

1-1-2019

Thirsty for Justice: The Fight for Safe Drinking Water

Debi Ores

Follow this and additional works at: https://repository.uchastings.edu/hastings_environmental_law_journal



Part of the [Environmental Law Commons](#)

Recommended Citation

Debi Ores, *Thirsty for Justice: The Fight for Safe Drinking Water*, 25 *Hastings Env'tl L.J.* 101 (2019)
Available at: https://repository.uchastings.edu/hastings_environmental_law_journal/vol25/iss1/4

This Article is brought to you for free and open access by the Law Journals at UC Hastings Scholarship Repository. It has been accepted for inclusion in *Hastings Environmental Law Journal* by an authorized editor of UC Hastings Scholarship Repository. For more information, please contact wangangela@uchastings.edu.

Thirsty for Justice: The Fight for Safe Drinking Water

*Debi Ores**

I. Introduction

Until the Flint water crisis became national news, few Americans were aware that access to safe drinking water was a significant issue. Yet, across the country tens of millions of people depend on drinking water systems that violate health-based water quality standards.¹ This crisis has existed for decades and disproportionately impacts low-income communities of color.² In California alone, each year over one million people lack access to safe and affordable drinking water.³ As of September 2018, 273 public water systems, serving over a half a million Californians, were out of compliance with one or more drinking water standards.⁴ This number does not include residents who rely on private wells or unregulated state small water systems⁵ because the state does not require testing and reporting of those domestic water sources.⁶ However, approximately 2 million

* Debi Ores is a Staff Attorney at the Community Water Center (“CWC”) located in Sacramento, Calif. She leads CWC’s work on preventing nitrate contamination of drinking water sources. She also works on implementation of the Sustainable Groundwater Management Act with a focus on ensuring disadvantaged communities are included in the decisions surrounding water management, water affordability, and promoting sustainable water systems.

1. Maura Allaire et al., *National trends in drinking water quality violations*, 115 PROC. NAT’L ACAD. OF SCI., U.S. 2078, 2078 (2018), <https://perma.cc/Y9FU-SC7C> (“[I]n 2015, nearly 21 million people relied on community water systems that violated health-based quality standards.”) (this number only includes those who rely on water systems and not on private domestic wells).

2. Allaire et al., *supra* note 1, at 2080 (“Furthermore, low-income rural areas have a larger compliance gap than higher-income rural areas.” “Meanwhile, our indicator of minority, low-income populations is associated with higher likelihood of total coliform violations.”).

3. *California’s Drinking Water Crisis: Flint in Our Backyard*, COMMUNITY WATER CTR., <https://perma.cc/8AM5-WTML> (last visited Oct. 14, 2018).

4. *See generally Human Right to Water Portal*, CAL. WATER BOARD, <https://perma.cc/YHS5-2UWK> (last visited October 11, 2018).

5. CAL. HEALTH & SAFETY CODE § 116275 (2017) (defines a state small water system as a water system with between five and fourteen connections).

6. ST. WATER RES. CONTROL BD., *Communities that Rely on a Contaminated Groundwater Source for Drinking Water* (2013), <https://perma.cc/US4B-GUPN>.

Californians rely on domestic wells or unregulated systems which depend on groundwater.⁷

California passed AB 685 in 2012, becoming the first state to recognize the human right to water.⁸ This principle is laid out in California's Water Code, stating: "[E]very human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes."⁹ Since AB 685, several state agencies announced they will consider the human right to water when creating new policies and regulations.¹⁰ Nevertheless, the water crisis continues. Recently, the California legislature passed several laws granting additional powers to the State Water Resources Control Board ("State Water Board"). Californians also passed two water bonds (one in 2014 and another in June 2018), with another on the November 2018 ballot,¹¹ that addresses access to safe drinking water.¹² While these are significant steps towards actualizing the human right to water, there are still numerous gaps that need to be addressed.

Devising a solution that works for all communities is complex partially because of the many different ways people obtain water for domestic uses. The most common method is from a public water system, or investor-owned utility, which is subject to testing, reporting, and notice requirements.¹³ On the other hand, state small water systems and private domestic wells have little to no requirements.¹⁴ Customers of public water systems often assume their water is safe because water systems must notify their customers if a drinking water standard is exceeded.¹⁵ However, those who rely on state small water systems or private

7. ST. WATER RES. CONTROL BD., *Communities that Rely on a Contaminated Groundwater Source for Drinking Water* (2013), at 8.

8. Cal. Assem. B. No. 685 2011–2012 Reg. Sess. § 1 (Cal. 2012); *Human Right to Water Portal*, *supra* note 4.

9. CAL. WATER CODE § 106.3 (2013).

10. ST. WATER RES. CONTROL BD., Resolution No. 2016-0010 (Feb. 16, 2016), <https://perma.cc/M69E-5E2U>; CAL. REG'L WATER QUALITY CONTROL BD. CENT. VALLEY REGION, Resolution No. R5-2016-0018 (Apr. 21, 2016), <https://perma.cc/Z5UC-A3VU>.

11. At the time of submission of this article, the Water Bond (Proposition 3) has not been voted on.

12. *Water Bond. Funding for Water Quality, Supply, Treatment, and Storage Projects*. California Proposition 1 (2014), <https://perma.cc/V2FP-LLLM>; *Authorizes Bonds Funding Parks, Natural Resources Protection, Climate Adaptation, Water Quality and Supply, and Flood Protection*, California Proposition 68 (2018), <https://perma.cc/U8RR-TE9F>.

13. CAL. CODE REGS. tit. 22, § 64432 (2018).

14. CAL. CODE REGS. tit. 22, § 64211–12 (2018); ST. WATER RES. CONTROL BD., A GUIDE FOR PRIVATE DOMESTIC WELL OWNERS (2015), <https://perma.cc/EVS7-724B>.

15. CAL. CODE REGS. tit. 22, § 64432 (2018); an exception is where the renter does not pay the water bill directly, as notices are sent with water bills. In this instance, it is the landlord's responsibility to notify tenants but this does not always occur.

domestic wells have no such assurances. Testing is solely the responsibility of the well owner, a requirement that can prove to be cost-prohibitive for many low-income well owners.¹⁶ If California wants to ensure access to safe drinking water for everyone, they must implement a wide variety of tools to achieve it.

II. The heart of the drinking water crisis in California

The San Joaquin Valley hosts some of the most contaminated water basins in the nation,¹⁷ yet nearly 95% of San Joaquin Valley residents rely on groundwater for their domestic needs.¹⁸ When a large portion of the population relies on contaminated groundwater, the risk of a potential public health crisis becomes palpable. While cleanup and remediation of contaminated sources is necessary it is often not immediately feasible when contaminants are wide-spread and include a mix of natural and man-made sources. Instead water used for domestic purposes must be treated before being served. Unfortunately, both remediation and treatment are costly and for the approximately 350,000 people residing within disadvantaged¹⁹ or severely disadvantaged²⁰ communities within the Valley, financing solutions can be difficult or even impossible.

