# DRILLING DOWN

## The Community Consequences of Expanded Oil Development in Los Angeles

*This publication is dedicated to the memory of Lark Galloway-Gilliam, founder and executive director of Community Health Councils, and a fearless leader who devoted her life to the fight for equality, health and justice for all.*

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## The Community Consequences of Expanded Oil Development in Los Angeles

Liberty Hill Foundation

Change. Not Charity.

*Ashley Hernandez, Wilmington resident*


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*An oil drilling site operated by Warren E&P encroaches upon a residential neighborhood in Wilmington.*

# INTRODUCTION

*Oil drilling operations loom over many residential neighborhoods in Los Angeles.*

From South Los Angeles to Baldwin Hills to the Harbor area, neighborhoods throughout Los Angeles are on the frontline of an epic debate about our energy future.

This report shares stories of residents who are living very close to oil drilling and production operations where toxic chemicals and potentially hazardous well stimulation technologies are used to extract oil from the ground.

Mothers, fathers, senior citizens, and students all share their experiences of exacerbated health ailments—including nosebleeds, nausea, respiratory illness, and dizziness—that they believe are associated with oil development operations in their neighborhoods. They detail their growing concerns with disruptive diesel trucks rumbling past their homes, noxious odors, escalating noise levels, and an unsettling fear of the potential for explosions, spills, and other hazardous incidents.

In this report, we also highlight residents' accounts of a fragmented and ineffective regulatory and zoning system. Unresponsive government agencies, local authorities, and energy company public relations have all too often failed to be transparent and provide notification, and have ignored, delayed, or denied that residents' concerns are real and urgent.

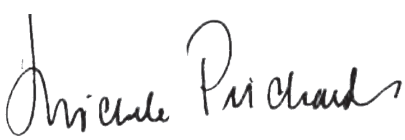
While Los Angeles has been a center of oil production for decades, this report reveals that many more people are now living in neighborhoods where years ago oil companies received their drilling permits. Today, we find densely populated urban neighborhoods with homes, schools, daycare centers, and multifamily and senior apartment buildings adjacent to expanding oil and gas operations.

We also find that most of the neighborhoods featured in this report are typical "environmental justice" (EJ) communities where residents already suffer disproportionately from exposure to air toxics that are associated with elevated rates of asthma, respiratory and heart diseases, and cancer than do higher income and majority Anglo neighborhoods. The neighborhoods and corresponding drill sites profiled here include: University Park, Jefferson and Murphy Drill Sites in Historic West Adams, Wilmington and Baldwin Hills.

With ***DRILLING DOWN: The Community Consequences of Expanded Oil Development in Los Angeles***, Liberty Hill Foundation aims to contribute to the current policy debate. Should the City and County of Los Angeles pass moratoriums on enhanced forms of energy production or consider additional health-protective standards, such as distance buffers or prohibitions next to sensitive land uses? How can government create full transparency and accountability to our residents when multiple jurisdictions regulate oil drilling sites? And, with an eye to the future, does Los Angeles want to increase our investment and dependence on dirty, fossil fuel infrastructure—or accelerate our movement toward renewable energy that will improve environmental health, reduce carbon emissions, and increase the potential for a massive expansion of jobs in the fields of energy conservation, energy efficiency, and renewable energy technology?

By highlighting the voices of community residents, our goal is to urge decision makers to move toward a vision that prevents premature death and illness from environmental causes and that supports a healthy, safe, and sustainable Los Angeles.

The neighborhoods at the frontlines—and all Angelenos—deserve such a future.



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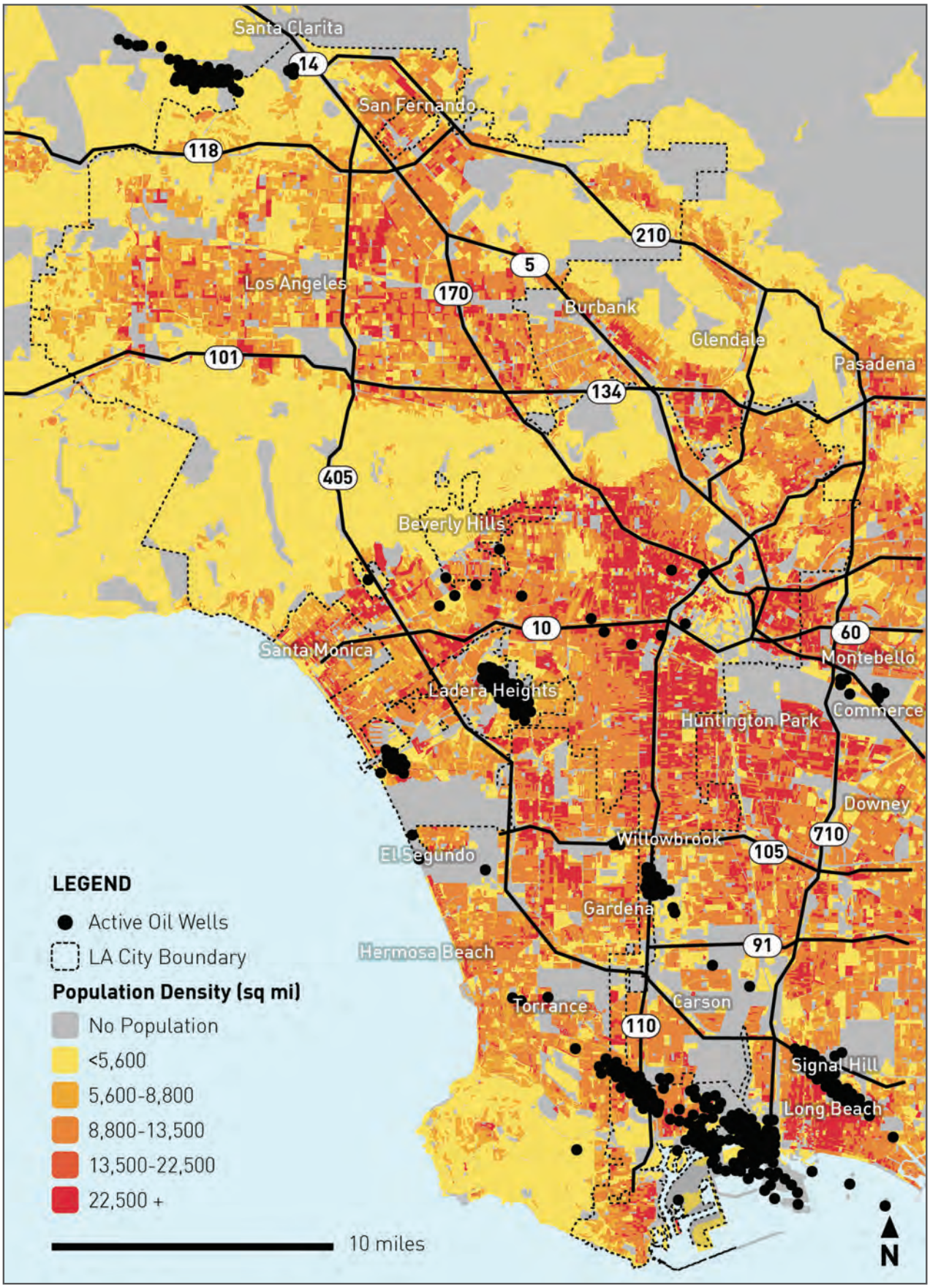
## MAP 1: Active Oil Wells in Los Angeles County and their Relationship to Population Density




*Many oil wells and fields are located in areas of high population, exposing large numbers of people to the hazards associated with these facilities and their operations.*

*(Data from 2010 US Census and Department of Oil, Gas, and Geothermal Resouces 2014)*

# OIL EXTRACTION IN LOS ANGELES: HEALTH, LAND USE, AND ENVIRONMENTAL JUSTICE CONSEQUENCES

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Los Angeles is the largest urban oil field in the country. Thousands of active oil wells in the greater Los Angeles area are located near and among a dense population of more than 10 million people. In some cases, oil drilling and production are located disturbingly close to homes, schools, churches, urban parks and playgrounds, and hospitals[1] —places where our communities live, work, go to school, and play. These areas are identified as "sensitive land uses" because populations that are biologically sensitive[2] to air pollution and cancer-causing chemicals—the very young and the elderly, and people with respiratory disease—spend extended time in them each day[3]. Many active wells are also located within environmental justice neighborhoods, as defined by state law[4] and identified by the California Environmental Protection Agency (CalEPA). These neighborhoods are characterized by residential populations with high proportions of the poor and unemployed, persons with low educational attainment, a high percentage of non-English speakers, high levels of certain health impacts (low birth-weight infants, asthma), and people who also experience greater exposure to environmental hazards and the attendant health risks, as compared to the general population.

## History of Oil Production and Land Use

The juxtaposition of oil production near communities is a consequence of the history of oil exploration and drilling in Los Angeles and poor land use decision-making. Early in its history, Los Angeles was a slowly growing agricultural region. However, early in the 20th century, three driving forces—the production and use of petroleum, the import and use of water, and a rapidly expanding transportation network—set into motion the growth and change that created the Los Angeles of today. For a brief period in the 1930s, the city was the center of world oil production and the Los Angeles basin was the Saudi Arabia of the day (Tygiel 1996). After the discovery of oil near today's Dodger Stadium at a depth of only 460 feet, discoveries of major oil fields quickly followed at Huntington Beach, Signal Hill (Long Beach), and Santa Fe Springs, as well as many smaller fields with names that define the heart of the city itself: Los Angeles, Union Station, Boyle Heights, Downtown, Las Cienegas, Inglewood, Playa del Rey, Venice, Sawtelle, San Vicente, Rosecrans, and Wilmington. Oil transformed the region's economy and repurposed its growth and development.

For decades, the petroleum industry became the leading sector of the entire state's economy, with California supplying about a quarter of the world's oil and gas. The industry reached its peak in the late 1960s, exporting approximately 133 million barrels of oil per year. An enormous amount of money was quickly made from oil in Los Angeles and spent in extravagant ways. Oil money created family dynasties with names like Getty, Doheny, and Bell; funded huge real estate developments; and made possible the network of roads and highways that ushered in reliance on cars requiring a constant supply of gasoline. Hollywood and the motion picture industry were also significantly financed by the new

[1] These specific land uses have been identified by the California Air Resources Board (CARB 2005).
[2] Sensitive Populations are defined by the CalEPA to include schools, daycare centers, senior residential facilities, urban parks and playgrounds, and healthcare facilities (CARB 2005).
[3] Sensitive Land Uses are defined for purposes of health protection from air pollution by the California Air Resources Board (CARB 2005).
[4] California Government Code 65040.12e

***Almost one quarter of active wells in the city are located on residentially zoned land (mostly multifamily and high density).***

oil economy (*New York Times* 2008). In addition to oil, the Los Angeles Aqueduct brought surplus water to the region, and the Los Angeles Flood Control District installed systems to alleviate the region from disastrous and destructive flooding. This allowed the population to increase rapidly, and by the late 1930s, the agricultural economy was completely replaced with residential land, and a manufacturing and commercial economic base. Today, oil wells across the greater Los Angeles area remain very productive, yielding approximately 28 million barrels per year from fields on land as well as offshore.

