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## Drilling California Dry: An Analysis of Oil and Gas Water Usage Since Newsom Was Elected

As California suffers from a major drought and enters a climate change fueled wildfire season, oil and gas operators continue to use hundreds of millions of gallons of freshwater for drilling operations annually.<sup>1</sup> It's a vicious symbiotic cycle: fracking and drilling contribute to climate change and suck up finite water resources, then drought and wildfires worsen from climate change.

Although Governor Gavin Newsom pledged on the campaign trail to "oppose fracking and other unsafe oil operations" and to shut down the Aliso Canyon gas storage facility in Los Angeles<sup>2</sup> — he has yet to make his promises a reality. In fact, Food & Water Watch found since Governor Newsom was elected<sup>3</sup> (from Fall 2018 to June 2021),<sup>a</sup> the oil and gas industry used **nearly 2 billion gallons** of freshwater for drilling operations that could otherwise have supplied domestic systems (see Appendix below).<sup>4</sup>

For a comparison of what that looks like, the nearly 2 billion gallons of water used to drill oil and gas wells in the state would fill about **2,732 Olympic-sized pools**<sup>5</sup> or supply local California households with **over 72 million showers**.<sup>6</sup> It also exceeds the amount of water that Californians are recommended to use on a daily, per capita basis during drought (55 gallons/day).<sup>7</sup> The freshwater sucked up by the oil and gas industry since Governor Newsom's election could have provided everyone in the city of Pasadena with the recommended amount of daily water for more than 7 months, or everyone in the city of Ventura for almost 10 months.<sup>8</sup>

At the same time, oil and gas development pollutes and threatens California's finite freshwater resources, making it unusable. When oil and gas corporations want to discard the toxic wastewater produced during drilling, underground injection is their most common disposal method.<sup>9</sup> In California, some corporations have routinely injected oil wastewater directly into aquifers.<sup>10</sup> This toxic wastewater contains fracking fluids, contaminants, brines and radioactive materials.<sup>11</sup> Injecting toxic wastewater into underground wells puts drinking water at risk and is linked to increased earthquake activity.<sup>12</sup>

On top of all of this, the increase in frequency, size and severity of wildfires associated with climate change can have huge impacts on water sources in burned areas. These regions have more soil and stormwater runoff, increasing the amounts of sediment, nitrogen, phosphorus and trace metals present in the water, as well as causing higher turbidity and more organic material to enter the water.<sup>13</sup>

With the oil and gas industry fueling more climate change, more drought and increased and worsening wildfires, we must eliminate all drilling in California right now: 20 years is too long to wait. And Governor Newsom's 2024 fracking ban fails to protect frontline communities. We need action now.

### Conclusion

Governor Newsom committed to providing the people of California with clean air and water in order to protect vulnerable communities and stave off the impacts of climate change. He campaigned on a pledge to oppose fracking and other dangerous well stimulation operations.<sup>14</sup> He recognized that decisions must be made to protect the environment, address the rising sea level and safeguard drinking water resources that are affected by climate change.<sup>15</sup> Now is the time to deliver on those commitments.

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<sup>a</sup> CalGEM releases water use data reported by oil and gas companies quarterly. The 2018 data used in this analysis are Fourth Quarter data released in the fall of 2018. This is the closest water use data available to Newsom's election date of November 6, 2018.