The San Joaquin Valley is also the heart of California's agriculture industry. Agriculture is the primary contributor to nitrate contamination in groundwater throughout the Valley due to the use of fertilizers and animal operations.²¹ Nitrate can cause serious health impacts including methemoglobinemia (or "blue baby syndrome"), thyroid issues, fatigue, reproductive harm, and cancer.²² In Tulare

16. ST. WATER RES. CONTROL BD., *supra* note 14, at 10 ("Basic sampling costs can range from \$100 to \$400").

17. *Exceedance/Compliance Status of Public Water Systems*, CAL. WATER BD., <https://perma.cc/CF55-6XYW> (last visited October 13, 2018, 2:00 PM); Eli Moore et al., *THE HUMAN COSTS OF NITRATE-CONTAMINATED DRINKING WATER IN THE SAN JOAQUIN VALLEY* 11 (2011), <https://perma.cc/67GX-3ASC>.

18. Carolina Balazs et al., *Social Disparities in Nitrate-Contaminated Drinking Water in California's San Joaquin Valley*, 119 ENVTL. HEALTH PERSP. 1272, 1273 (2011), <https://perma.cc/JX8V-DHXC>.

19. Cal. Health & Safety Code § 116275 (2017) ("Disadvantaged community" is defined as a community in which the median household income is less than 80 percent of the statewide average).

20. Cal. Health & Safety Code § 116760.20 (2016) ("Severely disadvantaged community" is defined as a community with a median household income of less than 60 percent of the statewide average); Jonathan London et al., *THE STRUGGLE FOR WATER JUSTICE IN CALIFORNIA'S SAN JOAQUIN VALLEY: A FOCUS ON DISADVANTAGED UNINCORPORATED COMMUNITIES* (2018), <https://perma.cc/EWY2-EUSL>.

21. Thomas Harter et al., *ADDRESSING NITRATE IN CALIFORNIA'S DRINKING WATER* (2012), <https://perma.cc/XU6N-HLY5>.

22. *Id.* at 9.

County, for example, residents have significantly higher negative health outcomes than state averages including, 140% for methemoglobinemia, 211% for miscarriages, 125% for digestive system cancers, 133% for chronic liver disease, and 172% for thyroid disorders.²³ San Joaquin Valley communities are also impacted by contaminants like arsenic, coliform bacteria, pesticides, and uranium.²⁴ Even if the contaminant is naturally-occurring, human actions can increase their presence in groundwater. For example, overpumping of San Joaquin Valley aquifers has caused higher arsenic and hexavalent chromium concentrations because of the compression of soils releasing naturally-occurring contaminants.²⁵ California has begun to move in the right direction by creating tools to assist disadvantaged communities in the state, but these tools, while somewhat effective, leave significant gaps for the most vulnerable populations to fall through.

III. State and local regulatory tools and funding sources

Over the last few years, California has implemented a number of tools and funding sources to improve access to drinking water throughout the state. This often involves the State Water Board exercising authority over water systems to either mandate or provide incentives for actions. However, there is also a lot that could be done locally. For example, neighboring water systems can help each other through actions such as voluntary consolidations. Those who discharge contaminants can also voluntarily address harms to drinking water sources by providing bottled water and creating plans for long-term solutions, such as installing drinking water treatment systems, or facilitating service extensions or consolidations. Unfortunately, these good will actions are uncommon and that is where the State can step in. This article will focus upon the “safe” component of the Human Right to Water as well as system-level affordability, but will not tackle household-level affordability concerns.

23. CMTY. WATER CTR., *WATER & HEALTH IN THE VALLEY: NITRATE CONTAMINATION OF DRINKING WATER AND THE HEALTH OF SAN JOAQUIN VALLEY RESIDENTS* (2013), at 8–10, <https://perma.cc/H9GQ-MMF9>.

24. *Water Quality*, CMTY. WATER CTR., <https://perma.cc/CE8A-K5AK> (last visited Oct. 14, 2018).

25. Ryan Smith et al., *Overpumping Leads to California Groundwater Arsenic Threat*, *NATURE COMM.* 2089 (2018), <https://perma.cc/FB2U-JZXX>; Debra M. Hausladen et al., *Hexavalent Chromium Sources and Distribution in California Groundwater*, 10 *ENVIRON. SCI. TECHNOL.* 1021 (2018).

A. State- and regional- level tools
i. Preventing and resolving the historic and continued proliferation of small unsustainable water systems

The cost of water service is rapidly increasing in California, especially for systems that are susceptible to changes in source water quantity or quality.²⁶ Water treatment can be cost prohibitive if a system's customers cannot afford the necessary rate increase. This is especially true for smaller systems.²⁷ When faced with supply issues, larger systems have the necessary economies of scale to finance solutions. The unsustainability of small water systems disproportionately impacts disadvantaged communities and undermines the State's goal of ensuring everyone's access to water.²⁸ Further, the proliferation of small, unsustainable systems is extremely prevalent in San Joaquin Valley²⁹ where 23% of the public water systems are not in compliance with drinking water standards.³⁰ Despite all this, small, unsustainable water systems have continued to proliferate across the state, sometimes to the detriment of their customers' health and safety.³¹

One way to address the continued proliferation of small, unsustainable water systems is to prevent their creation in the first place. In 2016, the Legislature passed SB 1263.³² SB 1263 was enacted to ensure that any new system has the necessary technical, managerial, and financial capacity to maintain long-term sustainability.³³ The bill grants authority to the State Water Board to deny permits for the creation of new water systems if it is, "reasonably foreseeable that the proposed new public water system will be unable to provide affordable, safe drinking water in the reasonably foreseeable future,"³⁴ and where there is a nearby system with the capacity to take on the additional connections.³⁵ The bill will thus on one hand prevent small, unsustainable water systems from forming that may harm resident's

26. Alastair Bland, *Californians are Struggling to Pay for Rising Water Rates*, NEWSDEEPLY (Feb. 27, 2018), <https://perma.cc/D9AR-K332>.

27. For example, when setting the MCL for Hexavalent Chromium, the Department of Public Health determined that if the MCL was set at 10ppb, for a system with fewer than 200 connections the annual per connection cost of treatment could exceed \$5,600. *See Cal. Mfrs. and Tech. Ass'n v. St. Water Res. Control Bd.*, Super. Ct. Sacramento County, 2017, No. 34-2014-80001850, at 8.

28. S.B. No. 1263 2015–2016 Reg. Sess. § 1–5 (Cal. 2016).

29. *See generally* London et al., *supra* note 20.

30. *Id.* at 14.