## The Geographic Distribution of Oil Production

The California Division of Oil, Gas, and Geothermal Resources Division (DOGGR) is the primary public agency responsible for oversight of petroleum-related activities, including pollution emissions prevention[5] and public safety, and it maintains an extensive well inventory that is publically accessible[6]. According to DOGGR, there are well over 24,000 wells in L.A. County, mostly concentrated in about 70 oil fields (Chilingar and Endres 2005). Some 5,194 of these wells are either "new" (356) or "active" (4,838) as of 2014. According to the City of Los Angeles Department of City Planning, the city hosts 1,071 new and active oil wells located in a few specific areas (see Map 1), with the most dense concentrations in established oilfields. About half of the city's active wells are located in the Wilmington area and most of the rest are in isolated fields in West L.A., South L.A., and Mid-City neighborhoods. Three quarters of the active wells in the city are operated by five companies[7].

Los Angeles is unusual in that it is a densely populated major city with many active oil production facilities located in close proximity to communities and residences. In some places, oil production takes place just over a fence line or on the same block as homes, schools, and vulnerable populations. Additional oil wells located outside the city boundaries are also in close proximity to residential neighborhoods in Beverly Hills, Baldwin Hills, Inglewood, Marina del Rey, and El Segundo. The oil industry has responded to this proximity and population density by employing horizontal wells and directional drilling, which enables them to access oil over a wide area from a tightly concentrated central facility that is often hidden by fences, hedges, walls, and even camouflage (Center for Land Use Interpretation 2010).

Beyond oil extraction, there is a vast network of facilities supporting the chain of oil production, transport, refining, and distribution. Marine terminals in the Ports of Los Angeles and Long Beach receive and store nearly all of the region's crude oil, tar sand, and asphalt. Transportation of oil, natural gas, and refined product is concentrated along pipeline routes, along with the network of rail and trucking routes that distribute the product to users. Eleven of the top 20 petroleum refining facilities statewide are located in the Los Angeles area, almost all of which are in a narrow belt from Long Beach to El Segundo, and together the refineries process over one million barrels per day (California Energy Commission 2012). Because of the high demand from its large and dense population, and because there are no pipelines linking local refineries to other states, nearly all the gasoline and diesel fuel used in this region is produced locally.

| | |
|---|---|
| **5,194** | Number of active oil wells in the County of Los Angeles |
| **70%** | Percentage of active oil wells in City of Los Angeles located within 1,500 feet of a home or sensitive land use such as a school or hospital |
| **50%+** | Percentage of census tracts in L.A. County (many of them close to active oil wells) that ALREADY rank in the state's top 20% of most environmentally polluted and socially vulnerable areas according to CalEnviroScreen |
| **280-400 GALLONS** | Amount of wastewater produced for every barrel of crude oil extracted |
| **WORST IN THE U.S.** | Rating by the American Lung Association of L.A.'s air pollution from ozone, also known as "smog." Oil production has been linked to increased smog levels |

## Methods of Oil Extraction

The Los Angeles basin is the most petroleum-dense basin in the world (Signal Hill Petroleum 2014). In the 1980s and 1990s, as the price of oil dropped and property values rose, oil wells around Los Angeles were capped and oil production fell (Gamache and Frost 2003). Today, the Los Angeles basin is witnessing a resurgence in oil production as old

5 Additional oversight is provided by the California Air Resources Board and the California State Water Resources Control Board, as well as local jurisdictions.

6 http://www.conservation.ca.gov/dog/Online_Data/Pages/Index.aspx

7 These five companies include Plains Exploration & Production (25.1%), Tidelands Oil Production (16.9%), Warren Exploration & Production (16.9%), Brea Canon Oil (7.8%), Southern California Gas Company (7.6%).

***The oil and gas industry in the United States creates more solid and liquid waste than all other categories of municipal, agricultural, mining, and industrial wastes combined.***

wells are uncapped, new wells are drilled, and the industry is actively working to pull more oil out of the ground within an even more populous city. Nationally, as oil has been depleted from conventional geologic formations, the oil industry has pursued "unconventional oil," defined as "resources that are deeper or more difficult to recover than those that have been recovered historically" (U.S. Environmental Protection Agency 2008). However, Los Angeles still contains large quantities of migrated oil that are extracted using a combination of conventional drilling, Enhanced Oil Recovery (EOR) and unconventional technologies. Only 10 percent of a reservoir's oil can be recovered by conventional practices. The rest must be accessed through ramped-up methods using EOR techniques that include injecting steam, gas, and/or chemicals to produce more oil from a well. These techniques are employed after easy-to-produce oil has already been recovered (U.S. Department of Energy 2014).

Los Angeles has also seen the introduction of some unconventional drilling techniques, such as acidizing and hydraulic fracturing. Unconventional drilling practices include the use of long-range and directional drilling to vertically drill thousands of feet below the surface and then directionally (horizontally) for up to two miles, though in California this distance tends to typically be tens to hundreds of feet away from a well (DOGGR 2013). While directional drilling technologies are typically used to pull difficult-to-access oil in tight geologic formations, in Los Angeles these more aggressive technologies are used to access oil pools that are farther away from a well pad, to circumvent restrictions on creating new well pads and to avoid the social and political ramifications of extracting oil from dense residential neighborhoods through more conventional methods.

In Los Angeles, these technologies are employed to extract oil from small areas and densely populated neighborhoods, with the community just outside the fence line. Thousands of barrels of oil are extracted from wells that can be across the street or next door to a residence.

## Environmental and Toxic Chemical Impacts

The oil and gas industry in the United States creates more solid and liquid waste than all other categories of municipal, agricultural, mining, and industrial wastes combined (O'Rourke and Connolly 2003). The industry

## KEY DEFINITIONS FOR OIL DRILLING & PRODUCTION

| | |
|---|---|
| **Directional Drilling** | The drilling of non-vertical wells (U.S. Environmental Protection Agency 2010). |
| **Enhanced Oil Recovery** | Various methods used with mature wells to increase oil and gas production. Includes injection of water, steam, gas and/or chemicals down the well and into the subsurface toimprove flow and help push the petroleum to the surface. |
| **Acidizing** | Used in sites across Los Angeles. Often referred to as matrix acidizing, thousands of pounds of acid are injected into wells, where they dissolve the sediments, allowing the oil to flow to the wellhead to be collected. Both hydrofluoric acid and hydrochloric acid are used in these operations. These acids are so corrosive that other chemicals are added to the mixture to ensure the acids dissolve only the intended rock formations rather than the steel casings used to drill the well. |
| **Steam Injection** | Used in the Wilmington Oil fields. It is an enhanced oil recovery method injecting very hot steam into wells to extract deeper, heavier (and dirtier) crude. |
| **Water Flooding** | A type of enhanced oil recovery in which water is injected into a formation in order to mechanically move heavy oil from one well to another to be collected. Water flooding is used in many oil fields in the L.A. basin. |
| **Gravel Packing** | Method used to hinder the introduction of sand into the oil being produced, which damages oil field hardware. The zone surrounding the well bore is packed with gravel, which acts as a filter to prevent sand entering the well. Gravel packing stabilizes the surrounding rock, and is typically used in hydraulic fracking. (Sanchez and Tibbles 2007). |

***Exposure to ozone is linked to problems including the triggering of asthma attacks, an increase in emergency room visits, decrease in lung function, and premature death.***

emits chemicals such as benzene, toluene, xylene, formaldehyde, and nitrogen oxides—to name a few—and has been implicated in exposure through air, water, and soil (Shonkoff, Hays, and Finkel 2014).

Oil extraction is a water-intensive activity. After a well is stimulated, some of the volume of fluid returns to the surface. This wastewater is a combination of stimulation fluids (often termed "flowback") and "produced water," which is extracted from the ground along with the oil. "Produced water" can be reinjected into wells under high pressure to force more oil to the surface, or reinjected into the formation to maintain pressure, or it can be sent to disposal wells. "Flowback" contains many chemical additives known to be harmful to health that are included in the injected stimulation, and "produced water" can be contaminated with byproducts from drilling, such as volatile organic compounds and heavy metals. On average, about 280-400 gallons of water (7-10 barrels) are produced for every barrel of crude oil extracted (U.S. Department of the Interior, Bureau of Reclamation 2011).

Oil drilling practices such as acidizing and hydraulic fracturing rely on a mixture of chemicals that are injected into wells. These can include surfactants, solvents, and corrosion inhibitors, some of which are known carcinogens, reproductive toxins, and endocrine disruptors[8]. For example, one study of wells stimulated through hydraulic fracturing in Colorado identified 944 products used in natural gas drilling and could find toxicity data for only 353 of these. Of these 353, the study found that more than 75% could affect the skin, eyes, and other sensory organs; 40-50% could affect nervous, immune, and cardiovascular systems; 37% could affect the endocrine system; and 25% could cause cancer and mutations. This study points to the problem of lack of disclosure of chemicals used in these processes and the need for full disclosure of all chemicals used in drilling. It also points to the need for air and water monitoring and coordinated human and environmental health studies (Colborn, Kwiatkowski, Schultz, and Bachran 2011).

In Los Angeles, a report by a coalition of environmental justice and environmental organizations based on new disclosure requirements by the South Coast Air Quality Management District (SCAQMD) examined chemicals that were released from event reports filed since June 2013 (Physicians for Social Responsibility et al. 2014). These include 170 acidizing, 95 gravel-packing, and 11 hydraulic-fracturing events. Chemical reporting by operators in the SCAQMD set includes air toxics such as crystalline silica, methanol, hydrochloric acid, hydrofluoric acid, 2-butoxy ethanol, ethyl glycol, xylene, amorphous silica fume, aluminum oxide, acrylic polymer, acetophenone, and ethylbenzene. Chemicals listed include known carcinogens, reproductive toxins, endocrine disruptors, and mutagens. However, the full extent of the use of these chemicals is unknown, since companies can withhold chemical identities and mixtures under "trade secret" protections (Air Quality Management District 2013).

## Air Toxics and Human Health Hazards

Oil drilling, extraction, and development is associated with a variety of health-damaging air pollutants (Helmig et al. 2014). Air pollution is linked to many adverse health outcomes such as asthma, exacerbated heart disease, and low birth weight (Peden 2002; Wilhelm and Ritz 2005). As oil production has increased, residents in Los Angeles communities living near oil wells routinely report symptoms of dizziness, nosebleeds, headaches, and exacerbated asthma (Sahagun 2013). Corroborating on-the-ground experiences, there is a growing literature linking unconventional oil and gas drilling with increased air pollution, water contamination, noise pollution, and stress (e.g., Adgate, Goldstein, and McKenzie 2014; Helmig et al. 2014; Shonkoff, Hays, and Finkel 2014). Environmental justice communities face a "double jeopardy" from air pollution that can compound the effects of already high exposures to environmental hazards.

