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TECH TALK

Where to find water quality data for produced waters

BY GARY BEERS • FOR ENERGY PIPELINE

People want to know about the quality of produced water for two reasons:

• Suitability for a proposed uses such as drinking, irrigation, water flooding, hydraulic fracturing, or the need for treatment to support a proposed use.

• Information on geologic formation, regional hydrogeology or presence of potential mineral commodities.

Produced water data has been difficult to access. The majority of produced water information is generated by the oil and gas industry and they resist sharing these data because of the inherent information on oil and gas reserves. Another factor contributing to the difficulty of finding and accessing these chemical data is the industry's historic lack of interest since the extracted water was a waste and routed to disposal wells or ponds. Sharing the same attitude, most agencies regulating oil and gas operations made little effort to assemble and maintain these databases.

The value of this information has evolved dramatically in the past decades and there are thorough efforts by federal and state agencies to structure and maintain these databases.

USGS NATIONAL PRODUCED WATERS GEOCHEMICAL DATABASE AND MAP VIEWER (2017 UPDATE, V2.3)

The US Geological Survey maintains a national geochemical database for produced waters from a variety of well types which can be displayed with a map viewer (Figure 1, centered on Wyoming) or exported to a table or graph. Links to key aspects of the USGS Produced Water program are:

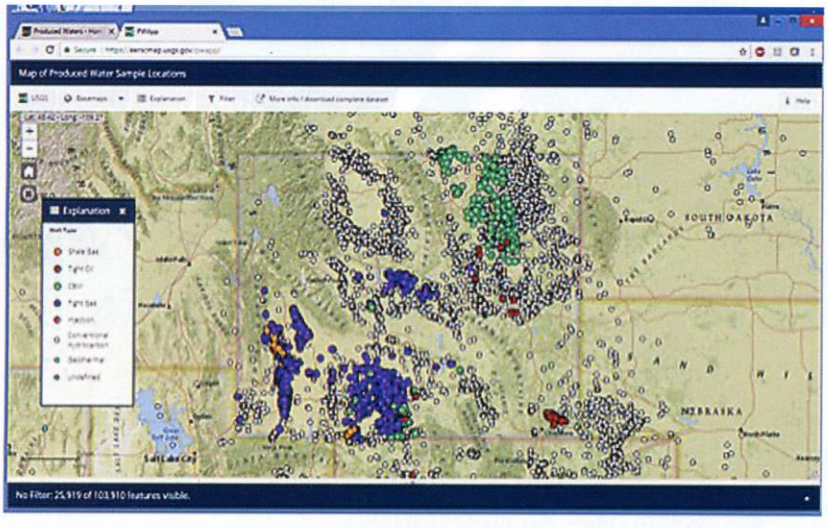
• Homepage for USGS Pro-duced Water:
bit.ly/2Iuh6k2

• USGS Map viewer:
eerscmap.usgs.gov/pwapp/

• USGS Documentation:
bit.ly/2GAqMNx

The interactive map can be employed in two ways. The map can be enlarged to show the detailed location of a well and to provide access to the analytical data for this well. A more valuable use is to query the database for specific information, for example:

QUERY — Locate Wyoming



Photos for Energy Pipeline

Figure 1 (left). Map viewer of national geochemical database for produced waters, centered on Wyoming.

For more than 50 years **GARY BEERS** has worked in numerous fields of environmental science as a consultant, regulator and educator. This career included senior management position with major consulting, nonprofit and public organizations. He has founded several successful firms to capture emerging resource management markets. One of his latest ventures, EnviroScienceINFO, provides content for public media.

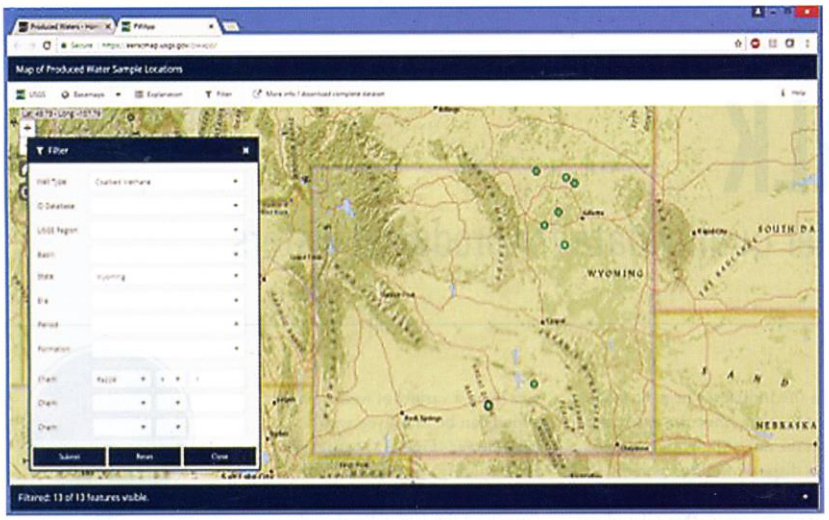


Figure 2 (left). Answer to query: Locate Wyoming oil wells in the Parkman Formation where produced water samples have a concentration of Radium-226.

oil wells in the Parkman Formation where produced water samples have a concentration of Radium-226.

ANSWER (FIGURE 2)

There are eight oil wells. Six are in the Powder River Basin and two straddle Interstate 80 between Cheyenne and Rock Springs, Wyo.

EXAMPLE OF STATE DATABASE

The Wyoming Oil and Gas Conservation Commission provides two online ways to access water chemistry data for produced waters:

- Retrieve produced water data from inquiry based on either formation, field, or township/range (wogcc.state.wy.us/warchoiceMenu.cfm)
- Retrieve produced water data from locating a specific well, using their map server (wogccms.state.wy.us/flexviewers/unitmap/) and then click on the well symbol.