31. Nell Green Nylan et al., *Learning from California's Experience with Small Water System Consolidations* (2018), <https://perma.cc/XC7H-5PYJ>.

32. S.B. No. 1263 2015–2016 Reg. Sess. § 1–5 (Cal. 2016).

33. *Id.*

34. CAL. HEALTH & SAFETY CODE § 116540 (2018).

35. CAL. HEALTH & SAFETY CODE § 116527(c) (2017).

health in the future, and also allow systems to develop where there are no other feasible options for water service.

As stated previous, small unsustainable water systems are prevalent throughout the San Joaquin Valley.³⁶ A recent UC Davis study revealed that 66% of disadvantaged communities in the San Joaquin Valley lie within a mile of community water systems that provide or could provide safe drinking water with the right infrastructure.³⁷ If these separate systems were not built in the first place, and instead were included in nearby water systems, they could have been more affordable and prevented impacts on human health. However, in the early 1900s, strong anti-immigrant and racist policies were pervasive in the Valley and prevented low-income residents (particularly people of color) from living in urban areas.³⁸ Instead, migrants in California were forced to form their own communities which, due to low economic capital, lacked many municipal services including water service.³⁹ Instead of connecting these communities as cities began to grow in the 1960s, cities avoided annexing low-income communities of color and continued to deprive residents of reliable municipal services.⁴⁰ Therefore, state-level tools that incentivize or mandate services for underserved communities are extremely necessary.

While preventing the spread of small unsustainable systems is one piece of the puzzle, it does not address the current lack of safe water many face. One important tool involves consolidating a failing water system with an in-compliance system or extending service to a domestic well community. Consolidations can be either physical or managerial. Physical consolidations are when two or more systems are physically joined through infrastructure to create a single system.⁴¹ A managerial consolidation is when two or more systems are not physically joined but are managed by a single board and manager.⁴²

Although consolidations and service extensions may be the result of voluntary agreements, unfortunately, cost creates a significant barrier to consolidations or service extensions.⁴³ Under Proposition 218, all consolidation costs must be borne exclusively by the subsumed system,⁴⁴ and not the receiving

36. *See generally* London et al., *supra* note 20.

37. *Id.* at 5.

38. *Id.* at 10.

39. *Id.*

40. *Id.* at 11.

41. CAL. HEALTH & SAFETY CODE § 116681 (2017).

42. *Water System Partnerships and Voluntary Consolidation*, CAL. WATER BD., <https://perma.cc/N9PY-WRRC>, (last visited October 14, 2018).

43. CAL. HEALTH & SAFETY CODE § 116681 (2017).

44. CAL. HEALTH & SAFETY CODE § 116681 (2017), (“Subsumed water system’ means the public water system, state small water system, or affected residences not served

system⁴⁵ as the cost of water service must be proportionate to the cost of service and the benefit received.⁴⁶ The receiving system's customers do not receive a direct benefit from subsuming the failing system. Instead, the additional infrastructure exclusively benefits the failing system's customers.⁴⁷ Since the potentially subsumed system may be failing due to an inability to fund necessary improvements, it is unlikely that the ratepayers can afford to cover the expenses necessary to implement a consolidation or service extension.

In 2015, the State Water Board gained authority to mandate consolidations when a water system located in a disadvantaged community "consistently fails to provide an adequate supply of safe drinking water."⁴⁸ When considering whether to issue a mandatory consolidation order, the Board must take into account several findings, including: "[t]he potentially subsumed water system has consistently failed to provide an adequate supply of safe drinking water," previous failed negotiations for a voluntary consolidation, technical feasibility for the receiving system to take on additional connections, and whether consolidation is the most "effective and cost-effective means to provide an adequate supply of safe drinking water."⁴⁹ Prior to a consolidation order, the State Water Board will issue a consolidation letter, to inform the parties that the Board has identified the systems as a potential consolidation project.⁵⁰ The parties are encouraged to voluntarily consolidate and are given six months to do so.⁵¹ The Board has only needed to issue three mandatory consolidation orders, but has issued thirteen consolidation letters.⁵²

In 2016, SB 552 created another consolidation option that offered a less permanent way to manage failing water systems.⁵³ Some systems which consistently fail to provide safe drinking water may need a new manager or

by a public water system consolidated into or receiving service from the receiving water system.").

45. *Id.* ("Receiving water system' means the public water system that provides service to a subsumed water system through consolidation or extension of service."); *Voter Approval for Local Government Taxes. Limitations on Fees, Assessments, and Charges*, California Proposition 218 (1996), <https://perma.cc/S9PE-TJ95>, (requiring water rates be proportional to cost of service and the benefit received).

46. CAL. CON. ART. C and D.

47. However, in the long run, the receiving water system customers may receive benefits through an expanded rate base where costs can be spread out.

48. S.B. No. 88 2015–2016 Reg. Sess. § 1–23 (Cal. 2015).

49. CAL. HEALTH & SAFETY CODE § 116682(d) (2017).

50. *Mandatory Consolidation or Extension of Service for Disadvantaged Communities*, CAL. WATER BD., <https://perma.cc/BV3D-KYJ7> (last visited October 14, 2018).

51. CAL. WATER BD., *supra* note 50.

52. *Id.*

53. S.B. No. 552 2015–2016 Reg. Sess. § 1–4 (Cal. 2016).

operator that can implement changes and bring the system into compliance. SB 552 allows the State Water Board to require failing systems to accept a contract administrator to run the system.⁵⁴ The administrator has the authority to make changes to the system, but is still required to keep water rates affordable.⁵⁵ This would be possible through funding from the State Water Board.⁵⁶ Unfortunately, the State Water Board has yet to exercise their authority under SB 552, as there is currently no funding to finance an administrator.⁵⁷

Finally, AB 2501 was passed in 2018 and extended the State Water Board's consolidation authority to include state small water systems and communities reliant upon domestic wells that "consistently fail [. . .] to provide an adequate supply of safe drinking water."⁵⁸ Small water systems and domestic wells are more prone to changes in supply, since they are typically shallower than public water systems,⁵⁹ making them more susceptible to groundwater contamination from man-made sources.⁶⁰

While consolidation can be effective, it can do more harm than good when the community of the subsumed system is not part of the decision-making process. A community may be opposed to consolidation because of increased and unaffordable water rates, loss of local control and accountability from the system's board of directors, or additional costs of consolidation or service extensions such as laterals. The community may also have thoughts on how the consolidation or service extension should be implemented. It is important to include the impacted community in the process through outreach and engagement activities, public meetings and hearings, stakeholder committees, and written comments to help shape better results.