These communities often suffer from the cumulative effects of poverty, lack of access to adequate health care, and illnesses that can leave individuals more vulnerable to the toxic effects of pollution (Morello-Frosch et al. 2011). In the Los Angeles area, poor air quality is an ongoing problem for low-income communities of color, who are disproportionately exposed to air toxics from industry, goods movement, and autos on a vast network of highways and roads (Sadd et al. 2011). The oil industry is the largest industrial source of volatile organic compound (VOC) emissions, a group of chemicals that contribute to smog and ground-level ozone (EPA, 2014), which make up the primary components of Los Angeles smog. In 2008, the EPA estimated that VOC emissions from the oil and natural gas industry exceeded 2.2 million tons per year, data that has not been updated since the boom in oil and natural gas production over the past few years (EPA 2014). Exposure to ozone is linked to problems including

[8] Endocrine-disrupting compounds disrupt the body's hormone systems. This can happen at very low levels of exposure and exposures are especially concerning during vulnerable stages of human development (such as the fetal stage), which can lead to irreversible health problems even decades after an exposure (Zoeller et al. 2012). Most of these compounds remain unregulated and those that are regulated have thresholds far above those at which endocrine disruptors can cause harm.

the triggering of asthma attacks, an increase in emergency room visits, decrease in lung function, and premature death (Jerrett et al. 2005; McConnell et al. 2010). Los Angeles already has the worst ozone pollution in the United States (American Lung Association 2014).

States that have expanded drilling operations have documented elevated levels of VOCs and worsening ozone levels in areas near drilling operations, and they have called for buffer zones, setbacks, and continual air-quality monitoring near oil and gas fields, concluding that "there is a strong causal link between oil and gas emissions, accumulation of air toxics, and significant production of ozone in the atmospheric layer." (Edwards et al. 2014; Olaguer 2012).

Particulate matter is composed of very small particles that can move deep into the lungs and enter the bloodstream, and can contribute to heart problems, lung cancer, respiratory illness, and premature death. Sensitive populations such as fetuses, young children, and the elderly are at particular risk (Pope 2000). Particulate matter emissions from oil operations come from diesel vehicles used for transport, dust entering the air during well-pad construction, and diesel engines used to power machinery at oil facilities. Particulate pollution is also emitted during flaring operations, which is common in refineries, but also occurs at wells. When a well is first drilled, it is tested to determine the characteristics of the underground reservoir, such as pressure, flow, and composition of the oil in the well. The flaring can last for a few days or a few weeks, depending on when the flow of oil from the well and the pressure are stabilized. Flaring creates significant air pollution and increased exposure to particulates.

The hazardous air pollutants (HAP) emitted from oil fields include benzene, toluene, ethylbenzene, xylenes (collectively referred to as BTEX), and many others. Benzene is a known human carcinogen and has been linked to leukemia, lymphomas, and other hematological (blood) cancers. Maternal benzene exposure has been associated with decreases in birth weight and head circumference (Slama et al. 2009). A recent scientific review of benzene's health effects noted, "There is probably no safe level of exposure to benzene, and all exposures constitute some risk in a linear, if not supralinear, and additive fashion." (Smith 2010).

The benzene content of gasoline is strictly regulated by the Environmental Protection Agency (EPA), which in 2011 lowered the allowable concentration in gasoline from 1% to 0.62% in an effort to reduce cancer risk. The State of California requires under Proposition 65 that oil companies warn the public regarding hazardous chemicals, including benzene and toluene. While the South Coast Air Quality Management District now monitors for benzene in some instances (e.g., in Wilmington, largely due to organizing by environmental justice groups), there is little or no benzene monitoring in other Los Angeles oil fields. As a result, there is insufficient data on benzene emissions in communities where oil wells are located.

Air pollution has been connected to adverse birth outcomes such as infant mortality, birth defects, and low birth-weight[9] (Morello-Frosch et al. 2010; Ponce et al. 2005; Proietti et al. 2013; Ritz 2002). While the dynamics leading to adverse birth outcomes are complex, including a combination of maternal health and social factors such as poverty, genetics, and environment, there are growing concerns over exposure for pregnant

## Demographic Characteristics in Selected Areas Hosting Oil Production Facilities

| LOCATION | PEOPLE OF COLOR | 200% POVERTY | RENTERS | LINGUISTICALLY ISOLATED | LESS THAN HIGH SCHOOL EDUCATION |
|---|---|---|---|---|---|
| L.A. County | 72.6% | 37.3% | 46.9% | 12.4% | 27.0% |
| L.A. City | 72.9% | 44.5% | 56.2% | 18.7% | 30.8% |
| Within 1,500 ft. of an active L.A. City well | 74.4% | 42.3% | 55.7% | 18.5% | 30.3% |
| University Park: Allenco | 87.0% | 72.6% | 90.6% | 50.0% | 42.5% |
| Historic West Adams: Jefferson | 83.4% | 73.5% | 70.9% | 27.0% | 48.5% |
| Historic West Adams: Murphy | 89.7% | 60.2% | 73.4% | 21.8% | 35.5% |
| Wilmington: Warren E&P | 99.7% | 53.6% | 76.6% | 42.4% | 54.3% |
| Baldwin Hills: Inglewood Oil Field | 78.8% | 45.2% | 34.9% | 2.0% | 30.1% |

*Analysis by authors using the 2010 US Census.*

## Sensitive Land Uses in Selected Areas Hosting Oil Production Facilities

| LOCATION | NUMBER OF SCHOOLS | CHILDCARE FACILITIES | SCHOOLS PER 10,000 PEOPLE | CHILDCARE PER 10,000 PEOPLE | CHILDCARE PER SQ. MILE |
|---|---|---|---|---|---|
| L.A. County | 3,036 | 3,903 | 3.09 | 3.98 | 1.6 |
| L.A. City | 1,087 | 1,385 | 2.88 | 3.67 | 2.9 |
| Within 1,500 ft. of an active L.A. City well | 40 | 29 | 3.25 | 2.35 | 1.5 |
| University Park: Allenco | 5 | 2 | 7.83 | 3.13 | 8.0 |
| Historic West Adams: Jefferson | 1 | 2 | 1.29 | 2.59 | 8.0 |
| Historic West Adams: Murphy | 3 | 1 | 5.44 | 1.81 | 4.0 |
| Wilmington: Warren E&P | 0 | 1 | 0.00 | 2.35 | 2.4 |
| Baldwin Hills: Inglewood Oil Field | 2 | 7 | 3.64 | 2.35 | 4.4 |

*Analysis by authors using the 2010 US Census.*

*CA Department of Education CBEDS, 2013, State Licensing Division, 2013 Dun and Bradstreet and Southern CA Association of Governments, 2008.*

[9] Low birth-weight is defined as, "the percent of live births weighing less than 2,500 grams (5.5 pounds)."

***The juxtaposition of oil facilities with residential land is both a historical accident and zoning failure, but it is not safe, prudent, or reasonable.***

women and fetuses in drilling-intensive regions. For example, a study near gas-drilling operations found that density and proximity of wells were associated with congenital heart defects (McKenzie et al. 2014). A review of the scientific literature found that many chemicals used in unconventional oil and gas operations have been measured in air and water near operations, linked with adverse reproductive and developmental health outcomes in laboratory studies, and associated with adverse human reproductive health outcomes in epidemiological studies (Webb et al. 2014).

South Los Angeles, the location of several new and restimulated wells, and home to communities profiled in this report, already has a higher rate of low birth-weight births (8.1%) than seen across the rest of Los Angeles County (7.1%) and the State of California (6.8%) (Los Angeles County Department of Public Health 2013)[10], with some zip codes (e.g., 90007 and 90008) facing low birth-weight rates as high as 11% and 12% in babies born in 2012. Existing high rates of low birth-weight indicate chronic underlying health vulnerability. New and newly opened oil wells present an environmental hazard that exists on top of this underlying vulnerability. Babies born with low birth-weight are at an increased risk for death in the first year and for serious long-term health problems. Local variations in air pollution can impact these outcomes, making them more severe near more concentrated pollution sources (Wilhelm and Ritz 2005). Increases in air pollution from increased oil production in already vulnerable areas have the potential to increase the incidence of adverse birth outcomes.

## Oil Extraction and Environmental Justice

It has been well documented that a variety of environmental hazards and public health threats throughout the greater Los Angeles area are concentrated in neighborhoods with high rates of poverty, unemployment, linguistic isolation, and a higher residential proportion of people of color (Sadd et al. 1999; Morello-Frosch et al. 2002; Hricko 2008). Similar patterns have been documented in other metropolitan areas, and on a national scale, all are referred to under the umbrella of "environmental justice." The presence of environmental justice neighborhoods in the Los Angeles area is clear and widely accepted. Governmental and regulatory agencies recognize this problem, and have developed programs and fashioned procedures for their study and solution.

We find that several of the neighborhoods in Los Angeles now experiencing expanded oil drilling and development exhibit strong

## Population Density and Percent Children and Elderly in Selected Areas Hosting Oil Production Facilities

| LOCATION | POPULATION (2010) | LAND AREA ($mi^2$) | POP DENSITY ($10^3$ persons /$mi^2$) | POPULATION AGE < 5 | POPULATION AGE > 64 |
|---|---|---|---|---|---|
| L.A. County | 9,818,605 | 2,477 | 3,964 | 5.4% | 13.1% |
| L.A. City | 3,775,046 | 470 | 8,032 | 7.6% | 8.5% |
| Within 1,500 ft. of an active L.A. City well | 123,147 | 19.57 | 6,293 | 4.4% | 11.2% |
| University Park: Allenco | 6,382 | 0.25 | 25,528 | 4.2% | 5.9% |
| Historic West Adams: Jefferson | 7,729 | 0.25 | 30,916 | 7.1% | 6.9% |
| Historic West Adams: Murphy | 5,516 | 0.25 | 22,064 | 5.9% | 13.6% |
| Wilmington: Warren E&P | 4,258 | 0.42 | 10,138 | 10.0% | 7.3% |
| Baldwin Hills: Inglewood Oil Field | 5,501 | 1.59 | 3,462 | 4.0% | 20.7% |

*Analysis by authors using the 2010 US Census and Southern California Association of Governments, 2008.*

patterns of disproportionate exposure to hazards and risk, as well as high socioeconomic vulnerability. Indeed, they are classic "environmental justice" neighborhoods with high proportions of people of color, and many health, economic, and social challenges (American Lung Association 2014; Morello-Frosch et al. 2002; Morello-Frosch, Pastor, and Sadd 2001; Sadd et al. 2011). Some neighborhoods hosting oil production facilities have much higher proportions of people of color, low-income residents who are often renters, adults over age 25 with low educational attainment, and the linguistically isolated, defined by the U.S. Census as households where no one over age 14 speaks English well. These relationships are particularly striking in the Wilmington, Harbor Gateway, and Mid-City neighborhoods of Los Angeles.

Another way to investigate the non-occupational impacts of oil production is by evaluating the proximity of these facilities to populations in various communities. The California Air Resources Board (CARB) issued recommendations to local government for creating buffers for sensitive land uses such as schools, hospitals, urban parks and playgrounds, and daycare centers, to separate them from sources of air toxics (California Air Resources Board 2005). A recent report written by the City of Los Angeles

[10] Data comprises the Southwest Health District within Service Planning Area 6 of the Los Angeles Public Health Department.

