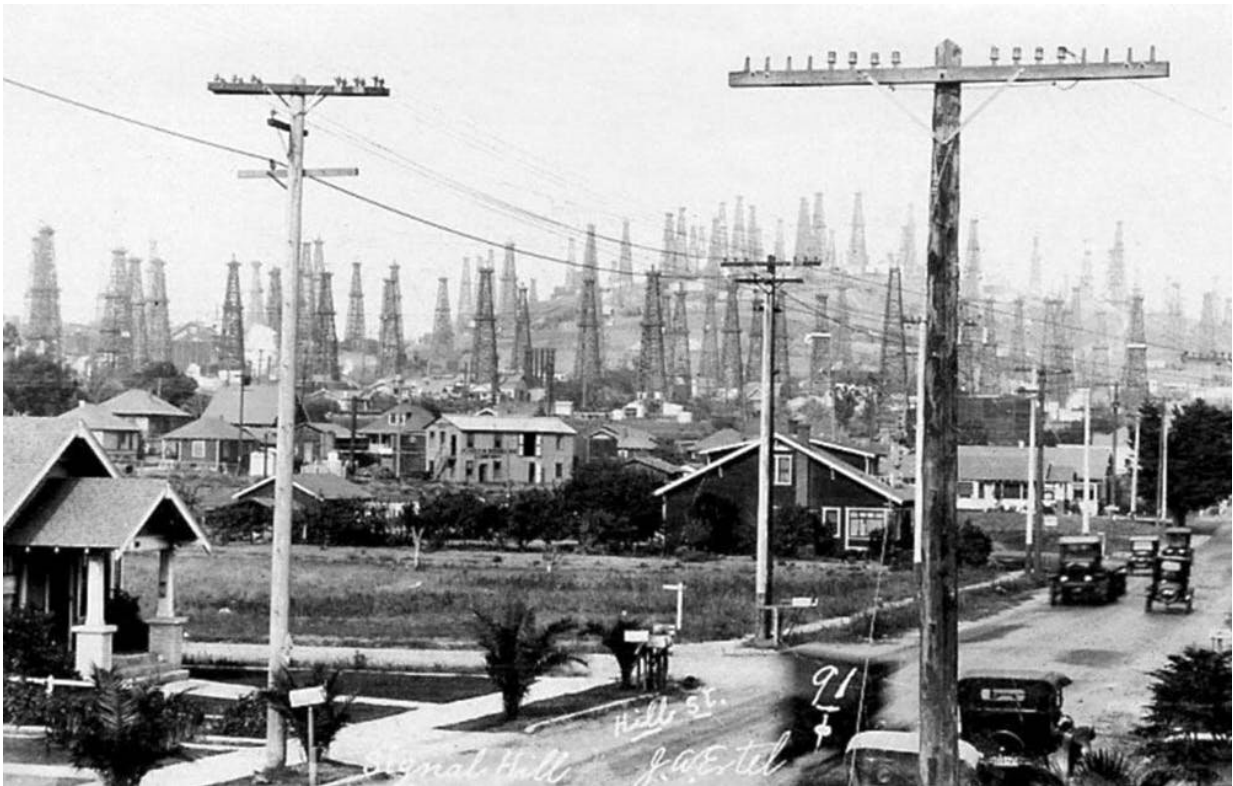


# Urban oil wells linked to asthma and other health problems in Los Angeles

June 2 2021, by Jill Johnston and Bhavna Shamasunder

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A 1924 photo shows the oil derricks on Signal Hill. Credit: [Water and Power Museum Archive](#)

When California Gov. Gavin Newsom announced a goal to [phase out oil drilling](#) statewide by 2045, he focused on its [impact on climate change](#). But oil drilling is also a health problem, particularly in Los Angeles,

where thousands of oil wells still dot the city.

These wells can emit toxic chemicals such as benzene and other irritants into the air, often just feet from homes, schools and parks.

As [environmental health researchers](#), we study the impacts of [oil drilling](#) on surrounding communities. [Our research](#) shows that [people living near these urban oil operations](#) suffer higher rates of asthma than average, as well as wheezing, eye irritation and sore throats. In some cases, the impact on residents' lungs is worse than living beside a highway or being exposed to secondhand smoke every day.

## **LA was once an oil town with forests of derricks**

Over a century ago, before Hollywood, the [first industry to boom](#) in Los Angeles was oil.

Oil was abundant and flowed close to the surface. In early 20th-century California, sparse laws governed [mineral extraction](#), and rights to oil accrued to those who could pull it out of the ground first. This ushered in a period of rampant drilling, with wells and associated machinery crisscrossing the landscape. By the mid-1920s, Los Angeles was one of the [largest oil-exporting regions](#) in the world.