The State Water Board and the receiving water system should consider how consolidation removes local accountability that a community may be accustomed to. Consolidation may result in safe and affordable water for the community, but it can also cause unaffordable water rates and leave a community unsure of where to

54. *Id.*

55. CAL. HEALTH & SAFETY CODE § 116686 (2017).

56. CAL. HEALTH & SAFETY CODE § 116686(c) (2017).

57. CAL. HEALTH & SAFETY CODE § 116686 (2017) ("To provide affordable, safe drinking water . . . the state board may do . . . the following, if sufficient funding is available."); *State Water Board Launches Human Right to Water Web Portal*, CAL. WATER BD., (Feb. 14, 2017) ("The most significant remaining challenge is the lack of funding necessary to help subsidize the water rates paid by low-income residents, the costs of an administrator, and operation and maintenance of drinking water systems.").

58. A.B. No. 2501 2015 Reg. Sess. § 1-4 (Cal. 2015); CAL. HEALTH & SAFETY CODE § 116682(d) (2017).

59. CAL. STATE WATER RES. CONTROL BD., *supra* note 14, at 5.

60. Harter et al., *supra* note 21, at 35 ("More domestic wells and unregulated small system wells have high nitrate concentrations due to their shallow depth.").

turn for issues with their water service. Forcing communities to accept a solution is inappropriate as it takes away the community's voice and can result in significant long-term distrust and harm in the community.

ii. Regulatory gaps

Despite these significant legislative wins, there are many gaps in the tools available to disadvantaged communities who face unreliable access to safe and affordable drinking water. The first gap is the lack of knowledge and available data. While public water systems are subject to strict and regular testing requirements,⁶¹ testing requirements for state small water systems are incomplete⁶² and private domestic wells have no requirements.⁶³ Knowledge is power and knowing the quality of one's water is an important piece of information to empower the fight for human rights. Unfortunately, testing for a panel of contaminants is expensive and many families cannot afford testing.⁶⁴

In 2015, the Community Water Center tested 32 private wells,⁶⁵ and found several maximum contaminant level ("MCL") and public health goal exceedances, including: 15 total coliform exceedances, 9 nitrate exceedances, two 1,2,3-TCP exceedances, and 26 Hexavalent Chromium public health goal exceedances.⁶⁶ One family's well tested for nitrate at four times the MCL.⁶⁷ After learning their water was unsafe, the family now relies on bottled water for consumption.⁶⁸ California needs to develop a comprehensive state-funded well testing program for disadvantaged communities. No individual deserves to drink water which may be contaminated because he or she cannot afford to test, treat, or obtain an alternative source of water.

The second gap is a means to ensure existing communities lacking sustainable sources of drinking water are addressed before cities or counties permit new developments. Many communities that lack a source of drinking water are adjacent to, or fully within, a larger water provider with the capacity to support the community.⁶⁹ Matheny Tract, a 300-home community, adjacent to the city of Tulare, is a case example of such an inequity. Matheny Tract has struggled with

61. CAL. CODE REGS. tit. 22, § 64432 (2018).

62. CAL. CODE REGS. tit. 22, § 64211–12 (2018).

63. CAL. STATE WATER RES. CONTROL BD., *supra* note 14, at 7.

64. *Id.* at 10 ("Basic sampling costs can range from \$100 to \$400.").

65. CWC Private Well testing, Appendix A.

66. *Cal. Mfrs. Tech. Ass'n.*, *supra* note 27 (MCL for Hexavalent Chromium was overturned because Department of Public Health failed to conduct economic feasibility analysis) (State Water Board now tasked with setting new MCL).

67. CWC Private Well testing, line 10, Appendix A.

68. Interview with well owner, in Porterville, Calif. (Oct. 9, 2016).

69. *See generally* London et al., *supra* note 20.

arsenic contamination for years. In 2014, a new pipeline was laid connecting the community and city of Tulare, however the City balked at the idea of providing water service, citing capacity issues.⁷⁰ During the construction of the pipe, the City permitted a new several hundred connection development,⁷¹ and then sued the community to change the conditions of their agreement.⁷² The State Water Board eventually stepped in to force Matheny Tract and Tulare to become the first mandated consolidation.⁷³ This is but one of many examples of where a small disadvantaged community was located near a larger system, who refused to take on additional connections, despite their capability to do so.⁷⁴

SB 1318 was introduced in 2016 to address this inequity. SB 1318 would have prohibited a city or qualified special district⁷⁵, from annexing new land, if a nearby community lacks safe drinking water.⁷⁶ This provision would prohibit cities from forgoing assistance to communities in need, in favor of more profitable options. However, the bill never came to a vote in the Assembly, due to strong opposition from cities and CalLAFCO, who did not want the state to control how and when they annex new land. California needs to implement better planning that does not leave vulnerable communities behind. More inclusive policies can lead to a healthier and more sustainable Valley and state.

B. State funding resources

California needs to invest more heavily in its drinking water system infrastructure. A 2015 EPA survey found that California's drinking water needs will be over \$51 billion in the next 20 years.⁷⁷ This only includes the costs of physical infrastructure and not the unmet needs surrounding ongoing operations and maintenance costs.⁷⁸

70. Lewis Griswold, *Tulare, Matheny Tract Nearing Agreement on Clean Water Delivery*, THE FRESNO BEE (Mar. 19, 2016), <https://perma.cc/4HYL-V3KJ>.

71. Laura Bliss, *Why California's Poorest Towns Still Can't Connect to Water*, CITY LAB (Oct. 8, 2015), <https://perma.cc/R7YM-225N> ("Plus, while the new water lines were being laid in Matheny Tract, Tulare had approved connections on several hundred new homes in other developments.").

72. Griswold, *supra* note 70.

73. *Re: Mandatory Consolidation of the Pratt Mutual Water Company Water System*, ST. WATER RES. CONTROL BD., (Mar. 29, 2016), <https://perma.cc/5G8X-BEDZ>.

74. *See generally*, London et al., *supra* note 20.

75. "Qualified special district" is defined as a special district with 500 or more service connections. *See* S.B. No. 1318, 2015-2016 Reg. Sess. (Cal. 2016) (Jun. 1, 2016)

76. *Id.*

77. DRINKING WATER INFRASTRUCTURE NEEDS SURVEY AND ASSESSMENT, EPA (2015), <https://perma.cc/2NCZ-R67A> at 36.

78. *Id.*

State loans and grants that help communities build new infrastructure projects are important but have their limitations. This section discusses water bonds and the Drinking Water State Revolving Fund, two important sources of funding for water projects in disadvantaged communities.

i. Water Bonds

Periodically, Californians pass a new water bond, which provides funding for a wide array of projects from drinking water to flood protection to remediation of water bodies.⁷⁹ The funding allocated for drinking water projects can typically be used for both planning and implementation projects.⁸⁰ Water systems serving disadvantaged communities, operating with limited resources, vitally need an infusion of state funding to build treatment plants, drill new wells, install new pipelines, and make other necessary infrastructure upgrades. State funds also finance technical studies to help communities make the best decision for their residents and their situation.

