

# UC Office of the President

## Research Grants Program Office (RGPO) Funded Publications

### Title

The Imperative of Equitable Protection: Structural Racism and Oil Drilling in Los Angeles.

### Permalink

<https://escholarship.org/uc/item/9x72d3db>

### Journal

American Journal of Public Health, 113(11)

### ISSN

0090-0036

### Authors

Shamasunder, Bhavna  
Johnston, Jill E

### Publication Date

2023-11-01

### DOI

10.2105/ajph.2023.307405

Peer reviewed

# The Imperative of Equitable Protection: Structural Racism and Oil Drilling in Los Angeles

Bhavna Shamasunder, PhD, MES, and Jill E. Johnston, PhD, MS

## ABOUT THE AUTHORS

Bhavna Shamasunder is with the Urban & Environmental Policy Department and the Public Health Program, Occidental College, Los Angeles, CA. Jill E. Johnston is with the Department of Population & Public Health Sciences, University of Southern California Keck School of Medicine, Los Angeles.

🔗 See also **Oil and Gas: Environmental Justice**, pp. 1173–1200.

Oil extraction has been ongoing in the Los Angeles basin for more than a century. Starting in the 1890s and reaching a peak in the 1930s, Los Angeles made up nearly half of California's oil output and nearly one quarter of the world's oil at the time. Today, thousands of active oil wells continue to operate in Los Angeles County, and nearly 10 million residents live alongside wells that are interspersed in close proximity to homes, schools, playgrounds, parks, and hospitals.<sup>1</sup> Idle wells (that have not produced oil recently), plugged wells, and buried wells also remain scattered across southern California's geography and can pose concerns if not properly abandoned.<sup>2</sup> Oil extraction in Los Angeles can adversely affect groundwater as wells operate, are plugged, or are remediated, an issue that has not been at the forefront of regulation, policy, or research.

The oil extraction process produces gaseous emissions of multiple health-hazardous pollutants and can affect soil, water, and air.<sup>3</sup> Chemicals used during the extraction process can be known endocrine disruptors,

carcinogens, mutagens, and reproductive and developmental toxins, and a growing public health literature has linked proximity to oil and gas extraction to increased cancer, adverse birth outcomes, neurological harm, and asthma.<sup>4,5</sup> Little to no research has considered how this extensive network of oil extraction in Los Angeles plays a role in drinking water contamination, a central contribution of the article by Berberian et al. (p. 1191), which assesses the vulnerability of groundwater in Los Angeles County from nearby oil wells. Here we situate Berberian et al.'s analysis of drinking water within ongoing considerations of environmental justice and oil drilling in Los Angeles.

## STRUCTURAL RACISM AND GROUNDWATER VULNERABILITY

Oil wells in low-income communities of color in Los Angeles often operate much closer to residents than in wealthier neighborhoods, have uncovered as opposed to enclosed fields, lack noise protections, and maintain outdated

emissions equipment.<sup>6</sup> In South Los Angeles, a neighborhood that faces cumulative environmental and social burdens, we found lung function to be diminished among residents living close to active or recently idled well sites, even after adjustment for other risk factors such as smoking, asthma, and proximity to a freeway.<sup>7</sup> Despite southern California's considerable reliance on groundwater, effects on community water systems (CWSs) from extensive nearby oil drilling have been underconsidered.

Berberian et al. provide a screening-level assessment of the potential contamination of drinking water systems from oil operations near active and former oil sites in Los Angeles County, including whether historic redlining practices and current-day residential segregation may be predictors of vulnerability (defined by the authors as living within one kilometer of an active or idle oil well). Groundwater contamination from oil and gas development has been a concern around the country including in Ohio, Pennsylvania, Colorado, Texas, and Wyoming, where studies have shown evidence of volatile organic compounds, trace elements, and other organic compounds, some of which are known endocrine disruptors, carcinogens, neurotoxins, or developmental toxins. Factors such as well failures, poor maintenance, and failure to properly plug idle wells can cause contaminants to migrate to underground drinking water sources.

