COLORADO
Water Quality Control Division
Department of Public Health & Environment

Agricultural Groundwater Data

Colorado DPA Guide for Developing 208 Plans

Overview

Designated Planning Agencies (DPAs) that want to discuss the status of groundwater in 208 plans can access groundwater data through two primary sources:

1) the Colorado Department of Agriculture (CDA), Agricultural Water Quality Program (AWQP) provides groundwater data as part of protecting state waters and the environment from impairment or degradation due to the improper use of agricultural chemicals while allowing for their proper and correct use; and

2) the Colorado Watershed Rapid Assessment Program (WRAP Tool) also provides groundwater data via United States Geological Survey (USGS) data sources.

Available Resources

Colorado State University (CSU), in collaboration with state and federal agencies, developed resources to assist in statewide planning and decision making. Access the tools and additional resources developed by CSU using the weblinks below:

- Agricultural Groundwater Resources: https://erams.com/catena/tools/colorado-collaborative/groundwater-protection/
  - AWQP technical documentation, database and webtool access, overview information
  - How-to video link: https://youtu.be/ZcL26C02lTA
- WRAP Tool – Groundwater Data: https://erams.com/catena/tools/colorado-collaborative/watershed-assessment/
  - Access USGS data: Groundwater Atlas and National Water Information System
- Additional DPA Resources: https://erams.com/catena/tools/colorado-collaborative/co-dpa-resources/
  - Access the suite of customized resources developed for DPAs

QUICK START GUIDE

Two primary sources can be accessed to explore groundwater data in Colorado: the AWQP Database and the WRAP tool's Groundwater data summary feature. Each resource provides different options for accessing groundwater data. Deciding which option(s) to choose will depend on how the data will be used for 208 plan development.

- If you would like agricultural groundwater quality data output in a **tabular form**, conduct a general data query using AWQP database
  - Groundwater quality data can be summarized at the **statewide or county scale** using the AWQP summary feature.

- o **Individual well sampling** information can be queried using the AWQP landowner/well owner feature.
- If you would like agricultural groundwater quality data output in a **map form**, use the AWQP map viewer to access well sampling information or the WRAP tool to export USGS groundwater information.

General AWQP Data Query

https://www.youtube.com/watch?v=ZcL26C02lTA&t=74s

A general data query of the AWQP database provides groundwater quality monitoring results and information for pesticides and inorganic compounds including nitrate-nitrogen since the start of the AWQP program in 2012. Results can be summarized by:

- Geographic location (e.g., conservation district, county, latitude/longitude, monitoring network, statewide, watershed regions/subregions)
- Time period of interest (year)
- Specific well identification numbers

Procedure

1. From the home page (https://erams.com/co_groundwater/) hover over the "Database" section
   a. Use "Search Data" to perform a general query by selecting criteria of interest using the drop-down options (Figure 1) and click "Submit Query" to review and export results
   b. Use the "Sampling Summaries" feature to quickly access statewide or county level data summaries. Click on the county of interest to display relevant information.
   c. Use the "Landowner/Well Owner" feature to query results from a specific well following the instructions that are automatically displayed when user selects "Landowner/Well Owner" from the database drop-down options.
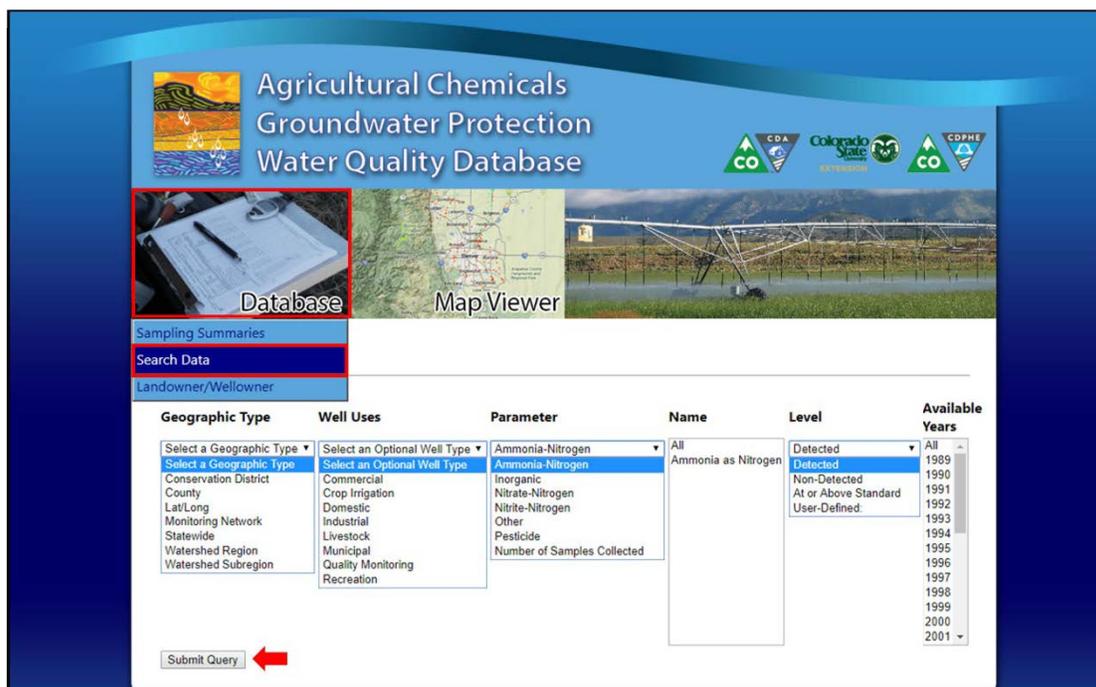