The three most recent water bonds are Proposition 84 in 2006,⁸¹ Proposition 1 in 2014,⁸² and Proposition 68 in 2018.⁸³ Each bond prioritized different water needs, and Proposition 1 allocated the most towards improving drinking water.⁸⁴ Proposition 1 passed four years ago, and applications were solicited starting Fall 2015,⁸⁵ but over 80% of drinking water funds are already allocated.⁸⁶ These funds are quickly drying up, possibly before potential applicants can complete planning studies and then apply for implementation grants. One aspect of most water bonds' application for funds that keeps many disadvantaged communities from qualifying is the ability to fund ongoing operations and maintenance for the lifetime of the

79. *See generally* CAL. WATER CODE § 79770 (2014).

80. CAL. WATER CODE § 79704; *See also* PROPOSITION 1 GROUNDWATER GRANT PROGRAM GUIDELINES, CAL. WATER BD. (Dec. 19, 2017), <https://perma.cc/R5ZU-8XXZ> at 4.

81. *See generally* *Bond Accountability*, CAL. NAT. RES. AGENCY (last visited Oct. 23, 2018), <https://perma.cc/U2J4-KYUR>.

82. *See generally* CAL. WATER CODE § 79770 (2014).

83. *See* CAL. PUB. RES. CODE § 80162 (2018) (explaining that prop 68 is primarily a parks bond with some money reserved for water related projects).

84. *See generally* PROPOSITION 84 LEG. ANALYST'S OFFICE, Aug. 8, 2008, <https://perma.cc/T84J-U2M9> (explaining that \$380 million bond fund was given for safe drinking water); Proposition 1 *supra* note 12 (explaining that \$520 million bond fund was given for drinking water quality); Proposition 68 *supra* note 12 (explaining that \$250 million bond funds were given to safe drinking water).

85. *See* *Financial Assistance Funding – Grants and Loans*, CAL. WATER BD., <https://perma.cc/LY3F-RFFD> (last visited Oct. 23, 2018).

86. *See* *Proposition 1: Drinking Water Projects*, CAL. WATER BD. (June 27, 2018), <https://perma.cc/2GWQ-N8GD>.

project (usually at least 20 years).⁸⁷ For some communities, operations and maintenance costs can lead to unaffordable water rates, even if the infrastructure project is funded entirely by grants. Without the means to finance operations and maintenance, communities cannot receive state grants or loans to pay for infrastructure projects, and remain unable to solve their drinking water crisis. One potential future source of funding for operations and maintenance costs is discussed in subsection (iii) “Funding Ongoing Operations and Maintenance.”

At the time of writing this article, an additional water bond has yet to be voted on. Proposition 3, would allocate \$750 million towards safe drinking water.⁸⁸ This influx of funding is essential to ensure the State Water Board can continue to fund projects, and address barriers to accessing safe and affordable drinking water. As stated above, Proposition 1 drinking water funds are nearly entirely spoken for, and Proposition 68 only adds another \$330 million.⁸⁹ Although it may seem California constantly votes on new water bonds, until the state devises a sustainable source of funding for safe and affordable drinking water for all Californians the continued passage of bonds remains necessary.

ii. Drinking Water State Revolving Fund (“DWSRF”)

The DWSRF was amended into the federal Safe Drinking Water Act in 1996.⁹⁰ The purpose of the program is to “facilitate compliance with national primary drinking water regulations applicable to the system . . . or otherwise significantly further . . . health protection objectives.”⁹¹ Each participating state administers their own DWSRF, which is comprised of federal and state funds.⁹² The State Water Board administers the DWSRF program in California, and aggregates Proposition 1 and DWSRF federal funding to provide low- and no-cost loans for public water systems, as well as principal forgiveness to public water systems serving qualifying communities.⁹³ The current funding list includes 282

87. For example, *See Proposition 1 Groundwater Grant Program Guidelines*, CAL. WATER BD. (Feb. 2016), <https://perma.cc/H2DV-H5TT> at 19; *see also Section 75025 (\$60M) Criteria*, CAL. WATER BD. (Sept. 17, 2009), <https://perma.cc/WRU5-DV7X> at 3.

88. *See Proposition 3, Water Infrastructure and Watershed Conservation Bond Initiative*, BALLOTPEDIA (2018), <https://perma.cc/Y7GL-PBNE>.

89. *See* CAL. WATER CODE § 80162 (2018) (explaining Proposition 68 will add \$250 million towards clean drinking water projects and \$80 million towards groundwater treatment and remediation projects).

90. 42 U.S.C.A. § 300j-12 (2016).

91. *Id.* at (a)(2).

92. 42 U.S.C.A. § 300j-12 (2016), at (e).

93. *See Intended Use Plan*, CAL. WATER BD. (June 19, 2018), <https://perma.cc/REA4-EZEY> at 14.

eligible projects in excess of \$1.3 billion,⁹⁴ but due to staffing and oversight limitations only a small number of projects are funded each year, with only 31 funded in the 2016-2017 fiscal year.⁹⁵ Environmental justice advocates have urged the State Water Board to expand outreach in disadvantaged communities, to ensure communities are aware of the funding source, and are given assistance to complete their applications.⁹⁶ Finally, while the DWSRF can fund planning projects, there must be adequate set-asides to fund implementation projects that come out of the planning process. Otherwise, it harms communities who do not have “shovel-ready” projects that larger water systems have prepared.

iii. Funding ongoing operations and maintenance

Although California continues to allocate funds to capital infrastructure costs, there is still a significant funding gap in on-going operations and maintenance costs.⁹⁷ To obtain most state funding for capital infrastructure projects, an applicant must show that they can finance ongoing operations and maintenance costs for the useful lifetime of the project, at a minimum of 20 years.⁹⁸ However, since many communities cannot afford to build necessary infrastructure projects like treatment plants, they also cannot afford to operate and maintain these facilities.

In 2006, the community of Lanare obtained a grant to build an arsenic treatment plant for their long-standing contamination problem.⁹⁹ Unfortunately, the community was unable to cover the costly operations of the plant despite doubling water rates, and closed the plant after only six months.¹⁰⁰ To this day the

94. See *Intended Use Plan*, CAL. WATER BD. (June 19, 2018) at 21.

95. See *Drinking Water State Revolving Fund*, CAL. WATER BD. (June 30, 2017), <https://perma.cc/UF82-DQ38> at 25.

96. Letter from Ores et al., to Jeanine Townsend, Clerk to the Board and State Water Board Members (May 18, 2018).

97. See *Fact Sheet*, CAL. WATER BD., <https://perma.cc/S7M7-837Z> (last visited Oct. 23, 2018); see also *Section 75022 (\$180M) Criteria*, CAL. WATER BD. (Oct. 20, 2010), <https://perma.cc/KX9V-9AQY> at 3; see CAL. WATER BD., *supra* note 86, at 19.