The view across The Pike amusement park and downtown Long Beach, California, in 1940 shows a forest of oil derricks in the background. Credit: [Water and Power Museum Archive](#)

Oil rigs were so pervasive across the region that the Los Angeles Times described them in 1930 as "[trees in a forest](#)." Working-class communities were initially supportive of the industry because it promised jobs but later [pushed back](#) as their neighborhoods witnessed explosions and oil spills, along with [longer-term damage to land, water and human health](#).

Tensions over land use, extraction rights and subsequent drops in oil

prices due to overproduction eventually resulted in curbs on drilling and a long-standing practice of oil companies' voluntary "[self-regulation](#)," such as noise-reduction technologies. The industry began touting these voluntary approaches to deflect governmental regulation.

Increasingly, oil companies disguised their activities with approaches such as operating [inside buildings, building tall walls](#) and [designing islands off Long Beach](#) and other sites to blend in with the landscape. Oil drilling was hidden in plain sight.

Today there are over 20,000 active, idle or abandoned wells spread across a county of 10 million people. About [one-third of residents](#) live less than a mile from an active well site, [some right next door](#).

Since the 2000s, the advance of extractive technologies to access harder-to-reach deposits has led to a resurgence of oil extraction activities. As extraction in some neighborhoods has ramped up, people living in South Los Angeles and other neighborhoods in oil fields have noticed frequent [odors, nosebleeds and headaches](#).

### **Closer to urban oil drilling, poorer lung function**

The City of Los Angeles currently requires no buffers or setbacks between oil extraction and homes. Approximately [75% of active oil or gas wells are located within 500 meters](#) (1,640 feet) of "sensitive land uses," such as homes, schools, child care facilities, parks or senior residential facilities.

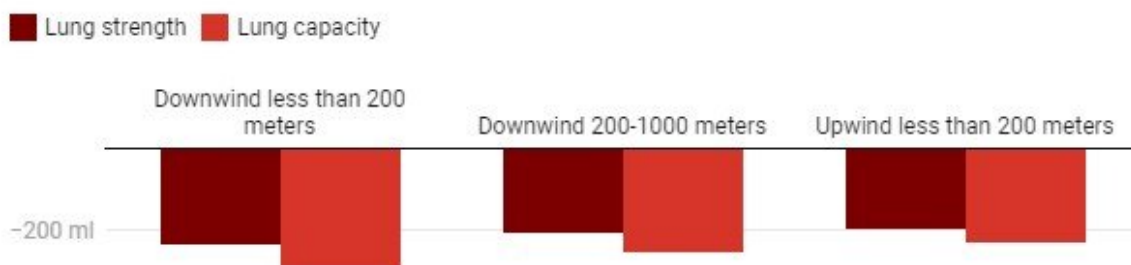
Despite that proximity and over a century of oil drilling in Los Angeles, there have been few studies on how it affects residents' health. We have been working with [community health workers](#) to gauge the impact [oil wells](#) are having on residents, particularly on its historically Black and Hispanic neighborhoods.

The first step was a door-to-door survey of 813 neighbors from 203 households near wells in Las Cienegas oilfield, just south and west of downtown. We found that [asthma](#) was significantly more common among people living near South Los Angeles oil wells than among residents of [Los Angeles County as a whole](#). Nearly half the people we spoke with, 45%, didn't know oil wells were operating nearby, and 63% didn't know how to contact local regulatory authorities to report odors or environmental hazards.

Next, we measured lung function of 747 long-term residents, ages 10 to 85, living near two drilling sites. Poor lung capacity, measured as the amount of air a person can exhale after taking a deep breath, and lung strength, how strongly the person can exhale, and are both predictors of health problems including [respiratory disease, death from cardiovascular problems](#) and [early death in general](#).

### Breathing gets harder closer to oil wells

People living near Los Angeles oil wells have less lung strength and capacity than average for the region, on par with living near a freeway, researchers found. The study involved 747 people living within 1,000 meters, 0.6 miles, of an oil well.



Lung strength is how strongly a person can exhale. Lung capacity, shown here as the difference in forced vital capacity compared to average, is the amount of air a person can exhale after a deep breath. The average forced vital capacity for a healthy man is about 4,800 milliliters, and about 3,700 ml for a healthy woman.