Berberian et al. found that almost a quarter of Los Angeles County's CWSs serving more than seven million residents have drinking water supply wells located within one kilometer of an active or idle well, a proximity that increases the possibility of contamination. CWSs that have a greater reliance

on groundwater than purchased water are considered more vulnerable. Racial/ethnic composition, residential segregation, and historic redlining were significant predictors of drinking water risk from oil development. CWSs with higher proportions of Hispanic, Black, and Asian/Pacific Islander residents; a higher proportion of their service area redlined in the 1930s; or a higher degree of present-day racialized economic segregation were more likely to have oil wells within one kilometer of their drinking water supply wells.

Berberian et al.'s work draws attention to the importance of a focus on groundwater-dependent water systems in Los Angeles County as they operate near active and idle oil wells. The study raises concern over potential contamination of these drinking water resources, particularly those that are proximate to oil wells and located in communities that have been vulnerable to structural racism. The Berberian et al. screening-level analysis suggests that additional investigation into CWSs nearby active and idle wells is warranted.

Thus, to facilitate community engagement and prioritization given that these wells are dispersed across a vast county, it would be useful to have a detailed list of examined CWSs and their locations. This type of assessment can also help prioritize which CWSs may be most vulnerable and should thus be monitored and undergo testing for relevant contaminants. Communities that contend with historic or present-day racism or segregation and rely on CWSs using groundwater resources should be a priority in ongoing efforts to ensure that idle wells are properly abandoned and that health protections from active wells are enforced.

## TOWARD ENVIRONMENTAL JUSTICE NEARBY OIL EXTRACTION

Low-income communities of color in Los Angeles bear a disproportionate burden of hazardous facility siting, including active oil extraction nearby homes, schools, hospitals, and playgrounds (Chan et al., p. 1182).<sup>1</sup> Redlining and related discriminatory lending practices have structured residential housing since the 1930s,<sup>8</sup> and today Los Angeles remains highly segregated. Oil extraction has shaped the Los Angeles landscape and has persisted through early worker and resident protests<sup>9</sup> and decades of racialized policies that reshaped land use and residential land access.<sup>10</sup> Data suggest that historically redlined areas contend with a greater density of oil wells<sup>11</sup> and suffer from higher rates of health burdens such as asthma.<sup>12</sup>

Over the past decade, a coalition of frontline environmental justice communities have sought remedy from active oil drilling in their neighborhoods.<sup>6</sup> Their sustained efforts have led to victories, including recent ordinances by the county board of supervisors and the Los Angeles city council to phase out oil drilling over the next two decades. Increased attention and state resources have been directed to properly capping and remediating orphaned wells that have been improperly abandoned and are now wards of the state. Berberian et al. add drinking water to existing and ongoing concerns over oil development in Los Angeles.

Protecting the quality and usability of scarce water resources in the American West has become ever more pressing. The challenges posed by oil extraction nearby CWSs raises the importance

of gathering data on how CWS groundwater may be affected by proximate active and idle wells. Drinking water should be included in efforts to reduce public health harm from neighborhood oil extraction as a means of ensuring equitable access to healthy neighborhoods and the right to clean water. **AJPH**

### CORRESPONDENCE

Correspondence should be sent to Bhavna Shamasunder, 1600 Campus Rd, MS-M1, Occidental College, Los Angeles, CA 90041 (e-mail: bhavna@oxy.edu). Reprints can be ordered at <http://www.ajph.org> by clicking the "Reprints" link.

### PUBLICATION INFORMATION

Full Citation: Shamasunder B, Johnston JE. The imperative of equitable protection: structural racism and oil drilling in Los Angeles. *Am J Public Health*. 2023;113(11):1179–1181.

Acceptance Date: July 26, 2023.

DOI: <https://doi.org/10.2105/AJPH.2023.307405>

### CONTRIBUTORS

B. Shamasunder conceptualized the editorial. The authors jointly wrote the editorial.

### ACKNOWLEDGMENTS

Our work has been supported in part by a grant from the National Institute of Environmental Health Sciences (ES033478).

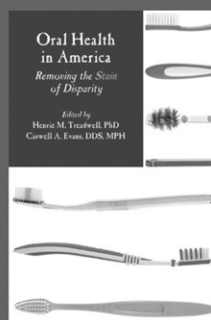
Thanks to Emma Silber for her helpful edits.