98. See CAL. WATER BD., *supra* note 86 at 19.

99. See Eiji Yamashita, *Water woes: State takes control of utility serving Lanare, a troubled community near Riverdale*, THE HANFORD SENTINEL (Aug. 24, 2010), <https://perma.cc/NXC7-TDDX>.

100. Ezra David Romero & Kerry Klein, *Drinking Water Is A Human Right, But These Valley Residents Don't Have It*, VALLEY PUBLIC RADIO (May 2, 2017), <https://perma.cc/27UQ-WRBN>.

community remains out of compliance for arsenic, even with the necessary infrastructure to provide its residents with safe water under their control.¹⁰¹

Without a sustainable source of funding for on-going operations and maintenance costs, many water systems will remain unable to access funding for necessary system upgrades. During the 2017-2018 legislative session, Senator Monning put forth a recommendation on how to create such a funding source. The proposal was introduced as SB 623, and titled “Water Quality: Safe and Affordable Drinking Water Fund.”¹⁰² The bill contained two funding sources: one from additional fees on agricultural and animal operations and another from a \$0.95 fee on everyone’s water bills.¹⁰³ The money collected would then be deposited into a “Safe and Affordable Drinking Water Fund” and administered by the State Water Resources Control Board.¹⁰⁴ The Fund was predicted to raise \$140 million annually, to be used for infrastructure and operations and maintenance.¹⁰⁵

The proposal was reintroduced on August 16, 2018, as two bills: SB 844, which contained the agricultural contribution,¹⁰⁶ and SB 845, which included the water bill fee restructured as a voluntary rather than a mandatory fee.¹⁰⁷ Despite years of negotiations between environmental justice advocates, agricultural representatives, and other supporters, including environmental justice, environmental, public health, unions, industry, agriculture, and even a few water systems, the bill died in the last days of the legislative session.¹⁰⁸ Opponents of the water bill fee argued that individual ratepayers should not be responsible for funding drinking water projects in the state, and that a General Fund allocation would be more appropriate.¹⁰⁹ However, a General Fund is not a sustainable source of funding because the Governor can always discontinue the allocation.

101. See *Human Right to Water Portal*, CAL. WATER BD., <https://perma.cc/BQ55-XRG6> (last visited Oct. 23, 2018).

102. See S.B. No. 623, 2017-2018 Reg. Sess. (Cal. 2018) (Aug. 21, 2017), <https://perma.cc/VUV8-YVEN>.

103. *Id.* (bill language also included low-income exemption for those who make below 200% the FPL).

104. *Id.*

105. See Brett Walton, *California Water Board Delays Affordability Report*, CIRCLE OF BLUE (Feb. 2, 2018), <https://perma.cc/C7B4-R4L2>.

106. See S.B. No. 844, 2017-2018 Reg. Sess. (Cal. 2018) (Aug. 23, 2018), <https://perma.cc/V9X2-9XA4>.

107. See S.B. No. 845, 2017-2018 Reg. Sess. (Cal. 2018) (Aug. 23, 2018), <https://perma.cc/AY6A-7YU9>.

108. See Taryn Luna, *Push for drinking water tax dies in the California Legislature*, THE SACRAMENTO BEE (Aug. 31, 2018) <https://perma.cc/EF3L-SJN7>.

109. See, e.g., Mary McKenzie et al., *Proposed California tap water tax meets opposition*, ABC 10 NEWS (May 23, 2018), <https://perma.cc/U3XD-3T8Q>.

Communities need a sustainable and reliable source of funding that does not rely on the whims of politicians.

C. Responsible party lawsuits and State Water Board enforcement orders

This article only briefly touches upon the use of litigation as a solution, because many disadvantaged communities lack the financial means to hire legal counsel. This article looks at two man-made contaminants commonly found in the San Joaquin Valley as examples of where responsible parties have been held accountable for their contamination of drinking water sources.

i. 1,2,3-TCP

1,2,3-Trichloropropane (TCP) was an ingredient in a pesticide produced by Shell Oil and Dow Chemicals and widely used until the 1990s¹¹⁰ when TCP was recognized as a carcinogen.¹¹¹ The use of the pesticide was halted in the late 1980s, but the chemical remained in the soil, slowly leaching into groundwater.¹¹² Until 2017, there was no enforceable drinking water standard at either the federal or state level for 1,2,3-TCP.¹¹³ However, a public health goal (PHG) was established in 2009 at 0.0007 micrograms per liter.¹¹⁴ After the establishment of the PHG, some water systems began testing for the contaminant and were finding their water exceeded the PHG.¹¹⁵ Despite the lack of an MCL, cities and water systems began suing Shell and Dow. In 2016, the City of Clovis won the first lawsuit against Shell and Dow for \$22 million.¹¹⁶ Meanwhile, the State Water Board was working to

110. See *TCP in California's Drinking Water*, CLEAN WATER ACTION, <https://perma.cc/9YNG-T4VS> (last visited Oct. 23, 2018) (explaining TCP is also found in other sources such as industrial solvents).

111. See *1,2,3-Trichloropropane (1,2,3-TCP)*, CAL. WATER BD. (Aug. 21, 2018), <https://perma.cc/F8DQ-ZCTL> (explaining 1,2,3-TCP added to California's list of chemicals known to cause cancer in 1992).

112. See CLEAN WATER ACTION, *supra* note 1110.

113. See *Initial Statement of Reasons*, SBDDW (Feb. 2017), <https://perma.cc/E8ZS-J4H5> at 29.

114. *Id.* at 2.

115. See Sasha Khokha, *California Finally Regulating Cancer-Causing Chemical Found in Drinking Water*, KQED, (July 21, 2017), <https://perma.cc/KR62-44F6> (explaining the dates on the map date from on or before June 20, 2017); see also *1,2,3-TCP Concentrations Above 5 ppt. (draft)*, CAL. WATER BD., <https://perma.cc/JSD6-FNZZ> (last visited Oct. 23, 2018).