## Appendix

**Table 1. Total Water Used for Oil and Gas Drilling in California (Fall 2018<sup>b</sup> to June 2021)<sup>16</sup>**

| Year   | Well Type*                             | Gallons of Freshwater<br>(water that would otherwise be used by domestic systems but was diverted for use by the oil and gas industry) <sup>17</sup> | Total Gallons<br>(all water used) |
|--|--|--|-----------------------------------|
| <b>2018<br/>(Fourth Quarter Only)</b>            | OG (Oil and Gas)                       | n/a  | n/a                               |
|  | SC (Cyclic Steam)                      | 100,951,032  | 799,186,626                       |
|  | SF (Steam Flood)                       | 165,680,718  | 4,428,245,010                     |
|  | WF (Water Flood)                       | 2,027,088  | 7,170,843,330                     |
|  | Other (AI, GD, GS, INJ, PM, WD)        | 94,114,146   | 5,858,968,206                     |
|  | <b>2018 TOTAL</b>                      | <b>362,772,984</b>   | <b>18,257,243,172</b>             |
| <b>2019</b>                                      | OG (Oil and Gas)                       | n/a  | n/a                               |
|  | SC (Cyclic Steam)                      | 333,716,208  | 4,164,072,066                     |
|  | SF (Steam Flood)                       | 161,711,634  | 13,647,577,146                    |
|  | WF (Water Flood)                       | 765,240  | 30,689,678,166                    |
|  | Other (AI, GD, GS, INJ, Multi, PM, WD) | 198,224,880  | 25,251,028,740                    |
|  | <b>2019 TOTAL</b>                      | <b>694,417,962</b>   | <b>73,752,356,118</b>             |
| <b>2020</b>                                      | OG (Oil and Gas)                       | n/a  | 331,968                           |
|  | SC (Cyclic Steam)                      | 218,554,896  | 4,656,189,468                     |
|  | SF (Steam Flood)                       | 159,797,526  | 12,859,177,338                    |
|  | WF (Water Flood)                       | n/a  | 24,441,440,142                    |
|  | Other (AI, GD, GS, INJ, Multi, PM, WD) | 268,329,768  | 19,607,170,212                    |
|  | <b>2020 TOTAL</b>                      | <b>646,682,190</b>   | <b>61,564,309,128</b>             |
| <b>2021<br/>(First and Second Quarters Only)</b> | OG (Oil and Gas)                       | n/a  | n/a                               |
|  | SC (Cyclic Steam)                      | 21,218,778   | 215,044,494                       |
|  | SF (Steam Flood)                       | 28,226,772   | 1,660,187,256                     |
|  | WF (Water Flood)                       | n/a  | 3,400,530,882                     |
|  | Other (INJ, Multi, WD)                 | 51,248,106   | 3,046,806,924                     |
|  | <b>2021 TOTAL</b>                      | <b>100,693,656</b>   | <b>8,322,569,556</b>              |
| <b>GRAND TOTALS</b>                              |  | <b>1,804,566,792</b>   | <b>161,896,477,974</b>            |

\*Air Injector (AI), Core Hole (CH), Dry Gas (DG), Dry Hole (DH), Gas (GAS), Gas Disposal (GD), Gas Storage (GS), Injector (INJ), Liquid Petroleum Gas (LG), Multi-Purpose (Multi), Observation Well (OB), Oil and Gas (OG), Pressure Maintenance (PM), Cyclic Steam (SC), Steam Flood (SF), Unknown well type (UNK), Water Disposal (WD), Water Flood (WF), Water Source (WS).<sup>18</sup>

<sup>b</sup> CalGEM releases water use data reported by oil and gas companies quarterly. The 2018 data used in this analysis are Fourth Quarter data released in the fall of 2018. This is the closest water use data available to Newsom's election date of November 6, 2018.

## Endnotes

<sup>1</sup> Arora, Priya. "Where's the water? Drought threatens California's lifeline." *New York Times*. May 20, 2021; Food & Water Watch (FWW) analysis of WellSTAR, Well Injection Data (BQ), October 2018 - June 2021. California Department of Conservation (DOC). California Geologic Energy Management Division (CalGEM). Available at <https://wellstar-public.conservation.ca.gov/General/PublicDownloads/Index>. Accessed July 2021. FWW calculated water injected into California wells from October 2018 through June 2021 using any water source and domestic water systems (source code 03). Water volume converted from barrels to gallons.

<sup>2</sup> Bacher, Dan. "Governor Newsom recommit to closing Aliso Canyon gas facility, but doesn't commit to timeline." *Daily Kos*. June 1, 2019; Newsom, Gavin. Governor. California Budget 2019-20: May Revision 2019-20. May 9, 2019 at 73; Newsom, Gavin, "A sustainable world can start in California." *Medium*. December 5, 2017.

<sup>3</sup> Arango, Tim and Thomas Fuller. "Gavin Newsom is elected governor of California." *New York Times*. November 7, 2018.

