – Contaminant definitions.
- k. **HealthEffects** – Contaminant health effects.
- l. **Sources** – Sources of contamination associated with each contaminant.

Pause and consider the data and the information it provides

For inspiration (if you have time), watch this episode of Dr. OZ, which was dedicated to raising awareness about drinking water contaminations:

<http://www.doctoroz.com/videos/your-water-causing-cancer-pt-1>

How can I learn about using the Envirofacts API to access SDWIS Data?

Familiarize yourself with the Envirofacts API

- <http://www.epa.gov/enviro/facts/services.html>
- <http://www.epa.gov/developer>

Experiment with API calls specific to Safe Drinking Water Data

- 1) I would like to know, within a specific county, what are the different Public Water Systems (PWSs), the population served by each one, the regulating agency, and the contact name and phone number.

Rest Web Service URL:

http://iaspub.epa.gov/enviro/efservice/SDW_COUNTY_SERVED/COUNTYSERVED/ACCOMACK

- 2) I would like to know, within a specific county and state, the violations and enforcement actions for the different PWSs, as well as the definitions, health effects, and sources of contamination for any contaminants.

Rest Web Service URL:

http://iaspub.epa.gov/enviro/efservice/SDW_VIOL_ENFORCEMENT/COUNTYSERVED/MCLEAN/STATE/IL/Excel

- 3) I would like to know, for a specific PWS, the violations and enforcement actions, as well as the definitions, health effects, and sources of contamination for any contaminants.

Rest Web Service URL:

http://iaspub.epa.gov/enviro/efservice/SDW_VIOL_ENFORCEMENT/PWSID/IL3141937/JSON

- 4) I would like to know, for a specific zip code, the violations and enforcement actions, as well as the definitions, health effects, and sources of contamination for any contaminants.

Rest Web Service URL:

http://iaspub.epa.gov/enviro/efservice/SDW_CONTAM_VIOL_ZIP/geolocation_zip/=/20460/rows/1:10/excel

- 5) I would like to know, for a specific city and state, the violations and enforcement actions, as well as the definitions, health effects, and sources of contamination for any contaminants.

Rest Web Service URL:

http://iaspub.epa.gov/enviro/efservice/SDW_CONTAM_VIOL_CITY/geolocation_city/CROFTON/STATE/MD/rows/1:10/excel

Learn about the caveats of the Envirofacts API and SDWIS data

- SDWIS data is refreshed on a quarterly basis
- API calls are limited to 5,000 rows per request
- Data elements are case-sensitive and must be written exactly as they appear in the database whenever you construct API calls