### REFERENCES

1. Sadd J, Shamasunder B. Oil extraction in Los Angeles: health, land use, and environmental justice consequence. In: *Drilling Down: The Community Consequences of Expanded Oil Development in Los Angeles*. Los Angeles, CA: Liberty Hill Foundation; 2015:7–14.
2. Townsend-Small A, Hoschouer J. Direct measurements from shut-in and other abandoned wells in the Permian Basin of Texas indicate some wells are a major source of methane emissions and produced water. *Environ Res Lett*. 2021;16(5):054081. <https://doi.org/10.1088/1748-9326/abf06f>
3. Garcia-Gonzales DA, Shonkoff SBC, Hays J, Jerrett M. Hazardous air pollutants associated with upstream oil and natural gas development: a critical synthesis of current peer-reviewed literature. *Annu Rev Public Health*. 2019;40:283–304. <https://doi.org/10.1146/annurev-publhealth-040218-043715>
4. Johnston JE, Lim E, Roh H. Impact of upstream oil extraction and environmental public health: a review of the evidence. *Sci Total Environ*. 2019; 657:187–199. <https://doi.org/10.1016/j.scitotenv.2018.11.483>
5. Deziel NC, Brokovich E, Grotto I, et al. Unconventional oil and gas development and health

outcomes: a scoping review of the epidemiological research. *Environ Res.* 2020;182:109124. <https://doi.org/10.1016/j.envres.2020.109124>

6. Liberty Hill Foundation. The power of persistence: the fight to end neighborhood oil drilling in Los Angeles. Available at: [https://libertyhill-assets-2.s3-us-west-2.amazonaws.com/media/documents/STAND\\_LA\\_2022\\_Drilling\\_Down\\_Report\\_LR\\_online.pdf](https://libertyhill-assets-2.s3-us-west-2.amazonaws.com/media/documents/STAND_LA_2022_Drilling_Down_Report_LR_online.pdf). Accessed June 20, 2023.
7. Johnston JE, Enebish T, Eckel SP, Navarro S, Shamasunder B. Respiratory health, pulmonary function and local engagement in urban communities near oil development. *Environ Res.* 2021; 197:111088. <https://doi.org/10.1016/j.envres.2021.111088>
8. Lipsitz G. *How Racism Takes Place*. Philadelphia, PA: Temple University Press; 2011.
9. Quam-Wickham N. "Cities sacrificed on the altar of oil": popular opposition to oil development in 1920s Los Angeles. *Environ Hist.* 1998;3(2): 189–209. <https://doi.org/10.2307/3985379>
10. Logan JR, Molotch H. *Urban Fortunes: The Political Economy of Place, 20th Anniversary Edition, With a New Preface*. Berkeley, CA: University of California Press; 2007.
11. Gonzalez DJX, Nardone A, Nguyen AV, Morello-Frosch R, Casey JA. Historic redlining and the siting of oil and gas wells in the United States. *J Expo Sci Environ Epidemiol.* 2023;33(1):76–83. <https://doi.org/10.1038/s41370-022-00434-9>
12. Nardone A, Casey JA, Morello-Frosch R, Mujahid M, Balmes JR, Thakur N. Associations between historical residential redlining and current age-adjusted rates of emergency department visits due to asthma across eight cities in California: an ecological study. *Lancet Planet Health.* 2020;4(1):e24–e31. [https://doi.org/10.1016/S2542-5196\(19\)30241-4](https://doi.org/10.1016/S2542-5196(19)30241-4)



## Oral Health in America: Removing the Stain of Disparity

Edited by: Henrie M. Treadwell, PhD  
and Caswell A. Evans, DDS, MPH

*Oral Health in America* details inequities to an oral health care system that disproportionately affects the poor, those without insurance, underrepresented and underserved communities, the disabled, and senior citizens. This book addresses issues in workforce development including the use of dental therapists, the rationale for the development of racially/ethnically diverse providers, and the lack of public support through Medicaid, which would guarantee access and also provide a rationale for building a system, one that takes into account the impact of a lack of visionary and inclusive leadership on the nation's ability to insure health justice for all.

Place orders at [aphabookstore.org](http://aphabookstore.org). Email [bookstoreservices@apha.org](mailto:bookstoreservices@apha.org) to request exam copy for classroom use.

ISBN: 978-087553-3056 2019, Softcover List Price: \$30 APHA Member Price: \$21

 **APHA PRESS**  
AN IMPRINT OF AMERICAN PUBLIC HEALTH ASSOCIATION

Reproduced with permission of copyright owner. Further reproduction prohibited without permission.