## MAP 2: Proximity of New and Active Oil Wells to Residential Areas in South Los Angeles


*Land use within 1,500 feet of new and active wells in in South Los Angeles (Data from Southern California Association of Governments 2008).*

Planning Department recommends that the City develop new land use and zoning regulations for oil and gas operations, citing a similar ordinance passed by the City of Dallas in 2013. CARB guidelines, for example, recommend 1,000 feet from most land uses characterized by high levels of air toxics emissions. Locally, the South Coast Air Quality Management District Rule 1148.2[11], passed in 2013, requires notification and reporting of oil drilling activities within a 1,500-foot zone.

Of the 1,071 active oil wells in the City of Los Angeles, 759 (over 70%) are located within a 1,500-foot buffer distance from residences and other sensitive land uses. In some of these areas, people and sensitive populations are also concentrated at levels higher than regional averages. A comparison of socioeconomic indicators for residents living within 1,500 feet of active wells demonstrates that the local impact of oil production is significant in some neighborhoods hosting active oil production wells. For example, population density is several times higher in these neighborhoods. There is a similar relationship with a higher proportion of "sensitive land uses" close to active oil wells—these land uses (e.g., schools and childcare facilities) have been defined by CARB as deserving special attention because biologically sensitive populations spend extended time in these facilities (CARB 2005). Similarly, the proportion of people who are biologically sensitive to air pollution and cancer-causing chemicals—the very young and the elderly—is higher in some of these areas when compared to regional averages.

Another way to evaluate oil production in terms of environmental justice—the extent to which these facilities are located in already overburdened neighborhoods—is by use of CalEnviroScreen 2.0[12], the screening methodology developed by CalEPA to help state regulatory agencies identify California communities that are disproportionately burdened by multiple sources of pollution[13]. Many oilfields inside the city boundaries are located in areas identified by CalEnviroScreen 2.0 as among the most overburdened in the entire state.

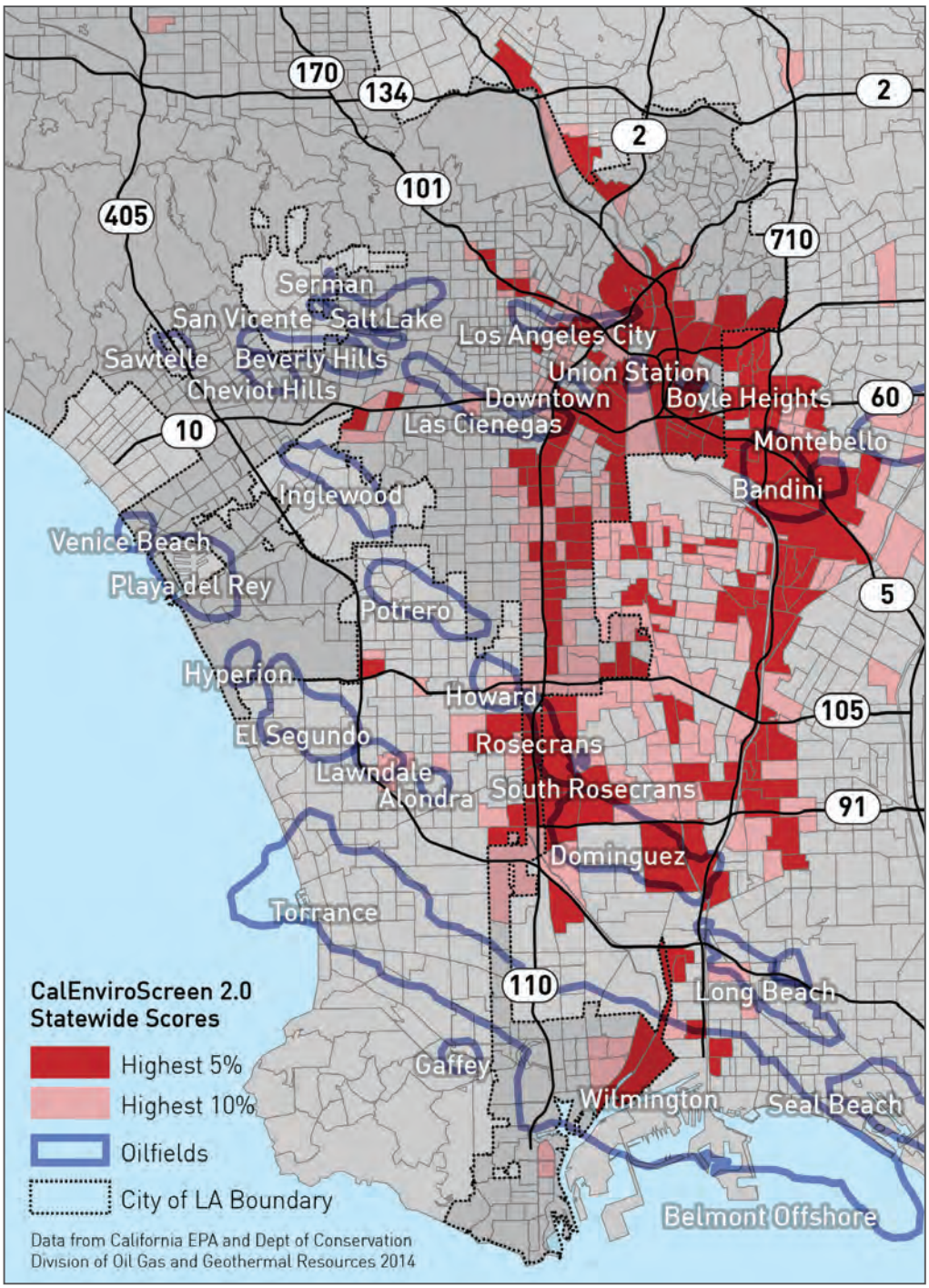
Land use in the vicinity of active oil production varies in different parts of Los Angeles, exposing communities to real and potential impacts of oil production. Some oilfields in the Los Angeles region are surrounded by open space or industrial, commercial, or vacant land. However, in some neighborhoods, this highly industrial and potentially hazardous activity takes place adjacent to residences, schools, parks, and public facilities.

[11] http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1148-2.pdf?sfvrsn=4

[12] A screening method developed by CalEPA Office of Environmental Health Hazard Assessment that is used by state government agencies to identify communities that are disproportionately burdened by multiple sources of pollution. CalEnviroScreen uses science-based techniques to evaluate multiple pollution sources and the resident population's vulnerability to that pollution's adverse effects, calculating a score for each census tract in the state. A final score, expressed as a percentile, is calculated from the ranked values for all tracts statewide. The highlighted tracts in Map 3 have percentile scores that are in the top 10% of all tracts statewide for all indicators of pollution burden and population vulnerability used by the CalEnviroScreen tool.

[13] http://oehha.ca.gov/ej/eces2.html

## MAP 3: Proximity of Environmental Justice Communities to Oil Fields in the Los Angeles Region




*Shown are census tracts with CalEnviroScreen 2.0 scores in the top 5% and 10% statewide and their proximity to oil fields in the region. CalEnviroScreen 2.0 is the State of California's official tool for identifying communities that are disproportionately burdened by multiple sources of pollution and high levels of social vulnerability. Note that five of the six oil fields wholly within the City of Los Angeles' boundaries affect communities within the top 5% and top 10%. These oil fields are Boyle Heights, Las Cienegas, Los Angeles City, Los Angeles Downtown and Union Station.*

### The Problem of Proximity

Why do we consider oil development in close proximity to people a problem? These activities are not compatible with densely populated neighborhoods with sensitive populations and pose a threat to human health and the environment. Oil is extracted using technologies such as acidizing that use harsh chemicals such as hydrochloric acid, as well as a mix of chemicals that are identified carcinogens, reproductive toxins, and endocrine disruptors.

Oil drilling and production adds to the burden of air pollution in these neighborhoods. The city has battled air pollution for decades and still faces the worst levels of ozone in the country, and the chemicals and particulates in air pollution have been linked to a variety of health problems such as exacerbated asthma, adverse birth outcomes, and premature death. Environmental justice neighborhoods in Los Angeles face higher levels of air pollution and worse health outcomes than residents of the region overall, and these residents tend to be more vulnerable to these environmental threats.

Many of the neighborhoods that host oil drilling and production have already been identified by cumulative impacts screening because of their high exposure to environmental hazards and pollution, and the high vulnerability of their residents. These communities have high proportions of people of color, high poverty and language barriers, low home ownership and education, and concentrations of schools and childcare. Oil development is a highly industrial activity which generates considerable pollution and risk to those living, playing and going to school just over the fence line. The juxtaposition of oil facilities with residential land is both a historical accident and zoning failure, but it is not safe, prudent, or reasonable.

Almost one quarter (253/1,059) of active wells in the city are located on residentially zoned land (mostly multifamily and high density). Map 2 shows the juxtaposition of residential land with active oil production wells in the South Los Angeles area. These and other communities are profiled in the next section of this report, "Families on the Frontlines."


# FAMILIES ON THE FRONTLINES: WHEN OIL IS YOUR NEIGHBOR

*Heavy equipment at the Jefferson Drill Site is right next to homes in the Historic West Adams neighborhood.*

**Los Angeles neighborhoods are defined in many ways—by geography, density, history, and more. The neighborhoods described in the following pages are defined by their proximity to a particular oil drilling facility.**

**In University Park, near the University of Southern California (USC), Monic Uriarte describes how nauseating fumes clued the community in to the fact that the Allenco drill site was behind the high walls near their homes. In Historic West Adams, west of USC, Richard Parks and other residents were alarmed to learn that the Jefferson drill site, a local eyesore with its concrete wall and trashy parkway, was pumping carcinogenic chemicals under their homes.**

**Historic West Adams, with homes dating from the turn of the 20th century, is also home to what Don Martin, Joanne Kim, and other residents know as the Murphy drill site. It opened in the 1960s, but in recent years new extraction techniques have exposed the community to new hazards. In Wilmington, near the ports of Los Angeles and Long Beach, Ashley Hernandez is deeply worried about expansion of the Warren E&P drill site because air pollutants from the site have already hurt her family's health.**

**Baldwin Hills is one of three neighborhoods bordering the Inglewood Oil Field. Residents there, including Charles Zacharie, monitor health and environmental impacts of drilling on Baldwin Hills, Inglewood, and Culver City.**

**Together, these stories of concerned and active neighbors paint vivid pictures of Angelenos hit hard by the day-to-day consequences of expanded urban oil development.**

# When Regulators Fail
# University Park: Allenco Drill Site

**Barbara Osborn, Ph.D.,** *Annenberg School of Communications and Journalism, University of Southern California*

Monic Uriarte placed the first of dozens of calls to the South Coast Air Quality Management District (SCAQMD)'s "odor complaint" line in late 2010. She and her family smelled a strong, unpleasant odor in the air on the long weekend of the Martin Luther King holiday. They had smelled odors before, but not like this. In the past, odors had passed in minutes. Monic began to feel nauseous. Her 10-year-old daughter Nalleli's nose began bleeding. That night, Monic turned on an air purifier in her bedroom and she, her four kids, and her mother squeezed into one room so they could sleep.

*Monic Uriarte and daughter Nalleli suffered for years from unexplained health problems.*

The stench persisted. Monic and her neighbors on West 23rd Street, near the University of Southern California, located the odor complaints number at the SCAQMD and began calling. That was when she realized that the narrow strip of grass across from her home, where she'd taken her kids for picnics, was the landscaped exterior of the Allenco Energy oil drilling facility. It would be years before she would learn that Allenco had recently increased its production at the site 400% (Sahagun, September 21, 2013).