116. See *City of Clovis v. Shell Oil Co.*, No. 15 CE CG 03767 2017 WL 1407903, Cal. Super. (Mar. 15, 2017) (explaining that Clovis \$22 million against Shell Oil over toxic

adopt an MCL for 1,2,3-TCP. On December 14, 2017, the new MCL of 5 parts per trillion went into effect.¹¹⁷ There are several other lawsuits against Shell and Dow, some settled out of court—including CalWater, which installed treatment systems at no-cost to their ratepayers—while others are awaiting their day in court.¹¹⁸

Unfortunately, state small water systems and private domestic well owners have been excluded from these wins. As stated previously, residents may be unaware that their water is contaminated.¹¹⁹ Furthermore, even if they are aware, litigating individual cases would be overly burdensome and bog down the courts. Instead, a private attorney or the State’s Attorney General need to bring a class action lawsuit on behalf of private well owners and state small water systems. This must happen soon, because people have waited long enough and they deserve safe water.

ii. Nitrate

Nitrate pollution comes predominantly from agriculture, but it can also be found in low background concentrations naturally, or in small hot spots from leaky septic systems.¹²⁰ Unfortunately, it is difficult to identify where nitrate molecules originated in a water source,¹²¹ and thus challenging to discern who is responsible for the pollution.

The State Water Board and Regional Water Boards have the authority to issue enforcement orders to dischargers who contaminate or pollute waters of the state.¹²² When it comes to pervasive and wide-spread contaminants such as

drinking water); *see also* Andrea Castillo, *Clovis wins \$22 million against Shell Oil over toxic drinking water*, THE FRESNO BEE (Jan. 25, 2017), <https://perma.cc/9C7Y-KPK3>.

117. *See* CLEAN WATER BD., *supra* note 110.

118. *See* Kerry Klein, *To Pay for 1,2,3-TCP Cleanup, A Viable Strategy: Sue, Valley Public Radio*, KVPR (Aug. 14, 2018), <https://perma.cc/776E-FXQN>; *see also* 1,2,3-TCP, ROBINS BORGEHI LLP, <https://perma.cc/CD73-GCEU> (last visited Nov. 7, 2018).

119. *See* CAL. ST. WATER RES. CONTROL BD., *supra* note 14.

120. *See* Thomas Harter et al., *Addressing Nitrate in California’s Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater*, CTR. FOR WATERSHED SERVS., UNIV. OF CAL. DAVIS (2012), <https://perma.cc/J778-NPPK> at 3.

121. Eppich et al., *Source determination of anthropogenic NO₃ in groundwater by analysis of $\delta^{15}N$, $\delta^{18}O$, and $\delta^{11}B$: A case study from San Diego County, California*, GROUNDWATER RES. ASS’N OF CAL., Fresno, CA (June 13, 2012), <https://perma.cc/XP7C-HAPK>.

122. *See* CAL. WATER CODE § 13304 (2015) (explains “[w]aters of the state” means any surface water or groundwater, including saline waters, within the boundaries of the state); *see also* CAL. WATER CODE §§ 13050-13051 (2018).

nitrate,¹²³ state enforcement orders may be the best solution for communities dealing with nitrate contamination.

In 2016, the State Water Board issued two initial enforcement actions for nitrate contamination of groundwater: one against growers in the Salinas Valley¹²⁴ and another in northern Tulare County.¹²⁵ The Salinas Valley Order is currently on hold after a settlement agreement was reached between the growers and the State Water Board. The settlement requires the growers to provide replacement water for communities impacted by nitrate contamination and to develop long-term sustainable solutions for safe and affordable drinking water.¹²⁶ The program also includes free well testing for private domestic wells¹²⁷ to identify which wells are impacted. The status of the Northern Tulare clean-up and abatement order is unknown. When the State Water Board initiated the enforcement action against the growers, the Board sent a confidential letter.¹²⁸ The growers then released the letter to the Fresno Bee rather than keep it confidential.¹²⁹ Without the release of the letter, the public would likely have no knowledge of the Order as it is unavailable on the State Water Board's website.¹³⁰ It is unclear how this enforcement order will play out, but based on the Salinas Valley Order,¹³¹ it seems likely that the Order will lead to replacement water for impacted communities.

IV. Conclusion

Since California recognized access to safe and affordable drinking water as a human right in 2012,¹³² several positive developments have occurred to help communities. The State Water Board has several tools to both prevent the creation

123. State enforcement orders or other programs can be a source of sustainable funding, where dischargers pay for replacement water and long-term drinking water solutions for impacted communities.

124. See *Interim Replacement Water Settlement Agreement*, CAL. WATER BD., <https://perma.cc/6TK7-SLEE> (last visited Oct. 23, 2018) (explains growers and state water board settled in March 2017).

125. See *SWQCB Enforcement Letter to 27 Tulare County Farmers*, CAL. WATER BD. (Sept. 14 2016), <https://perma.cc/K6H5-DUZ3>.

126. See CAL. WATER BD., *supra* note 124.

127. See *Salinas Valley FREE Clean Drinking Water Program*, CAL. WATER BD. (last visited Oct. 23, 2018), <https://perma.cc/TPA5-9T78>.

128. See CAL. WATER BD., *supra* note 124.

129. See Lewis Griswold, *State letter to farmers demands water to fix nitrate problem*, FRESNO BEE (Oct. 21, 2016), <https://perma.cc/SLZ4-AP6U>.

130. See *Complaints, Judgments, Disciplinary Actions, and News Releases*, CAL. WATER BD. (last visited Oct. 7, 2018). <https://perma.cc/CWL9-D69Z>.

131. See CAL. WATER BD., *supra* note 124.

132. See CAL. WATER CODE § 106.3. (2013).

of small, unsustainable water systems¹³³ and to consolidate failing systems with nearby compliant systems.¹³⁴ Californians continue to vote for water bonds which provide necessary funding for capital infrastructure projects.¹³⁵ The state agencies administering those funds provide incentives for projects that benefit disadvantaged communities.¹³⁶ California adopted a strong MCL for the carcinogen 1,2,3-TCP¹³⁷ and water providers have won cases against the parties responsible for contamination.¹³⁸

Despite this progress, there are still a million Californians each year who lack safe and affordable drinking water.¹³⁹ These Californians are disproportionately comprised of vulnerable populations, including low-income communities of color.¹⁴⁰ Additional valuable tools have been developed but failed to pass the legislature such as prohibiting new annexations¹⁴¹ to creating a new sustainable source of funding.¹⁴² Even with these policy changes, California needs to continue developing innovative solutions if it wants to be the first state to ensure everyone has access to the human right to water.

133. See S.B. No. 1263., *supra* note 28

134. See, *id.*

135. See generally *supra* note 83.

136. See generally CAL. WATER BD. *supra* note 93.

137. See CAL. WATER BD., *supra* note 111.

138. See *supra* note 116.

139. See *In Our Backyard*, COMMUNITY WATER CENTER, <https://perma.cc/785T-YAQU> (last visited Oct. 23, 2018).

140. See Maura Allaire et al., *National Trends in Drinking Water Quality Violations*, PNAS (Nov. 16, 2017), <https://perma.cc/GU3G-S7UB> (“Furthermore, low-income rural areas have a larger compliance gap than higher-income rural areas. Meanwhile, our indicator of minority, low-income populations is associated with higher likelihood of total coliform violations.”).

