Online Appendix for *Drinking Water Contamination and Home Prices: Evidence from California*

1 Construction of CWS-Level Home Price Measures

Data on community water systems (CWS) comes from California's State Water Resources Control Board, Division of Drinking Water, and GIS files providing geographic boundaries for CWS service areas, in addition to CWS-level records on service population, ownership structure, etc. Zip code level ZHVI data is merged with CWS-level service boundaries using Zip Code Tabulation Areas (ZCTA) provided by the Census Bureau. In conjunction with the ZCTA boundary files, I also gather Census data on ZCTA population counts. The primary outcome variable in my analysis is CWS-level weighted average home values. In order to make the zip code level home values provided by the ZHVI representative of home prices across a given CWS (which may span multiple zip codes), I adopt an approach that allows me to account for both the geographic overlap of ZCTAs and CWS as well as the population distribution across ZCTAs.

I construct a weighted average home value for each CWS by first conducting a spatial merge of all ZCTAs and CWS. For each intersecting ZCTA j and CWS k, I calculate the proportion of the total CWS area that is covered by that matched ZCTA, denoted f_{jk}, given by the following:

$$f_{jk} = \frac{Area(ZCTA_j \cap CWS_k)}{Area(CWS_k)} \tag{1}$$

So that f_{jk} represents the geographic coverage fraction of CWS k by ZCTA j. To ensure proper weighting across multiple ZCTAs that may intersect with a single CWS, I normalize these coverage fractions:

$$w_{jk}^{geo} = \frac{f_{jk}}{\sum_{j'} f_{j'k}} \tag{2}$$

Where w_{jk}^{geo} is the normalized geographic weight for ZCTA j and CWS k, ensuring that weights sum to 1 for each CWS, accounting for the presence of other ZCTAs j' that intersect with CWS k in addition to ZCTA j.

Using the ZCTA-level population data, I am able to construct weights based on both geographic intersection and population. Denoting the population of ZCTA j as Pop_j^{ZCTA}, I calculate a population-adjusted weight as:

$$w_{jk}^{pop} = \frac{f_{jk} \times Pop_j^{ZCTA}}{\sum_{j'}(f_{j'k} \times Pop_{j'}^{ZCTA})} \tag{3}$$

The final CWS-level home price measures are calculated as:

$$\overline{HP}_k^{geo} = \sum_j w_{jk}^{geo} \times HP_j \tag{4}$$

$$\overline{HP}_k^{pop} = \sum_j w_{jk}^{pop} \times HP_j \tag{5}$$

Where HP_j is the ZHVI home price for ZCTA j. Results presented in the main text use the population-weighted average ($\overline{HP}_k^{pop}$), though results are robust to using the geographic-weighted measure.

In the results presented in Table A1 below, I show that the baseline event study results presented in the main text are robust to variations in the specific approach taken to constructing weight-average home prices. As part of this analysis, I use ZCTA boundary definitions for 2000 and 2010, because boundary definitions may change over time. In Table A1, I show estimates derived from using both the population-weighted average home values $\overline{HP}_k^{pop}$ and the geographic-weighted average values $\overline{HP}_k^{geo}$; the choice of vintage does not materially impact the results, with static difference-in-difference estimates that are within 0.5 percentage points of one another and event study coefficients that likewise follow similar patterns in the pre- and post-periods. Column (1) presents the baseline results from the event study presented in the main text; in Column (2) I estimate the same event study using $\overline{HP}_k^{geo}$ with 2010-vintage boundary definitions and no population weighting; finally, in Column (3) I show results using $\overline{HP}_k^{geo}$ with 2000-vintage ZCTA boundary definitions.

Table A1: *Event Study Estimates of the Effect of Nitrate Public Notifications on Home Prices*

	(1)	(2)	(3)
Panel A: Static DiD Estimates			
Nitrate Violation	-0.0485***	-0.0453**	-0.0438**
	(0.02)	(0.02)	(0.02)
N	4193	4193	4144
Panel B: Event Study Estimates			
$t = -2$	-0.0058	-0.0024	-0.0100
	(0.01)	(0.01)	(0.01)
$t = -1$	-0.0058	-0.0029	-0.0087
	(0.01)	(0.01)	(0.01)
$t = 0$	-0.0121	-0.0105	-0.0166**
	(0.01)	(0.01)	(0.01)
$t = 1$	-0.0294***	-0.0278***	-0.0363***
	(0.01)	(0.01)	(0.01)
$t = 2$	-0.0382***	-0.0359***	-0.0407***
	(0.01)	(0.01)	(0.01)
$t = 3$	-0.0294*	-0.0269*	-0.0269*
	(0.02)	(0.02)	(0.02)
$t = 4$	-0.0235	-0.0202	-0.0211
	(0.02)	(0.02)	(0.02)
N	3694	3694	3648
ZCTA Boundary Definition Year	2010	2010	2000
Population Weights	Yes	No	No
P-Value from Pre-Trends Test	0.89	0.98	0.71

Notes: Data is aggregated to the Community Water Systems (CWS) by year level for the years 2000 to 2024. Results generated using a robust imputation estimator with standard errors clustered at the CWS level. The *p*-value of a joint significance test of the pre-treatment coefficients is reported in the bottom row of the table. In Column (1), weighted average home prices at the CWS level are calculated using 2010 vintate ZCTA boundaries and weighting by ZCTA-level population; in Column (2), weighted averages are constructed using 2010-vintage ZCTA boundaries and no population weights; in Column (3), weighted average home prices are calculated using 2000-vintage ZCTA boundaries and no population weights.