

# Defend NM Water: Evidence of Risks Posed by the Proposed Strategic Water Supply Program for New Mexico



Defend NM Water continues to strongly oppose the proposed Strategic Water Supply program and any public funding for produced water treatment projects for the following reasons:

## 1. Produced Water Reuse Environmental and Health Risks

### **Lack of scientific consensus: Testimonies from experts during the WQCC hearings.**

- In August, the Water Quality Control Commission concluded rulemaking hearings in WQCC 23-84 related to Produced Water Reuse. Every party to the rulemaking that offered testimony, including the New Mexico Oil & Gas Association (NMOGA) and the New Mexico Produced Water Research Consortium (NMPWRC), admitted that the scientific assessments and data available have not yet proved that fracking waste, aka “produced water,” can be safely treated for reuse or discharge at the scale proposed by the Strategic Water Supply.<sup>1</sup>
- Expert testimony confirmed that fracking waste from the Permian can be up to six times saltier than sea water, contains on average 195 picocuries per Liter of Radium,<sup>2</sup> three times the limit to qualify as liquid radioactive waste (60 picocuries per liter), and contains thousands of known and unknown toxic contaminants, some of which react to form new toxic byproducts during the process of treatment,<sup>3</sup> as well as a mix of fracking chemicals, *including PFAS*, that remain undisclosed to the public and regulators.

### **A history of radium contamination: Radiation poisoning of workers and surface waters.**

- In West Virginia the Fairmont Brine Processing plant had an NPDES discharge permit for its treated waste, but the plant was closed after the owners were cited for dumping contaminated and radioactive waste near a local school. In 2023 a tank at the shuttered complex caught fire and the contents exploded. Data collected by the EPA confirmed radiation levels of more than 3 milliRoentgen per hour, high enough that employees working 12-hour days (common at Fairmont Brine) could have surpassed Nuclear

<sup>1</sup> WQCC 23-84, 5/17/2024, Mike Hightower, Director, NMPWRC at 294-296.

<sup>2</sup> “The results show the total Ra (Ra-226 + Ra-228) has an average level of 195 pCi/L (picocuries/L), which is much higher than the EPA regulatory limit of 5 pCi/L for drinking water.” Xu, Pei & Zhang, Yanyan & Jiang, Wenbin & Hu, Lei & Xu, Xuesong & Carroll, Kenneth & Khan, Naima. (2023). February 2022 *Characterization Of Produced Water In The Permian Basin For Potential Beneficial Use.*, p. 29. (<https://www.sciencedirect.com/science/article/abs/pii/S0304389422001972>)

<sup>3</sup> Himali M.K. Delanka-Pedige, Robert B. Young, Maha T. Abutokaikah, Lin Chen, Huiyao Wang, Kanchana A.B.I. Imihamillage, Sean Thimons, Michael A. Jahne, Antony J. Williams, Yanyan Zhang, Pei Xu, Non-targeted analysis and toxicity prediction for evaluation of photocatalytic membrane distillation removing organic contaminants from hypersaline oil and gas field-produced water, *Journal of Hazardous Materials*, Volume 471, 2024, 134436, ISSN 0304-3894, <https://www.sciencedirect.com/science/article/pii/S030438942401015X>

Regulatory Commission annual limits in three days.<sup>4</sup> The site continues to cause radioactive contamination in the community.<sup>5</sup>

- In Pennsylvania, where produced water was discharged into streams and rivers **after treatment**, radium was found bioaccumulating in downstream organisms - measuring more than double the levels in upstream specimens.<sup>6</sup>

### **Hazardous residual waste stream disposal and transport risks.**

- The Strategic Water Supply Act includes no detailed guidance on the jurisdiction or management of significant volumes of residual waste from proposed treatment plants. NMED's feasibility study notes only that:

*Brine disposal is a major challenge to inland produced water and brackish water treatment. (pg58)*

According to the Produced Water Research Consortium there is no silver bullet for treatment. Produced water from the Permian will require a train of unit processes, each one designed to take out one or more contaminants. And each one of those processes will have a waste stream - at least 20% of the total treated volume.<sup>7</sup> Disposal of this untreatable residual waste in Class II injection wells threatens potable water aquifers.

- The increased risk for contamination resulting from accidental spills is also overlooked. According to self-reported industry data, there are at least four spills<sup>8</sup> already taking place daily during the transport of fracking waste within the oil field, despite a prohibition against it. Transport to and between treatment projects and disposal sites promises to increase accidental discharges across the state.

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## 2. Brackish Water Extraction and Desalination Risks

### **Brackish water extraction risks environmental destruction and permanent resource depletion.**

- Brackish water extraction poses significant environmental risks, particularly contamination of valuable freshwater aquifers. NMED's feasibility study mentions in passing that:

*Using deep brackish water as an alternative water source may lead to negative environmental impacts such as land surface subsidence, saltwater intrusion into freshwater aquifers, and decreased flow in rivers. (pg.38)*

- According to the New Mexico Bureau of Geology and Mineral Resources "Brackish water in deep, confined aquifers is, in most cases, not a renewable resource. If we

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<sup>4</sup> U.S. ENVIRONMENTAL PROTECTION AGENCY POLLUTION/SITUATION REPORT, Fairmont Brine Site, 9/22/23. <https://semspub.epa.gov/work/03/2360013.pdf>

<sup>5</sup> <https://www.truthdig.com/articles/a-slow-rolling-disaster-in-fracking-country/>

<sup>6</sup> <https://www.psu.edu/news/engineering/story/mussels-downstream-wastewater-treatment-plant-contain-radium-study-reports>

<sup>7</sup> Strategic Water Supply Feasibility Study Final, New Mexico Environment Department & Eastern Research Group. Nov 22nd, 2024, pg 56.