141. See CAL. GOV. CODE § 5675.3 (2016).

142. See generally S.B. No. 623 2017–2018 Reg. Sess. (Cal. 2017) (Aug. 21, 2017), <https://perma.cc/VUV8-YVEN>; see also CAL. LEGISLATIVE INFO., *supra* note 106; See also CAL. LEGISLATIVE INFO., *supra* note 107.

CWC Private Well Testing

| | Sample Date | Field Point | Location | County | Total Coliform | E.coli | Nitrate | DBCP | 1,2,3-TCP | Chromium | Uranium | Arsenic |
|---|-------------|-------------|---------------|--------|----------------|-----------|---------|--------|------------|----------|---------|---------|
| | PHG | | | | 0 | 0 | 45 | 0.0017 | 0.0007 | 0.02 | 0.43 | 0.004 |
| MCL =Maximum Contaminant Level, PHG = Public Health Goal, NL = Notification Level, OR= Owner Reported | | | | | | | | | | | | |
| | MCL | | | | 0 | 0 | 45 | 0.2 | 0.005 (NL) | 10.0 | 20 | 10 |
| 1 | 9.9.15 | NTC09 | Yettem | Tulare | - | - | 16 | ND | ND | 0.52 | 4 | 3.1 |
| 2 | 9.9.15 | NTC08 | Yettem | Tulare | 5.2 | 3.1 | 35 | ND | ND | 0.34 | 6.8 | 3 |
| 3 | 9.8.15 | NTC06 | Orosi | Tulare | 150 | <1 | 34 | ND | ND | 1.8 | 1.6 | 1.9 |
| 4 | 9.8.15 | NTC07 | Orosi | Tulare | <1 | <1 | 74 | 0.15 | 0.16 | 0.54 | 4.4 | 1.2 |
| 5 | 9.10.15 | NTC11 | Reedly | Fresno | <1 | <1 | 14 | ND | ND | 0.28 | 1.8 | 2.1 |
| 6 | 9.10.15 | NTC10 | Reedly | Fresno | 2000 | 330 | 18 | ND | ND | 0.39 | 1.6 | 2.3 |
| 7 | 8.19.15 | NTC05 | Orosi | Tulare | 17 | <1 | 61 | ND | ND | 0.34 | 7.6 | 2.2 |
| 8 | 8.19.15 | NTC04 | Orosi | Tulare | <1 | <1 | 74 | ND | ND | 0.54 | 5 | 0.88 |
| 9 | 8.18.15 | NTC03 | Porterville | Tulare | 1 | <1 | 6.3 | ND | ND | ND | 2.7 | ND |
| 10 | 8.18.15 | NTC01 | Porterville | Tulare | 6.4 | 2 | 180 | ND | ND | 0.27 | 14 | 1 |
| 11 | 8.15.17 | NTC33 | Seville | Tulare | <1 | <1 | 28 | ND | ND | 0.56 | 0.51 | 1.4 |
| 12 | 8.12.15 | NTC02 | Orosi | Tulare | 290 | <1 | 43 | ND | ND | 0.55 | 1.3 | 1.6 |
| 13 | 3.8.16 | NTC28 | Visalia | Tulare | <1 | <1 | 6.1 | ND | ND | 0.33 | 0.72 | ND |
| 14 | 3.8.16 | NTC29 | Exeter | Tulare | 14 | <1 | 14 | ND | ND | 0.95 | 0.81 | 1.8 |
| 15 | 3.8.16 | NTC31 | E.Porterville | Tulare | 12 | <1 | 15 | ND | ND | ND | 2.8 | 1.2 |
| 16 | 3.8.16 | NTC27 | Visalia | Tulare | <1 | <1 | 22 | ND | ND | 2.8 | 0.41 | 2 |
| 17 | 3.8.16 | EPHH1 | E.Porterville | Tulare | 53 | <1 | 31 | ND | ND | 0.22 | 3.7 | 0.82 |
| 18 | 3.8.16 | NTC30 | E.Porterville | Tulare | >200 | <1 | 63 | ND | ND | 3 | 3.7 | 1.9 |
| 19 | 2.11.16 | NTC23 | Porterville | Tulare | 29 | <1 | 26 | ND | 0.003 | 0.76 | 2.5 | 1.3 |
| 20 | 2.11.16 | NTC24 | Terra Bella | Tulare | 11 | <1 | 30 | ND | ND | 0.17 | 4.1 | ND |
| 21 | 11.17.15 | NTC18 | Visalia | Tulare | <1 | <1 | 31 | ND | ND | 0.52 | 13 | 0.89 |
| 22 | 11.17.15 | NTC16 | Orosi | Tulare | <1 | <1 | 33 | ND | ND | 0.4 | 2.6 | 2.8 |
| 23 | 11.17.15 | NTC17 | Yettem | Tulare | <1 | <1 | 200 | ND | ND | 0.4 | 3.3 | 2.1 |
| 24 | 10.7.15 | NTC14 | Porterville | Tulare | >2400 | <1 | 2.3 | ND | ND | n/a* | 2.9 | 1.2 |
| 25 | 10.7.15 | NTC13 | Porterville | Tulare | <1 | <1 | 4.4 | ND | ND | n/a* | 5.4 | ND |
| 26 | 10.7.15 | NTC12 | Porterville | Tulare | <1 | <1 | 4.5 | ND | ND | n/a* | 5.3 | ND |
| 27 | 10.7.15 | NTC15 | Porterville | Tulare | <1 | <1 | 5.7 | ND | ND | n/a* | 4.6 | 2.1 |
| 28 | 10.20.15 | SK01 | Alameda | Kern | <1 | <1 | 7 | ND | ND | ND | 16 | 11 |
| 29 | 10.20.15 | SK02 | Alameda | Kern | <1 | <1 | 15 | ND | ND | 0.4 | 13 | 8.7 |
| 30 | 10.20.15 | SK03 | Alameda | Kern | <1 | <1 | 15 | ND | 0.0098 | 0.5 | 2.3 | 8.4 |
| 31 | 1.21.16 | NTC20 | Orosi | Tulare | <1 | <1 | 17 | ND | ND | 0.16 | 1.8 | 2.1 |
| 32 | 1.21.16 | NTC21 | E. Orosi | Tulare | <1 | <1 | 72 | ND | ND | 0.52 | 8.4 | 1.8 |
| 33 | 1.21.16 | NTC22 | E. Orosi | Tulare | <1 | <1 | 80 | ND | ND | 0.48 | 7.7 | 2 |
| 34 | 1.21.16 | NTC19 | E. Orosi | Tulare | 88 | <1 | 98 | ND | ND | 0.27 | 2.2 | 1.6 |
| | | | | | cfu/100ml | cfu/100ml | mg/L | ug/L | ug/L | ug/L | pCi/L | ug/L |