After several days the smell subsided, but Nalleli began complaining of intense stomachaches and headaches. She developed heart palpitations and severe body spasms. For a time, she was not able to walk. Monic took Nalleli to a cardiologist, a gastroenterologist, and a neurologist. Nalleli had an MRI and wore a heart monitor for weeks, but doctors couldn't explain the little girl's illness.

Meanwhile, the overpowering odors came and went. Monic's neighbors called the SCAQMD regularly. They learned to provide exactly the information that SCAQMD operators required to dispatch an inspector: Their name. Their location. The location and description of the smell. They learned that the SCAQMD has to receive six calls from people in six different households before it can determine whether the odor issue is a public nuisance. It took several hours, sometimes days, for the SCAQMD to respond. Monic would call with a complaint on a Sunday, leave a message, and get a call back on Tuesday.

In the best of circumstances, neighbors would reach a live SCAQMD operator and a sufficient number of calls were made within the hour to warrant dispatching an inspector. Three or more hours later, an inspector would arrive, put his or her nose in the air and sniff. If the inspector didn't smell anything, no complaint could be filed.

For two years, community residents called the SCAQMD with hundreds of complaints and nothing changed. They still didn't understand what was making so many of them sick. The community tried to conduct its own air quality monitoring but without knowing the chemicals that were being emitted from the Allenco facility, they couldn't tell the lab what to look for. By attending a toxicologist's lecture, Monic finally identified an explanation for her daughter's illness. Nalleli's symptoms were all consistent with exposure to hydrogen sulfide ($H_2S$), a flammable, colorless gas that occurs naturally in petroleum and natural gas. Exposure triggers respiratory irritation, headache, dizziness, and vomiting (Sahagun, September 21, 2013).

By chance, Monic and Nalleli finally got a close look at what lay behind the high walls surrounding the Allenco facility. They'd enrolled in a local photography workshop and their assignment was to take photographs of their community. As they walked their neighborhood taking pictures, they discovered the gates of the Allenco facility open. They asked a worker if he could show them around and the man took them to see the wells. He explained he had to open release valves every 10 or 15 minutes or they would explode. Pipes near the wells read "Danger: $H_2S$ poisonous gas" (Sahagun, September 21, 2013). Monic recalls that as they entered the underground area near the wells, she felt as if "her head was going to explode," but the worker wore no protective gear and didn't suggest to Monic or her daughter that they needed any.

Neighbors began sharing information and struggling to get regulatory agencies to be more responsive. They formed a neighborhood group called "People Not Pozos." ("Pozos" is a Spanish word meaning "well.") Members of the group approached the *L.A. Times*, and after a *Times* article appeared

***They learned that the SCAQMD has to receive six calls from people in six different households before it can determine whether the odor issue is a public nuisance.***


*Nalleli and her neighbors do not want the Allenco facility to reopen.*

in September 2013, Senator Barbara Boxer's office got involved. Suddenly, regulatory agencies became responsive. The SCAQMD began returning Monic's calls within two hours instead of two days. Investigators from the United States Environmental Protection Agency (EPA) came to the neighborhood and were sickened on the site (Sahagun, November 8, 2013).

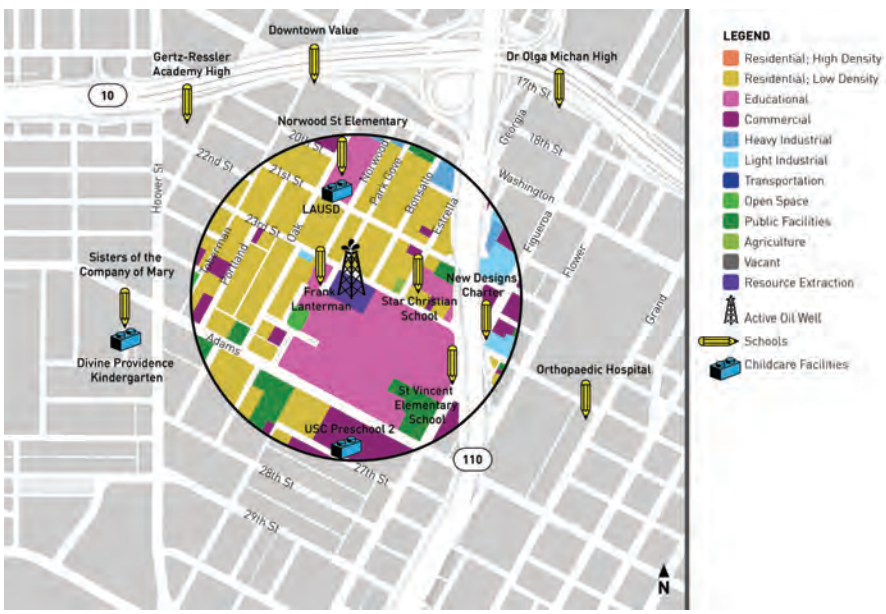
Late in November 2013, Allenco agreed to temporarily close the facility. For the first time in years, residents were able to enjoy Thanksgiving with their windows open. Their symptoms cleared. Monic had no headaches. Nalleli's nosebleeds and stomachaches disappeared.

Two months later, the EPA cited Allenco for jeopardizing the health of the community (Sahagun, January 15, 2014). The L.A. City Attorney's office filed suit, citing SCAQMD monitoring that now revealed elevated concentrations of hydrocarbons and other chemicals like methane, ethane, benzene, and propane, plus hydrogen sulfide and other sulfur compounds. Allenco agreed to make $700,000 in upgrades to comply with the federal Clean Air and Clean Water Acts (Duroni 2014). In July 2014, the U.S. EPA fined Allenco $99,000 for failure to comply with requirements around hazardous substance reporting, while the suit by the L.A. City Attorney alleged that the company was "willfully disregarding violation notices" from regulatory agencies (Sahagun, July 30, 2014).

But after years of fighting to get regulators to respond, Monic and her neighbors don't want the facility reopened. She has lost confidence that the regulatory agencies which were supposed to protect her family have made the changes in their own procedures to ensure community health in the future. Monic has lost her sense of smell, a symptom consistent with hydrogen sulfide exposure, and without it, she can't be sure she could detect toxic chemicals if she were exposed to them.

Nancy Ibrahim, executive director of the Esperanza Community Housing Corporation, which owns two buildings on 23rd Street near the Allenco facility and whose tenants were affected by the fumes, says, "Since 2011, residents logged in hundreds of phone complaints to SCAQMD and nothing changed. This is a residential community with nine educational institutions and early childcare facilities. Residents were left entirely unprotected by the regulations that are supposed to protect them. SCAQMD's current procedures are not adequate to safeguard the health of this or any other neighborhood."

**MAP 4: Land use within 1,500 Feet of the Allenco Energy Oil Facility in University Park**




*(Data from Southern California Association of Governments 2008).*

# "How are these chemicals being used?" Historic West Adams: Jefferson Drill Site

**Barbara Osborn, Ph.D.,** *Annenberg School of Communications and Journalism, University of Southern California*

"At first, all we wanted were good neighbor kind of things," explained Richard Parks, the father of three young children who lives in a neighborhood off Jefferson Boulevard, just west of the University of Southern California in the City of Los Angeles.

Parks and his neighbors were unhappy that the entire block on Jefferson Boulevard between Van Buren and Budlong Avenues was an eyesore, littered with trash and graffiti and surrounded by a 10-foot concrete wall. Mothers picking up their children at local elementary schools were forced to push strollers into traffic because large trucks blocked the sidewalks, and the weight of those trucks was leaving sidewalks broken and unsafe.

In the beginning, neither Parks, the director of the Center for Social Innovation at USC's Sol Price School of Public Policy, nor his neighbors had any idea they were about to stumble on a danger far more threatening than graffiti and unsafe sidewalks. As Parks and his neighbors began to press for cosmetic changes, they learned that the site was owned by Freeport-McMoRan, a natural resources company. They also learned that Freeport-McMoRan planned to dramatically expand production. The company wanted permission to drill three new wells, in addition to the 29 already on the site, and the right to drill 24/7 for somewhere between two months and two years!

*Richard Parks and his family are residents of Historic West Adams near Jefferson Boulevard and Budlong Avenue which hosts one of Freeport-McMoRan's oil drilling sites.*

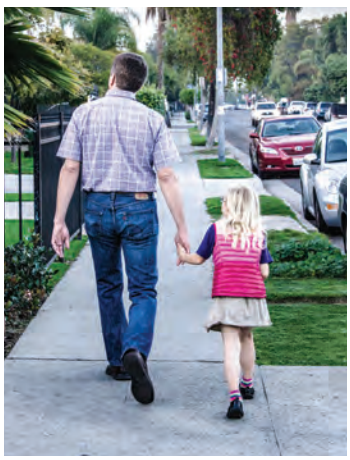
Then one Friday afternoon, almost by chance, Parks noticed an email about a public hearing involving the Freeport-McMoRan site to be held the following Tuesday. He cancelled his appointments for the afternoon and hustled to Los Angeles City Hall to find out what the hearing was about. To his astonishment, he discovered that Freeport-McMoRan was asking for permission to work around the clock to drill the three new wells on the site. If he hadn't seen the email and run downtown, none of the families, nor the USC students who live in the neighborhood, would have known about it.

He quickly notified neighbors. Several residents attended the hearing, as did a small army of Freeport-McMoRan representatives. When the Department of City Planning asked for proof that the company had provided adequate public notice, Freeport couldn't produce it. In fact, Parks learned, the company had repeatedly asked the City to waive the public hearing requirement. Faced with the company's noncompliance and the community's concern, the City refused to grant the permit.

Shortly after the hearing, Freeport-McMoRan contacted Parks to set up a meeting. Parks suggested the company meet with key community stakeholders, including representatives from Congresswoman Karen Bass and Councilman Bernard Parks' offices, but Freeport-McMoRan insisted on meeting with him alone. Parks agreed, and at that meeting, he shared the community's concerns. The company executive scoffed, "Look, this isn't exactly Laguna Niguel," a reference to the beachside city where incomes are four times greater than the median income in Parks' USC-adjacent neighborhood.

As Parks and other community residents shared their experiences with each other, their alarm grew. Neighbors recalled the day when their homes and cars were covered by a spray of oil. Something—to this day residents don't believe they've received a full explanation—occurred on the site, and an adjacent home and cars on the street were sprayed with oil. Freeport-McMoRan paid to repaint the affected home and clean the cars. "The company called it a 'misting,'" Parks says, "like it was a fine French perfume."