<sup>4</sup> FWW analysis of WellSTAR, Well Injection Data (BQ), October 2018 - June 2021. DOC. CalGEM. Available at <https://wellstar-public.conservation.ca.gov/General/PublicDownloads/Index>. Accessed July 2021. FWW calculated water injected into California wells from October 2018 through June 2021 using any water source and domestic water systems (source code 03). Water volume converted from barrels to gallons.

<sup>5</sup> FWW analysis of WellSTAR; Fédération Internationale de Natation (FINA). "Part X: FINA Facilities Rules 2017 – 2021." September 22, 2017 at 7 to 8. Calculation: **1,804,566,792** gallons of freshwater injected by oil and gas operations (October 2018 – June 2021) / 660,430 gallons of water per Olympic pool = 2732.41 Olympic pools. (2,500 m<sup>3</sup> = 660,430 gallons).

<sup>6</sup> FWW analysis of WellSTAR; U.S. Environmental Protection Agency. "Showerheads." September 25, 2020. Available at <https://www.epa.gov/watersense/showerheads>. Calculation: **1,804,566,792** gallons of freshwater injected by oil and gas operations (October 2018 – June 2021) / 25 gallons per 10 minute shower = 72,182,671.68 ten minute showers.

<sup>7</sup> Department of Water Resources (DWR). State of California. "Fast Facts on the Water Conservation Legislation." 2019 at 1.

<sup>8</sup> FWW analysis of WellSTAR; U.S. Census Bureau. Population Division. "Annual Estimates of the Resident Population for Incorporated Places in California: April 1, 2010 to July 1, 2019." April 20, 2021. Available at <https://www.census.gov/data/tables/time-series/demo/popest/2010s-total-cities-and-towns.html>. Accessed May 28, 2021.

Calculation example: **1,804,566,792** gallons of freshwater injected by oil and gas operations (October 2018 – June 2021) / water recommendation (55 gallons/day/person) / 141,029 Population of Pasadena = 232.65 days.

<sup>9</sup> U.S. EPA. "Hydraulic Fracturing for Oil and Gas: Impacts From Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States." EPA-600-R-16-236Fa. December 2016 at 3-23 and 8-1.

<sup>10</sup> Sommer, Lauren. "How much drinking water has California lost to oil industry waste? No one knows." *KQED Science*. August 3, 2017.

<sup>11</sup> Adgate, John L. et al. "Potential public health hazards, exposures and health effects from unconventional natural gas development." *Environmental Science & Technology*. Vol. 48, Iss. 15. 2014 at 8313.

<sup>12</sup> Lustgarten, Abraham. "Injection wells: The poison beneath us." *ProPublica*. June 21, 2012; Keranen, K. M. et al. "Sharp increase in central Oklahoma seismicity since 2008 induced by massive wastewater injection." *Science*. July 3, 2014 at 1 and 2.

<sup>13</sup> Emelko, Monica B. et al. "Implications of land disturbance on drinking water treatability in a changing climate: Demonstrating the need for 'source water supply and protection' strategies." *Water Research*. Vol. 45, Iss. 2. January 2011 at 463 to 467.

<sup>14</sup> Newsom, Gavin. Governor. California Budget 2019-20: May Revision 2019-20. May 9, 2019 at 73; Newsom, Gavin, "A sustainable world can start in California." *Medium*. December 5, 2017

<sup>15</sup> Office of Governor Gavin Newsom. "Governor Newsom delivers state of the state address." February 12, 2019.

<sup>16</sup> FWW analysis of WellSTAR, Well Injection Data (BQ), October 2018 - June 2021. DOC. CalGEM. Available at <https://wellstar-public.conservation.ca.gov/General/PublicDownloads/Index>. Accessed May 2021. FWW calculated water injected into California wells from October 2018 through June 2021 using any water source and domestic water systems (source code 03). Water volume converted from barrels to gallons.

<sup>17</sup> DOC. "Data Dictionary for Water Resources: Water Produced from, or used in, oil and gas fields." Public Resources Code. December 2018 at 18.

<sup>18</sup> DOC. Geologic Energy Management. "WellSTAR Data Dashboard Glossary: Frequently Used Terms." Accessed May 2021 at PDF 4.