Figure 1 General groundwater data query

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AWQP Map Viewer (GIS Interface)

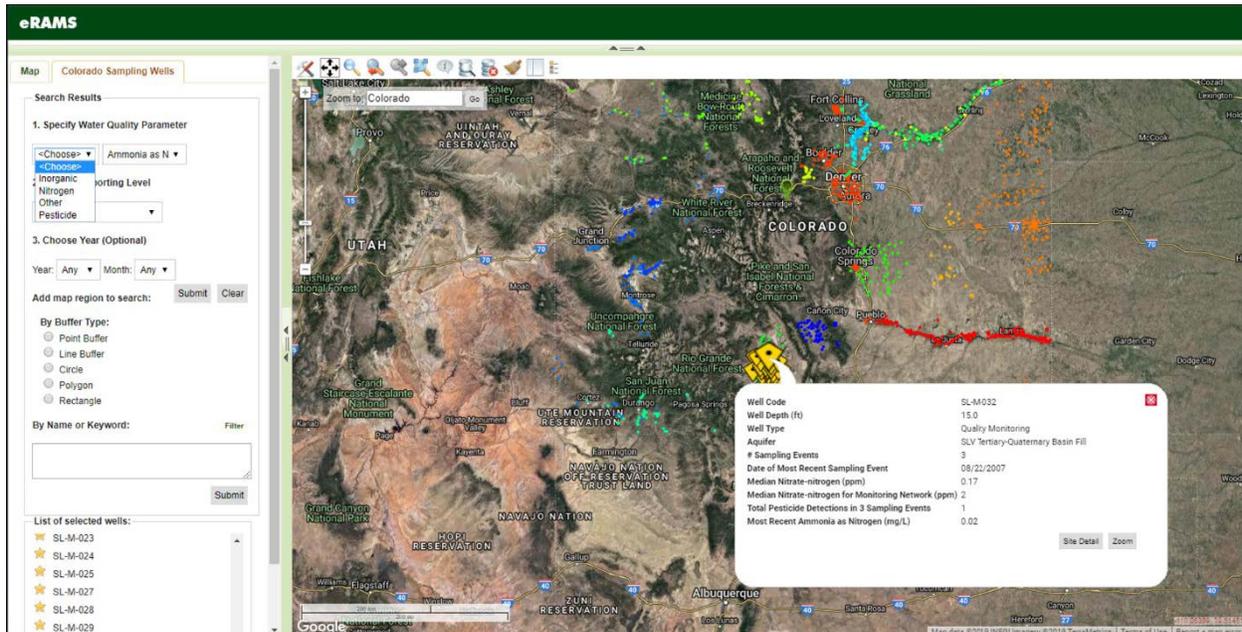https://www.youtube.com/watch?v=ZcL26C02lTA&t=218s

Figure 2 GIS map interface data summary

Another option for interacting with the AWQP database uses a Geographic Information System (GIS) interface to display the data. Mapping queries of the AWQP database provides groundwater quality monitoring results for inorganic, nitrogen, pesticides, and other parameters.