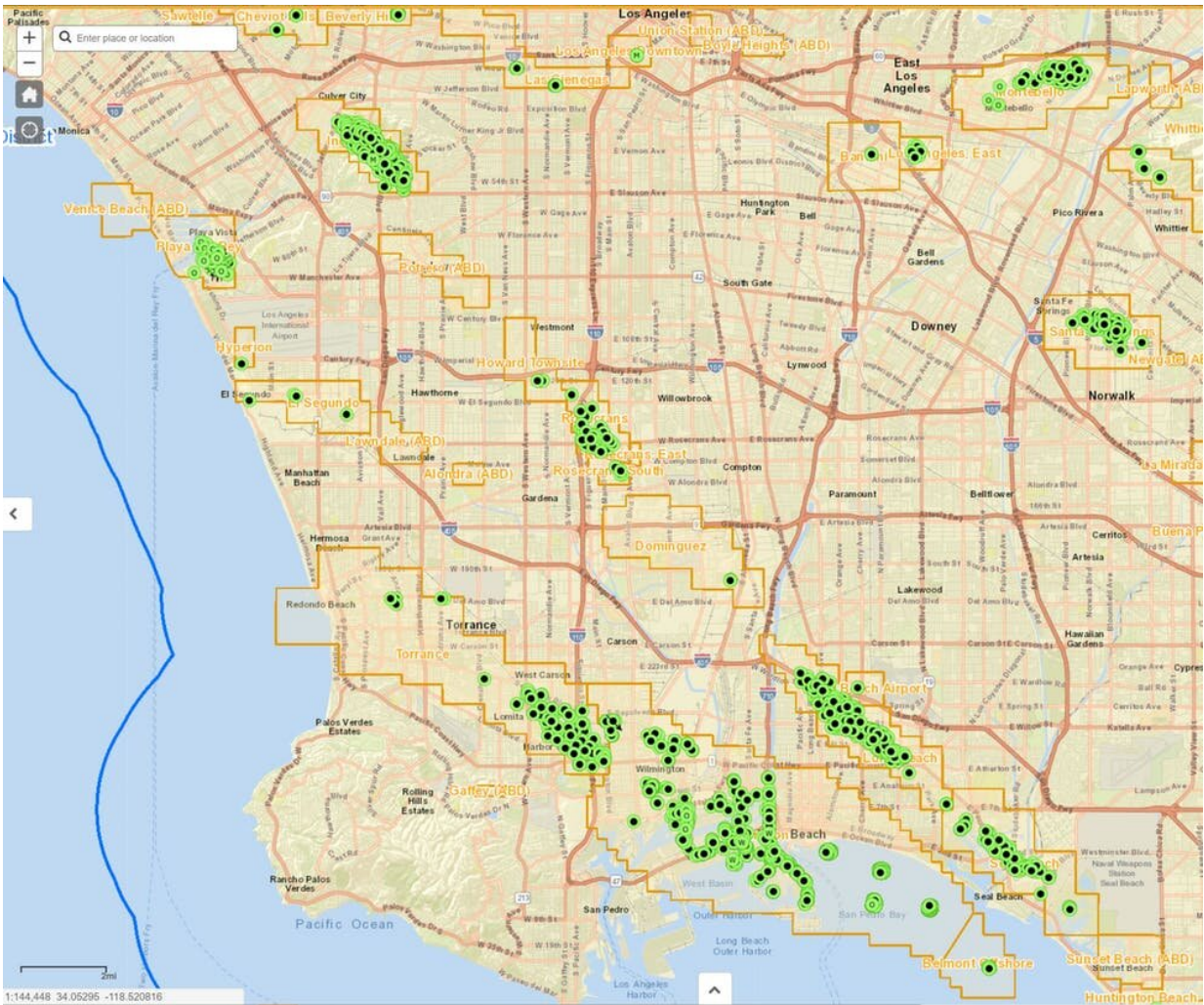
Credit: Chart: The Conversation/CC-BY-ND Source: Johnston, et al 2021

We found that the closer someone lived to an active or recently idle well site, [the poorer that person's lung function](#), even after adjusting for such other risk factors as smoking, asthma and living near a freeway. This research demonstrates a significant relationship between living near oil wells and worsened lung health.

People living up to 1,000 meters (0.6 miles) downwind of a well site showed lower lung function on average than those living farther away and upwind. The effect on their lungs' capacity and strength was similar to impacts of living near a freeway or, for women, being exposed to secondhand smoke.

Using a community monitoring network in South Los Angeles, we were able to [distinguish oil-related pollution](#) in neighborhoods near wells. We found short-term spikes of air pollutants and methane, a potent greenhouse gas, at monitors [less than 500 meters, about one-third of a mile, from oil sites](#).

When oil production at a site [stopped](#), we observed significant reductions in such toxins as benzene, toluene and n-hexane in the air in adjacent neighborhoods. These [chemicals](#) are known irritants, carcinogens and reproductive toxins. They are also associated with dizziness, headaches, fatigue, tremors and respiratory system irritation, including difficulty breathing and, at higher levels, impaired lung function.



A state app called well finder locates active oil wells, including in Los Angeles County. Credit: [State of California](#)

## Vulnerable communities at risk

Many of the dozens of active oil wells in South Los Angeles are in historically Black and Hispanic communities that have been marginalized for decades. These neighborhoods are already considered among the [most highly polluted, with the most vulnerable residents](#) in the state.

But while the governor declared that "[California needs to move beyond oil](#)," his current timeline would allow oil wells to continue operating for the next two decades. A variety of policies, including buffers, phaseouts and emissions controls, will need to be considered to protect public health and accelerate the transition to cleaner energy sources.

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