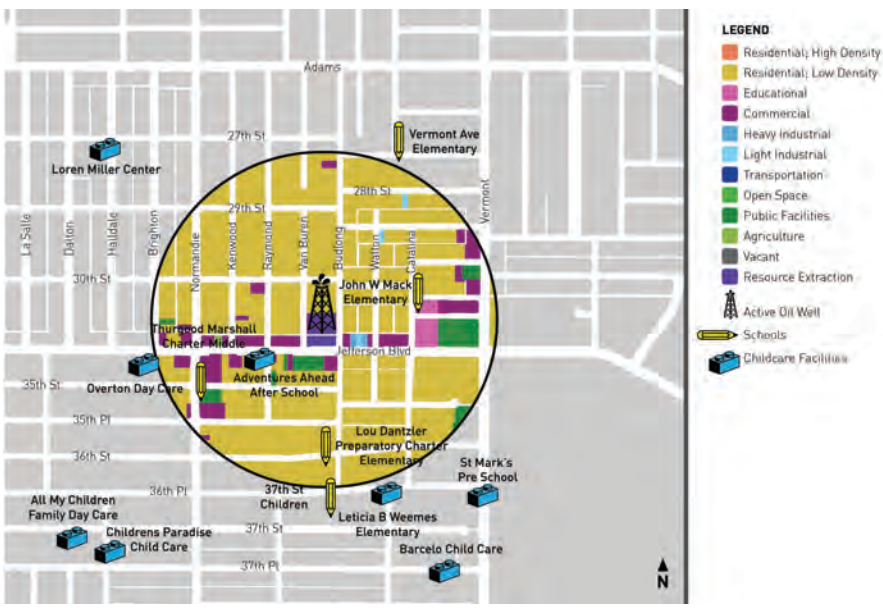
***That summer, Parks learned that nearly 91,000 pounds of toxic chemicals including corrosive acids had been pumped under residents' homes in July 2014.***



*Residents walking children to school worry about hazards from oil wells.*

In May of 2014, Parks was walking past the Freeport-McMoRan site and a truck pulled up with a long list of toxic chemicals posted on the outside. Thanks to the South Coast Air Quality Management District's regulation 1148.2, passed in 2013, Parks already knew that Freeport-McMoRan had injected more than 42,000 pounds of toxic chemicals (including corrosive acids and carcinogenic material) into the ground in the previous 12 months (South Coast Air Quality Management District 2013). But the truck Parks saw that day listed additional toxic chemicals that had not been included in the company's report to the SCAQMD. Parks tried to talk to the driver and take a few photographs, but the driver quickly drove away. That summer, Parks learned that nearly 91,000 pounds of toxic chemicals including corrosive acids had been pumped under residents' homes in July 2014. (South Coast Air Quality Management District 2013). There was no doubt that unconventional oil drilling techniques were being used at the site.

**MAP 5: Land use within 1,500 feet of Freeport-McMoRan's Oil Facility located at the intersection of Jefferson and Budlong in Historic West Adams**




*(Data from Southern California Association of Governments 2008).*

Neighbors have begun to wonder whether a local resident's cancer or the fact that mature trees on an adjacent lot are suddenly dying could be linked to soil contamination on the site. For now, the community has no way to answer those questions. The total disclosed chemicals used on the site between July 2013 to August 2014 has grown to 133,766 pounds. "Even my second-grader understands that injecting hundreds of thousands of pounds of acid in the ground isn't a good thing," Parks said.

Unexpectedly, early in 2015, Freeport-McMoRan decided to withdraw their application to drill an additional three wells on the site. None of the residents know why. Parks credits the drop in global oil prices and the extraordinary community response. But, he added, "the application withdrawal doesn't mean we can return to the status quo. The community documented numerous and serious violations of conditions that threaten residents' health and safety. The city now has a duty to hold Freeport-McMoRan Oil & Gas (FMOG) accountable for these violations and to strengthen conditions to better protect residents."

According to Parks, "At its best, Los Angeles is trying and failing to address our 21st century understanding of toxic chemicals' multi-generational health impacts with a planning code from the last century that was deeply influenced by the oil industry. At its worst, the City has allowed FMOG to sell vacant buffer properties to residential developers. Instead of buffer properties serving residents, the Planning Department has turned residents into buffers. The conflict between the company and the community demonstrates the need to forge a new and stronger regulatory framework. In the face of flagrant violations, the City needs a clear path to revocation of conditional land use permits for residential oil extraction."

# Fumes, Fears, and Frustration
# Historic West Adams: Murphy Drill Site

**Barbara Osborn, Ph.D.,** *Annenberg School of Communications and Journalism, University of Southern California*

One neighbor after another started to wonder what on earth was going on. First, an unsightly 20-foot-tall beige sound wall went up across the entire north side of the block around an oil facility known to locals as the "Murphy" drill site. Everyone who lived in the neighborhood of historic homes knew you couldn't do that without a permit from the Historic Preservation Committee.


*Don Martin and his granddaughter, Kiarri, live next door to the Murphy drill site.*

Other neighbors complained about smells. Residents began sharing complaints about odors coming from the Murphy site and began to circulate information about what to do if you smelled something. That's how Donna Ann Ward, who lives a few blocks from the Murphy site, knew to call the South Coast Air Quality Management District (SCAQMD) when she stepped into her backyard the morning of January 7, 2014 and thought she smelled something "sulfury" in the air.

She called the SCAQMD and four hours later, an inspector discovered a leak of "unodorized" natural gas at 40 times the allowable limit and issued a citation to Freeport-McMoRan Oil & Gas, the company that runs the site, which currently includes 22 active production wells and seven active injection wells. Donna's phone conversation left her asking more questions: Is unodorized a technical term? It sounds like something that has had its odor removed. If it was unodorized, where was the "sulfury" odor coming from?

The incident made Donna Ann aware that the Murphy site might pose a fire hazard. According to the 2010 U.S. Census, 14,870 people live within a half-mile radius of the wells. Given that the neighborhood is home to a special needs high school, a 900-student elementary school, a hospice facility, and a senior housing complex, she wondered what kind of plans had been made in the event of an emergency.

All around the neighborhood, residents have similar stories. Don Martin lives next to the Murphy drill site, in the St. Andrews Gardens Apartments on West Adams Boulevard. The Section 8 complex includes 192 apartments with a basketball court and a kids' playground at the heart of the complex. The Murphy drill site operates 24 hours a day.

Like many of his neighbors, Don keeps his windows closed most of the time, running up expensive air-conditioning bills, but it's the best strategy for keeping out the noise, fumes, and ash that often blow across the apartment complex.

Don is also unnerved by the sign on the Murphy drill site entry gates: "Warning: This area contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm." His 11-year-old granddaughter Kiarri developed Hodgkin's lymphoma three years ago, and while he can't prove it, he fears her illness is related to the Murphy site. He doesn't believe regulators are really tracking what's happening and he doesn't trust the information Freeport-McMoRan is providing to the community. "They [Freeport-McMoRan] keep us out," he says, "but they can't keep the chemicals in."

Donna Ann Ward feels similar fear and frustration. While Freeport-McMoRan says it has an Integrated Contingency Plan and Emergency Response Action Plan on file with the appropriate regulatory agencies, local fire station chiefs told her they did not have an emergency response plan, or even a map of the Murphy facility in the event of an explosion.

Other residents spent long hours reviewing City of Los Angeles Planning Department documents, trying to determine whether drilling at the Murphy site had been started without necessary permits, or was inappropriately approved.

Community concern culminated in January 2014, when 300 residents turned up at a meeting at Holman United Methodist Church, just a few blocks from the Murphy site. Los Angeles City Council President Herb

***Local fire station chiefs told her they did not have an emergency response plan, or even a map of the Murphy drill facility in the event of an explosion.***

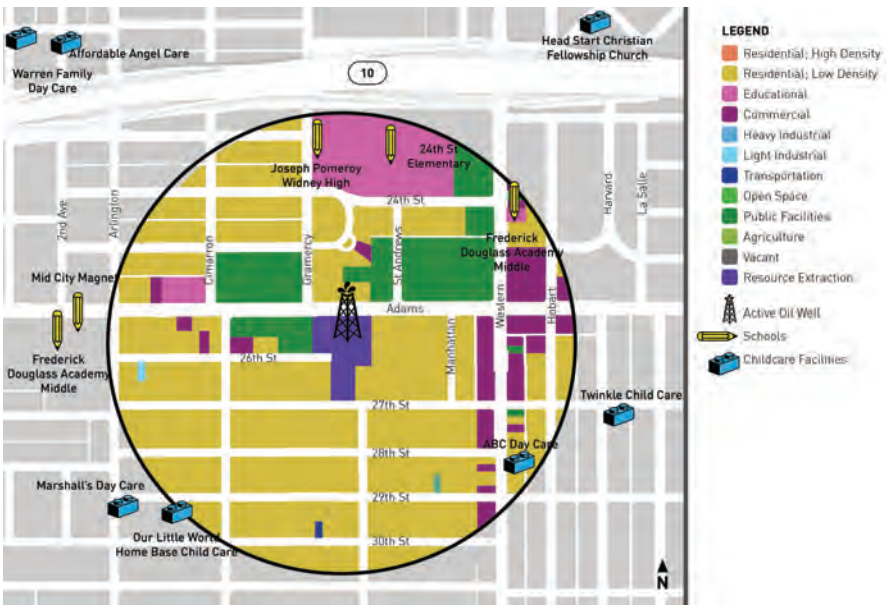
Wesson, California State Senator Holly Mitchell, and United States Congresswoman Karen Bass were present. During the meeting, Wesson announced that he would instruct the Los Angeles Department of Building and Safety to stop the construction of the new wells. In addition, Freeport-McMoRan must now submit new plans and participate in public hearings to proceed with its expansion plans and the construction of new wells.

After the meeting, Wesson persuaded the Los Angeles City Council to pass a motion asking the City Attorney to draft an ordinance for a citywide moratorium on extreme and unconventional oil extraction until it was studied and deemed safe.

Residents are grateful for Wesson's efforts, but they continue to be deeply concerned about lack of transparency and inadequate regulation. Joanne Kim, who lives in the neighborhood with her husband and two young children, notes that at least eight different government agencies regulate the oil industry. "There are too many cooks in the kitchen, which makes it difficult for us to get a full picture of what's going on. Almost every agency we contacted directed us to another agency for answers." The type of drilling that's being done and the chemicals being used are qualitatively different than they were when the Murphy site first opened in the 1960s, she continues. "The way in which government regulates this unconventional activity in 2014 has also got to be qualitatively different."

*Joanne Kim and her daughter live near the Murphy drill site.*

## MAP 6: Land use within 1,500 feet of Freeport-McMoRan's Murphy Oil Facility in the Historic West Adams neighborhood



*(Data from Southern California Association of Governments 2008).*

# “No false solutions!” Wilmington: Warren E&P Drill Site

**Barbara Osborn, Ph.D.,** *Annenberg School of Communications and Journalism, University of Southern California*

When Ashley Hernandez sits on her front stoop with her dog Lucy, she smells oil in the air on the lovely tree-lined street in the Wilmington neighborhood in the City of L.A. where she and her family live. It doesn’t matter whether it’s day or night, the smell is always there. Half a block from her home, right next to the John Mendez baseball park, an enormous oil rig towers over Opp Street. It’s open 24 hours a day, so the noise and the odors are a constant nuisance for the neighborhood.

