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Western States Water

Addressing Water Needs and Strategies for a Sustainable Future

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LITIGATION/WATER QUALITY
***Riverkeeper v. Wheeler*/CWA/Columbia River**

On March 30, the 9th Circuit Court of Appeals denied the Environmental Protection Agency's (EPA) request to reconsider their December ruling, requiring EPA to set a total maximum daily load (TMDL) limit for temperature for the Columbia and Snake Rivers. *Riverkeeper et al. vs. Wheeler*, 18-35982. The opinion was based on the doctrine of "constructive submission," which courts have used in the past to address what happens when states refuse to submit TMDLs. Previously, the doctrine had only applied to cases where states did not implement a full TMDL program. This is the first time it has been applied to a singular TMDL. The 9th Circuit concurred with the District Court's opinion: "Washington and Oregon have clearly and unambiguously indicated that they will not produce a TMDL for these waterways, [and as a result] EPA has violated the CWA by failing to issue a TMDL for the Columbia and lower Snake Rivers." *Columbia Riverkeepers v. Pruitt*, 337 F. Supp. 3d 989, 998 (W.D. Wash. 2018).

The history of setting a temperature TMDL for the Columbia River goes back to 2000, when Washington and Oregon, which at the time did not have robust TMDL programs, entered into a Memorandum of Agreement (MOA) with EPA. The MOA and subsequent requests by the States outlined that EPA would produce and issue a temperature TMDL for the Columbia and Snake Rivers, and the States would be responsible for implementing the TMDL. In 2003, EPA produced a draft temperature TMDL, but never developed or issued a final TMDL. Today, both States have TMDL programs, but neither has issued a temperature TMDL. In 2017, Columbia Riverkeeper, Idaho United, Snake River Waterkeeper, Pacific Coast Federation of Fisherman's Association, and the Institute of Fisheries Resources filed a lawsuit against EPA Administrator Andrew Wheeler, arguing that EPA has a "non-discretionary" responsibility to issue the temperature TMDL.

Temperature is considered a physical factor that can affect the "chemical, physical and biological integrity of the Nation's waters" under the Clean Water Act. The Columbia and Snake Rivers are home to species of salmon and steelhead trout, some of which are endangered or threatened, that require water temperatures below 68 degrees F to thrive. Both parties agreed that dams, reservoirs and industry along the rivers have affected river temperatures. The 9th Circuit's decision could have major implications for dam operations and could affect industries along the river that discharge cooling water or other process waters into the rivers. The December ruling required that EPA issue a temperature TMDL within 30-days, which has not yet happened, though the agency has contacted the States and published information on its website.

WATER QUALITY
USGS/Aquifers

On April 1, the U.S. Geological Survey (USGS) announced an update to its National Water Quality Program (NWQP) with the completion of four new surveys of principle aquifers across the nation. About 140 million people, half the nation's population, rely on groundwater for their drinking water. The USGS has sampled almost 1,100 deep public-supply wells to characterize the quality of the groundwater prior to treatment, analyzing the samples for regulated and unregulated constituents, and comparing the results to human-health benchmarks for drinking water.

The USGS is collecting information about 20 of the nation's 68 principle aquifers. "These 20 aquifers supply most of the groundwater used in the United States – they account for more than three-quarters of the groundwater pumped for domestic supply." The study now includes fifteen of the most heavily used aquifers. Western aquifers include: the Columbia Plateau basaltic-rock aquifers, the Basin and Range basin-fill aquifers, the Rio Grande aquifer system, the High Plains aquifer, the Glacial aquifer system, the Mississippi embayment-Texas coastal uplands aquifer system, and the Coastal Lowlands aquifer system.

Overall, the most common constituents exceeding human-health benchmarks were from geologic sources related to interaction between the groundwater and aquifer, and were usually trace elements of arsenic, fluoride, and manganese, with some strontium and radioactive elements such as radium and radon. Nitrate was the only man-made constituent that exceeded the benchmark, and only in a small percentage of samples. Surveys of three additional aquifers are slated for publication in 2021. See https://www.usgs.gov/news/quality-nation-s-groundwater-progress-a-national-survey.