Procedure

1. From the home page (https://erams.com/co_groundwater/) hover over the "Map Viewer" section which will redirect to the eRAMS platform and GIS interface.
   a. The groundwater monitoring wells are color coded for the regional monitoring group they belong to, typically corresponding to an aquifer or geopolitical region. The color code legend is available under the Map tab, "geospatial layers" section.
2. Select the desired search criteria, then click "submit"
   a. The interactive map layer allows you to view data for a specified point on the map by either clicking a well in the results "List of selected wells" or the corresponding well on the map (indicated by yellow triangle) (Figure 2).

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WRAP Tool - Groundwater Data
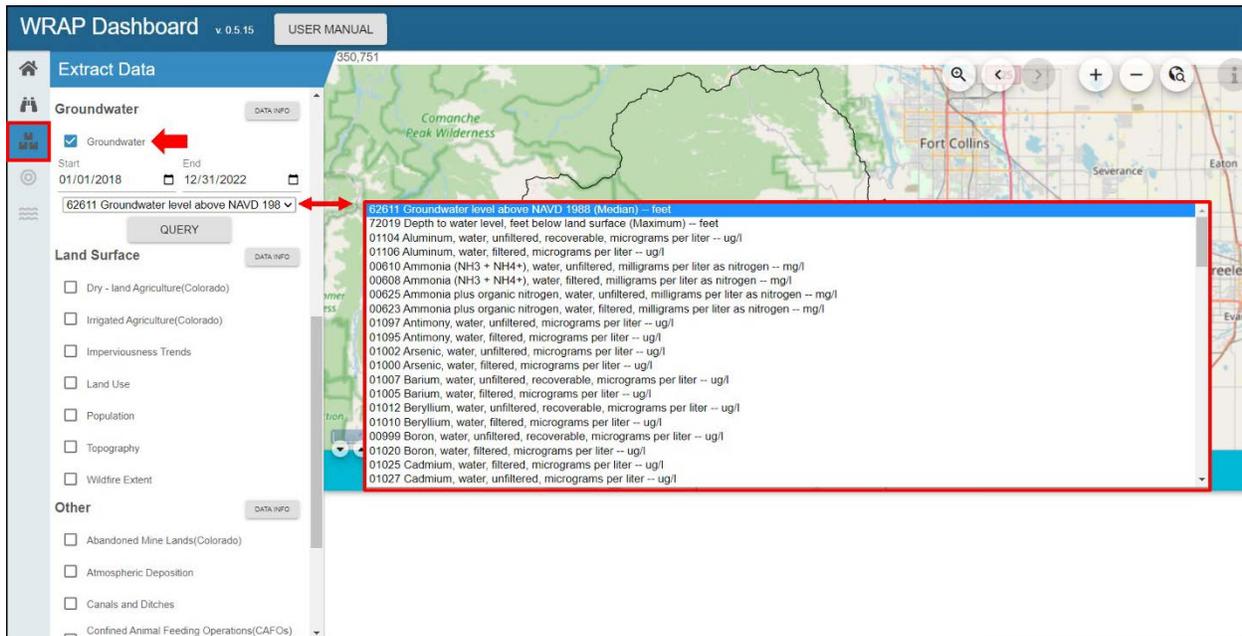
https://www.youtube.com/watch?v=ZcL26C02lTA&t=358s

Figure 3 USGS groundwater data available in WRAP tool

The WRAP Tool automates access to groundwater data published by the USGS via the Groundwater Atlas and National Water Information System. A general data query using the WRAP Tool provides the following groundwater information:

- A map of Groundwater Atlas aquifer extents in the user-defined area of interest.
- A map of USGS groundwater monitoring locations in the user-defined area of interest.
- A time-series graph of the available groundwater monitoring data for the user-selected parameter (i.e., depth to water table; water quality parameters like pH, dissolved oxygen, etc.)

Procedure

1. Click the "Select Area of Interest" (binoculars) section from the left dashboard. Define your watershed boundary by selecting one of the desired methods:
    a. Known boundary list includes states, counties, cities, HUC8, 10 or 12
    b. Upload boundary (user supplied geospatial layer)
2. Extract groundwater data (Figure 3)
    a. Scroll down and click "Groundwater" from the data list
    b. Use the drop-down list to identify search criteria
    c. Click "QUERY" button to review available data
        i. If data is available for the selected area, it will populate in the table below the map canvas

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