*Ashley Hernandez suffered health problems from oil drilling in her Wilmington neighborhood.*

According to a recent analysis by California environmental agencies, parts of Wilmington (a neighborhood near the Los Angeles and Long Beach Ports), rank among the top 5% of communities with the highest pollution exposure and social vulnerability in the state (Office of Environmental Health Hazard Assessment CalEnviroScreen2.0, 2014). The most recent study from the SCAQMD (MATES IV 2014) reports significant reductions in cancer risk over the last decade. However, the estimated cancer risk in some parts of Wilmington is the highest in Southern California, exceeding 1,000 additional cancers per million residents, three orders of magnitude higher than the National Clean Air Act goal of one in one million. Moreover, new research from the State’s Office of Environmental Health Hazard (OEHHA) has determined that previous methods for estimating cancer risk were insufficient, and cancer risk estimates are higher by nearly three times than previously understood.

Ashley is familiar with all these statistics, but they don’t tell her anything she doesn’t already know firsthand. She remembers when she and her family moved to Wilmington from North Hollywood, nearly 10 years ago, to be closer to her dad’s new job at the Ports of L.A. and Long Beach. Her mother developed respiratory problems. Ashley developed a pollution-related eye irritation her senior year in high school that was so severe her attendance and grades suffered. Her doctor attributed both mother and daughter’s health problems to particulates in the air in and around their home. Ashley’s sister used to jog when she lived in Santa Barbara. Now she lives in Wilmington and her lungs simply won’t tolerate it.

Her family’s health is the prime reason Ashley is so concerned about the expansion at the Warren E&P site near her home, as well as oil extraction technologies being used elsewhere in the vicinity of the ports. Thanks to a new regulatory safeguard (SCAQMD Rule 1148.2), companies are now required to report plans to acidize, gravel pack, and frack, as well as to report the chemicals they use as part of their oil extraction practices. Ashley knows that oil companies in Wilmington are using known carcinogens and engaging in gravel packing and acidization. A recent report issued by the Center for Biological Diversity and Physicians for Social Responsibility, which examined the first year of data provided by the oil companies, revealed that more than 45 million pounds of dangerous chemicals had been used in Los Angeles and Orange counties. More than half of these “chemical-intensive events” occurred in oil wells within 1,500 feet of a home, school, or medical facility (Center for Biological Diversity, Physicians for Social Responsibility – Los Angeles, Communities for a Better Environment, and the Center on Race, Poverty and the Environment 2014).

***Data provided by the oil companies revealed that more than 45 million pounds of dangerous chemicals had been used in L.A. and Orange counties.***

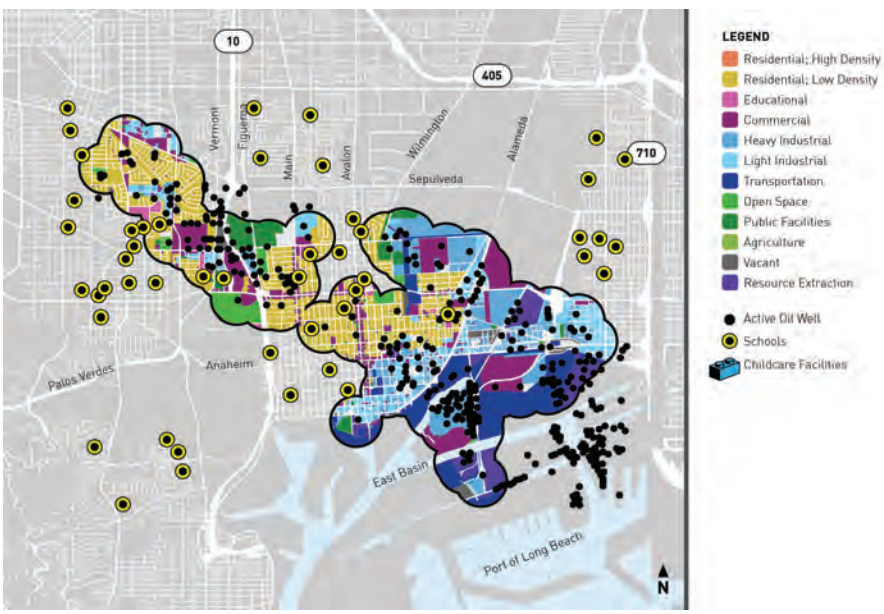
Those findings leave Ashley deeply worried. She has learned not to trust that Warren E&P will be a good neighbor or that regulatory agencies have the ability to safeguard her family or her neighbors' health.

The Hernandez family was new to Wilmington in 2006 when a local community organization, Communities for a Better Environment, documented the failure of regulatory agencies to protect the community after Warren E&P began to expand its operations at the site near the Hernandez home (Fazeli 2009). Both the City of Los Angeles and the SCAQMD failed to anticipate the health impacts on the neighborhood of increased truck traffic, dirt and dust blanketing the area, foul smells, and construction noise. The City and the SCAQMD permitted the company's day and night drilling application. Neighbors called it a "living hell" (Fazeli 2009).

Ashley doesn't have a lot of confidence in Warren E&P's transparency or integrity. Periodically, she says, representatives of Warren E&P go door-to-door offering neighbors free carwash coupons or gas gift cards. They sponsor the local Pony League that practices adjacent to the Warren E&P rig near her home. The company sponsors field trips for the local schools and built a park in the neighborhood on reclaimed land. Approximately 1,500 Wilmington residents receive royalty checks as a result of the drilling (Agostoni 2008). In Ashley's view "the company is offering false solutions that distract from the community's real health problems. A hundred dollar gift card is nice," she says, "but it won't pay for an emergency room visit."

*Ashley Hernandez is now the Youth Organizer for Communities for a Better Environment in the Los Angeles area.*

## MAP 7: Land use within 1,500 feet of Oil Wells in Wilmington




*(Data from Southern California Association of Governments 2008).*

# Largest Urban Oil Field in the Country
# Baldwin Hills: Inglewood Oil Field Drill Site

**Erin Steva, MPP,** *Environmental Health Policy Analyst, Community Health Councils*

*Charles Zacharie of Baldwin Village is concerned about the health effects of the largest urban oil field in the country.*

More than one million people live within five miles of the Inglewood Oil Field, the largest contiguous urban oil field in the country. At 1,000 acres, located near the center of sprawling Los Angeles County, it is nearly as large as the City of West Hollywood. The people are as diverse as the surrounding Baldwin Hills, Inglewood, and Culver City neighborhoods—50% African American, 17% Caucasian, 15% Hispanic and 6% Asian-Pacific Islander (Los Angeles County Department of Regional Planning 2008).

Charles Zacharie of Baldwin Village grew up next to fields watching the pumping jacks bob up and down. Now, Charles says, "I drive past the field every day going to work and have noticed diesel or industrial smells like sulfur. I look at the field around me and know where it must be coming from." He frequently visits the beautiful Kenneth Hahn State Recreation Area, which sits adjacent to the Inglewood Oil Field. When there, he's noticed diesel odors and a soapy lemongrass fragrance, which he was later told is used to cover up odors. He's unsettled by "odor suppressants," because it means there are potentially dangerous fumes being disguised.

For the surrounding park-poor South Los Angeles neighborhoods[14], Kenneth Hahn Park is an invaluable resource, giving residents a swath of open space and greenery in the midst of a sea of asphalt and concrete (Garcia, Meerkatz and Strongin 2010). But Charles, like many of his neighbors, is concerned about the health impacts of living and playing so close to 700 active oil wells (Paillet 2013). He wonders whether his neighbors' breast cancer or respiratory issues result from living near the field, and he's concerned about new extraction technologies.

In early 2006, families in the Culver Crest neighborhood were evacuated twice for noxious odors (Los Angeles County Department of Regional Planning 2008). Local resident John Kuechle remembers waking up at three in the morning to a terrible smell that made his wife nauseous. They called the police to report the odor and evacuated their home. The oil field operator Plains Exploration & Production (PXP) described the odor release as a nonhazardous, once-in-a-lifetime event; but more incidents followed. When John asked a South Coast Air Quality Management District (SCAQMD) representative why the "nonhazardous" gas made his wife feel so ill, he learned that "nonhazardous" only meant non-explosive.

Around the same time in 2006, PXP revealed plans to drill as many as 1,000 new wells over the next 20 years. Charles and others had heard of plans to turn the oil field into a large park, and were disappointed and concerned about the effect of this proposal on those plans. Community Health Councils, the City Project, neighborhood associations, and block clubs formed the Greater Baldwin Hills Alliance to represent the 50,000 households living immediately adjacent to the oil field. Months after the noxious odor incident, Los Angeles County prohibited new drilling until 2008, providing time for the development of an ordinance to more effectively regulate drilling in the field.

*John Kuechle recalls an evacuation from his home due to noxious odors from the Inglewood Oil Feld.*

[14] There is less than one acre of parkland per 1,000 people in Baldwin Hills compared to the nationally recommended ratio of six to 10 acres per 1,000 people. The State of California's definition of "park poor" communities is those with less than an average of three acres per 1,000.

***"Just because the oil company brings jobs and other benefits doesn't mean it can do it at the expense of my health and well-being," said Charles Zacharie.***

Residents and neighborhood associations mobilized to ensure the environmental study and proposed zoning regulations adequately addressed the hazards and health risk to the community. Over the course of the six hearings, residents provided hours of testimony and volumes of written comments.

The Los Angeles County Board of Supervisors adopted a Community Standards District in 2008 that limited drilling to 600 new wells and required a landscaping plan, the formation of a community advisory board and multi-agency coordination council, and the installation of new air quality equipment among more than 62 pages of regulations.

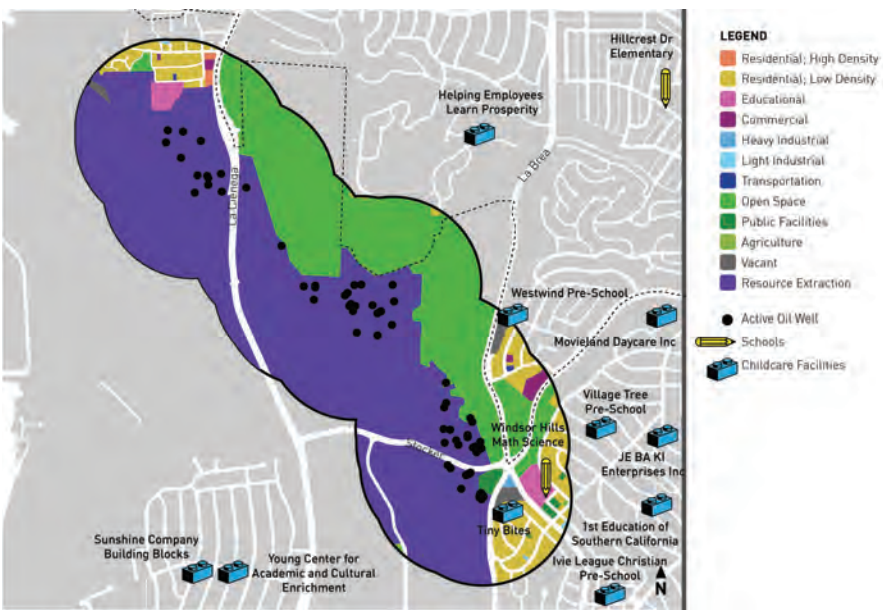
In order to address shortcomings in the adopted rules, four lawsuits were filed, including one on behalf of Community Health Councils and the Natural Resources Defense Council. An agreement was reached that significantly strengthened restrictions by further reducing the number of new wells allowed, increasing air quality monitoring, setting more stringent noise limits, and requiring recurring health and environmental justice assessments. With these provisions, the Community Standards District contains many elements that are a model approach for how health-protective and community-responsive mechanisms can be required of oil operations.