WATER RESOURCES/WATER QUALITY/ENERGY
Produced Water

On April 2, IHS Markit released an analysis of the recent drop in oil prices combined with the COVID-19-related drop in demand, estimating that the volume of produced water will decline by almost 4% from 2019 volumes, down to 20 billion barrels annually by 2022. The 2019 Groundwater Protection Council's (GWPC) Produced Water Report says: "Based on the best available data from 2012, the nearly 1 million producing oil and gas wells in the United States generate approximately 21.2 billion barrels of produced water each year." This is the equivalent of about 2.7 million acre-feet per year. The GWPC report continues: "Produced water flow rate varies throughout the lifetime of an oil or gas well. Most unconventional hydraulically fractured wells show a high produced water flow rate initially as the flowback of fracturing fluids is occurring, followed by a decline in flow rate until it levels off at a relatively steady lower level. Conventional oil and gas wells show little or no produced water initially, with the flow rate increasing over time. Total lifetime water production is typically higher for conventional wells than for unconventional wells." http://www.gwpc.org; https://news.ihsmarkit.com

IHS Markit research analyst Paola Perez-Peña said: "The dramatic decrease in drilling and completion (D&C) activity in the next two years will significantly reduce frack water volumes, while the decline in produced water volumes will be less severe." The analysis looks at the costs of water sourcing, treatment, disposal and logistics such as hauling, transfer and storage. Logistics is the biggest segment of the oilfield management market, and hauling water (at $1 to $4 a barrel) is the main value driver – as well as the main driver of industry consolidation and efforts to reduce water transportation distance and overall logistics costs.

Water disposal is the second largest segment of oilfield management. This has historically been managed in-house by the operators, but doing so requires significant investments in infrastructure. The GWPC report says: "The cost of constructing permanent pipelines currently averages about $1.45 million per mile depending on pipe size, terrain, right of way costs, and other factors. The use of temporary pipe, sometimes referred to as 'lay flat pipe', is less expensive than permanent pipe but comes with its own set of problems, including increased maintenance needs and higher leakage rates." IHS Markit estimates a decrease in this investment due to the drop in oil prices, and a resulting shift to more third-party water disposal companies. It also estimates that by 2022, "41% of the produced water from oil and gas operations will be reinjected, 47% will be disposed of using [saltwater disposal] SWD wells, and 13% will be recycled for reuse in fracking operations."

The GWPC report notes that produced water reuse depends on regulatory and policy initiatives to facilitate reuse, local conditions such as available water supply and infrastructure, and the cost to make the produced water "fit for purpose." The EPA has worked with states (including California, Colorado, New Mexico, North Dakota, Oklahoma, Utah, Texas, Wyoming) since 2018 to explore alternatives to underground injection, evaporation ponds, or seepage pits to dispose of produced water, particularly in arid areas where water is scarce. The primary concerns from states, tribes, and stakeholders have centered on the ability to treat the produced water to a suitable quality for other purposes, from agriculture to non-oil-and-gas industries. https://www.epa.gov/eg/study-oil-and-gas-extraction-wastewater-management

Another concern with reuse of produced waters is that treatment and transportation from the oil field to alternative end uses can be cost-prohibitive unless the necessary infrastructure is already in place. The GWPC report says: "Remote locations may require the use of modular treatment facilities where the logistics of transporting water to a centralized facility may be both difficult and cost prohibitive. The extent to which this affects beneficial use depends on the availability and cost of modular treatment, accessibility to the site, number of treatment units needed, maintenance needs of the treatment equipment, and other factors." Finding a market for waste products resulting from the treated water is another consideration.

Market disruptions to oil prices have an effect not only on oil production, but also on the management of produced water, which can affect its economic appeal as a reliable source of reused water. GWPC's report says: "Longevity of supply is especially important in making the case for beneficial reuse outside the oil and gas industry. For example, a typical production well may last from 20 to 30 years, while a typical coal fired power plant has a lifespan of 50 years or more. Unless the operator(s) can guarantee a quantity of deliverable water of a specific quality over the life of the power plant, it may not be advantageous for the power plant to use produced water as a source of supply unless a separate guaranteed backup source of supply can be arranged." However, desirability may still "be high in an area with large amounts of produced water and limited alternate water supplies."