<sup>8</sup> [https://pdf.wildearthguardians.org/support\\_docs/Oil-Gas-2022-Spills-Overwhelm-New-Mexico.pdf](https://pdf.wildearthguardians.org/support_docs/Oil-Gas-2022-Spills-Overwhelm-New-Mexico.pdf)

extract this water, eventually the supply will be depleted... That water cannot be replaced in aquifer storage because of permanent collapse in the aquifer pore spaces."<sup>9</sup>

**Desalination of brackish water is extremely energy intensive and threatens New Mexico emissions reduction goals.**

- Desalination is extremely energy intensive. The desalination volumes envisioned in the Governor’s 50 Year Water Plan would require energy from the equivalent of multiple San Juan coal plants, and would compromise New Mexico’s critical energy transition goals. The NM Produced Water Research Consortium Director announced at the Consortium’s December 2024 annual public meeting that desalination of Permian Basin produced water would require a new dedicated grid to supply the enormous electrical energy requirements. An oilman suggested a molten salt modular nuclear reactor to provide the electricity. The Consortium Director replied he prefers combined cycle gas turbines. Any increase in gas consumption will contribute directly to the climate change driven water crisis New Mexico faces.

### 3. Economic Risks: Stranded Assets and Inadequate Financial Assurances

**Produced water treatment and reuse is not cost effective. If produced water treatment was cost effective, the oil and gas industry would already be doing it.**

- The Strategic Water Supply proposes to use public funds to purchase advanced market commitments from private treatment companies, guaranteeing the price at which the state will purchase the treated waste from these companies without guaranteed buyers or a guaranteed sale price. NMED’s feasibility study included the following economic projections based on RFI responses it received:

Region/Project	Net Project Cost	Payment from End Users	Net Project Cost Less Payments from End Users
<b>Permian</b>			
NMSU 1 MGD	\$218-\$253 million	\$16 million	\$202-\$238 million
NMSU 5 MGD	\$461-\$745 million	\$78 million	\$383-\$667 million
Aquality	\$196 million	\$19 million	\$177 million
<b>San Juan</b>			
NMSU 1 MGD	\$158-\$175 million	\$30 million	\$128-\$145 million
NMSU 5 MGD	\$163-\$340 million	\$149 million	\$13-\$191 million
HF Sinclair	\$25-\$34 million	\$4 million	\$20-\$30 million
Aquality Solutions	\$196 million	\$36 million	\$159 million

**Every project included would cost significantly more than it could be expected to recoup.** The feasibility study notes that: *“The SWS would address the gap between the*

<sup>9</sup> [https://geoinfo.nmt.edu/publications/periodicals/earthmatters/15/n2/em\\_v15\\_n2.pdf](https://geoinfo.nmt.edu/publications/periodicals/earthmatters/15/n2/em_v15_n2.pdf)

*price water treatment suppliers need in order to cover their capital investment and operating costs and the price end users are willing to pay for treated water.” (pg.77)*

**Stranded Assets: Examples of failed brine treatment processing plants are ubiquitous.**

- Three treatment facilities run by Eureka Resources in Pennsylvania have been shuttered, its fourth planned one has been shelved, and the company is on the verge of bankruptcy. The Eureka Resource facilities have left a wake of contamination, pollution and harmed workers, including one who died at a now shuttered plant designed to extract lithium from produced water.<sup>10</sup>
- Southwestern Energy had a permit to discharge treated fracking waste into the White River in Arkansas, but the operation was closed due to high costs.<sup>11</sup>
- In Ohio the Austin Master’s brine treatment facility was shut down in April 2024 after multiple permit violations and radioactive threats to area drinking water.<sup>12</sup> The parent company subsequently shut down all three subsidiaries and let go of all employees.<sup>13</sup>

**Inadequate financial assurances: Analysis of the discussion draft language.**

- The financial assurance provisions in the Strategic Water Supply Act, intended to protect against potential project failure, are ambiguous in scope and type, and will fail to protect New Mexicans from the likely and significant risk of stranded assets and extensive environmental remediation costs associated with failed produced water treatment plants across the country. NMED’s feasibility study states only:

“The SWS addresses investment risk by committing to purchasing treated water at a given price, with risks related to the volatility of a potential market for treated water being transferred to the state of New Mexico. This assumption of risk has important implications for the state, especially if a potential end user identified as the offtaker for a project is no longer operational (for existing facilities) or fails to materialize.” pg 77
- The discussion draft financial assurance provision states that financial assurances “may be required” instead of “shall be required.” The oil and gas industry’s history of abandoning wells drilled with inadequate financial assurances and leaving them for public remediation makes clear how that arrangement will pan out for New Mexican taxpayers.

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These risks, and the sordid history of treatment plant failures resulting in public health harms and environmental contamination in states that have approved produced water treatment and reuse, should alarm all New Mexicans. Our water is precious and must be protected.

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<sup>10</sup> <https://www.fastcompany.com/91193679/this-pennsylvania-company-claimed-it-could-extract-lithium-from-fracking-wastewater-it-might-have-made-things-worse>

<sup>11</sup> <https://www.arkansasonline.com/news/2012/mar/15/fracking-water-distiller-exits-20120315/>

<sup>12</sup> <https://www.farmanddairy.com/news/austin-masters-frack-waste-threatens-martins-ferry-water-sources/821740.html>

<sup>13</sup> <https://www.timesleaderonline.com/news/local-news/2024/04/austin-master-owner-closes-doors-of-three-subsidiaries/>