*Charles Zacharie and other neighbors are working to limit oil field expansion.*

Nevertheless, community members remain concerned and vigilant. While greatly reduced in frequency, odor complaints continue, noise levels remain problematic, and people are concerned that cracks in their foundations might be caused by the oil field. The Baldwin Hills Community Standards District is currently going through a periodic review process that is required every five years, and Greater Baldwin Hills Alliance stakeholders have recommended improvements, including better implementation of rules and health studies, and further efforts to shrink the field's size. Residents also want an emergency fund to guarantee the field is eventually cleaned up and to ensure resources are available if people's health is harmed.

John Kuechle and Charles Zacharie feel that the Community Standards District has brought needed attention to the oil field and that the operators are being watched more closely now. But the questions about the health effects of living so close to such a large, active oil field remain. "Just because the oil company brings jobs and other benefits doesn't mean it can do it at the expense of my health and well-being," said Charles.

## MAP 8: Land use surrounding the Inglewood Oil Field located adjacent to Baldwin Hills and Culver City




*(Data from Southern California Association of Governments 2008).*

# OIL DRILLING AND THE LAW: THE BASIS FOR MUNICIPAL AUTHORITY

*Freeport-McMoRan oil operations tower over the surrounding neighborhood at the Jefferson Drill Site.*

**Adrian Martinez,** *Attorney, Earthjustice*
**Yana Garcia,** *Staff Attorney, Communities for a Better Environment*
**Angela Johnson Meszaros,** *General Counsel, Physicians for Social Responsibility – Los Angeles*

The Los Angeles Oil Code applies to all districts where the drilling of oil wells or production from wells of oil, gases, or other hydrocarbon substances is permitted (Los Angeles City Municipal Code).

The Los Angeles Oil Code's primary concerns are to advance the interests of oil and gas producers, rather than promote public health and environmental protection. Importantly, these laws were last significantly updated in the 1950s, which predated many of California's landmark laws aimed at protecting residents from environmental harms, including the California Environmental Quality Act and the Porter Cologne Water Quality Control Act. Moreover, it predated passage of bedrock federal environmental laws like the Clean Air Act and Clean Water Act.

Recent evidence about the real and important impacts on residents and the environment from oil and gas development make this a good time to revisit the code to make sure it addresses the full ambit of local needs, including protecting the health and welfare of those living next to current and future oil and gas operations. In crafting these policy prescriptions, the current regulatory scheme suffers from several flaws, but most importantly the following:

- From the start, the laws and regulatory oversight processes established to address oil and gas activity were not envisioned as a way to protect residents or the environment;
- As Los Angeles became more dense, the city failed to address gaps in the existing regulatory system, and it failed to create a framework for reviewing earlier decisions to allow or place conditions on oil extraction activities;
- The systems for collecting and making publicly accessible existing information about oil extraction activities are inadequate because the most critical information is incomplete and reporting is not timely.

All three of these flaws can be addressed through revisions to the municipal code.

***California courts have a long history of zealously protecting the rights of cities to protect their residents through land use controls.***

Overall, the City retains ample jurisdiction to implement the policy prescriptions provided in this report. Comprehensive zoning has long been held as a valid exercise of a city's police powers (Miller v. Board). The evidence of the serious impacts this industry imposes on residents, in addition to harms to the environment that are antithetical to the City's sustainability goals, provide the basis for changing the Los Angeles Oil Code to be more responsive to the needs of residents. The City will simply need to ensure it complies with legal precedent and provides adequate safeguards to protect vested rights. While this task will take some effort and resources, the seriousness of the threats posed by oil and gas extraction merits this work.

Opponents of commonsense measures to protect public health and the environment from oil and gas development will likely raise two legal claims to seek to derail these efforts. First, they may argue that these laws are preempted by state laws. Second, they may argue that any restrictions amount to a taking and could infringe on vested rights. Both of these issues lack merit.

On the preemption issue, California courts have long upheld reasonable local zoning regulations even in the context of restrictions on oil and gas (Beverly Oil Company). In the Beverly Oil Company case, California's Supreme Court determined "[i]t must be deemed to be well settled that the enactment of an ordinance which limits the owner's property interest in oil bearing lands located within the city is not of itself an unreasonable means of accomplishing a legitimate objective within the police power of the city" (Beverly Oil Company, 558). The City's action at issue in the Beverly Oil Company case allowed for continued oil operations at a site in the city but "expressly provide[d] that no new well for the production of hydrocarbon substances, which is a nonconforming use, shall be drilled nor shall existing wells be deepened" (Beverly Oil Company, 555). The Court upheld the City's action restricting operations by noting "[i]t has not been denied the right to extract the mineral wealth underlying its property, which denial has been upheld in other cases" (Beverly Oil Company, 559). As the California Supreme Court has clearly stated, cities retain authority to adopt a wide range of policy prescriptions to address the harms of oil and gas development.

Oil industry lobbyists may also argue that existing California law, including amendments through Senate Bill 4, preempts any activity by the City. Importantly, Senate Bill 4 did not expressly preempt local actions, and there is no other evidence in California law that the State intended to preempt the rights of local jurisdictions to protect their residents through reasonable land use restrictions. The City will need to use the ample evidence contained in this report and other resources to provide the rationale for action, but California courts have a long history of zealously protecting the rights of cities to protect their residents through land use controls.

On the takings issue, the Fifth Amendment to the United States Constitution provides that "private property [shall not] be taken for public use, without just compensation" (U.S. Const., amend. V). The California Constitution contains a similar provision: "Private property may be taken or damaged for a public use and only when just compensation, ascertained by a jury unless waived, has first been paid to . . . the owner." (Cal. Const., art. I, sec. 19) Despite the fervor in which oil and gas proponents argue takings claims are a serious threat to a city's effort to enact zoning regulations, law professors from Stanford University, University of California Irvine, University of California at Berkeley, and University of San Diego School of Law articulated the uphill battle that a takings challenge would have in succeeding in a local control effort that took place in Santa Barbara County (Sivas 2014). Specifically, they articulated that a "facial" challenge to a local ordinance restricting certain types of oil and gas development would face an uphill battle in court. In addition, the law professors articulated the rigorous proof an individual property owner would need to provide in any "as applied" challenge against a city. This letter articulates clearly that a local entity like the City of Los Angeles can design a program that carefully navigates the issues related to takings and vested rights.

Proponents of unfettered oil and gas drilling in Los Angeles will claim legal issues impede any commonsense restrictions aimed at protecting residents and the environment from the harms associated with oil and gas development. These lobbyists and lawyers are wrong. The traditional role of a municipality's land use authority is to protect residents from harm. To date, the City of Los Angeles has built its laws based upon a paradigm that sought to maximize oil extraction—placing the interests of the oil industry over those of hardworking women and men, schoolchildren, and the elderly. To protect human health and the environment and to position itself at the forefront of a 21st-century approach to energy production and use, the City must shift to a paradigm that places citizens' health and welfare first. Los Angeles must be careful to craft commonsense protections based on evidence, but that hurdle is perfectly manageable.

# TOWARD A HEALTHY AND SUSTAINABLE LOS ANGELES

*A panoramic view looking towards downtown Los Angeles.*

**Michele Prichard,** *Director, Common Agenda, Liberty Hill*

It is clear from the communities profiled here that expanded oil extraction operations—the first step in a long chain of oil production, transport, refining, and burning with documented deleterious health hazards at every stage—require urgent and decisive action by policy makers.

Regulators and lawmakers at the municipal, regional, state, and national levels all have a critical role to play in protecting the health and safety of residents. Yet, the involvement of so many different actors is one of the key challenges that have frustrated residents' efforts to get answers as oil-drilling operations expand and incorporate more hazardous techniques alongside conventional practices. As the community stories told here demonstrate, local residents often do not know to whom to turn for relief and response. Frequently, they have been shuffled between multiple offices in frustrating attempts to find the responsible agency.

There is a wide range of policy, zoning, regulatory, and enforcement tools to be considered by the many different agencies that have some jurisdiction and legal authority over oil operations in Los Angeles. Even a recent report by the L.A. Department of City Planning notes that "there is significant room for improvement in the way the City currently regulates and administers oil and gas activity" (Los Angeles Department of City Planning 2014).

The following section, while not exhaustive, highlights potential policy options that could provide greater public health and safety protections, more effective agency oversight, and a more accountable and open public process around current land use, permitting, and zoning practices concerning oil development. Here we distinguish between two major approaches: a "preventive" approach represents a fundamental shift to protecting public health by eliminating known hazards; a "mitigation" approach, on the other hand, seeks to reduce (but not eliminate) health hazards.

## POLICY OPTIONS TO PROMOTE PREVENTION

Mounting scientific and public health evidence indicates that the toxic chemicals and related air emissions that accompany oil development—in both its conventional and enhanced forms—are hazardous to human health. Eliminating exposures to these hazardous chemicals is a primary prevention, providing the broadest, population-level health protections, especially for vulnerable populations with heightened sensitivity to such exposures, including children, pregnant women, the elderly, those suffering from chronic health problems, and low-income communities of color who

face a "double jeopardy," impacted by multiple sources of pollution and socio-economic stressors (Morello-Frosch 2009). The following strategies represent significant departures from current philosophy and practice, in which communities often shoulder the burden of demonstrating harm, and they offer alternatives that promote precautionary action with the goal of preventing illness and injury and creating healthier communities.

## STRATEGY #1: Prohibit Oil Drilling and Production Activities within Buffer Zones

Exposure to hazards can be significantly reduced by establishing a distance separation or setback—commonly referred to as a "buffer" zone—from homes, schools, businesses and other sensitive land uses. This form of community protection is already utilized locally and nationally. City Council leaders in Dallas set a precedent, recently approving a municipal ordinance requiring a 1,500-foot setback of oil drilling operations from residential and other sensitive land uses (City of Dallas 2013). Closer to home, the South Coast Air Quality Management District (SCAQMD) established a 1,500-foot radius for purposes of air monitoring and responding to odor complaints from oil drilling operations with a heightened level of response time and corrective action (SCAQMD 2013). The State of Colorado requires a public hearing before a well can be drilled within 1,000 feet of a high occupancy building, and the State of Maryland observes a 1,000-foot setback for oil wells (Richardson et al. 2013). Similarly, more than a decade ago, the California Air Resources Board issued recommendations to municipalities for health-protective buffer distances between sources of toxic air emissions to protect residential and sensitive populations (CARB 2005).

The alarming reports of severe health impacts in neighborhoods like University Park and Wilmington, and residents' concerns about safety from hazardous operations like those in Historic West Adams, provide significant merit to the concept of buffer zones that would separate these industrial sites from residential and sensitive land uses. In addition, the use of diesel trucks and unsightly diesel-powered equipment in neighborhoods poses another detriment to public health and the quality of life. The most precautionary approach would restrict—or even prohibit—both new and current oil extraction operations inside of the buffer zone, thereby better protecting the health and quality of life of adjacent neighborhood residents. Furthermore, a strong case can be made for a 1,500-foot buffer zone to provide for maximum safety, based on the precedent set by the City of Dallas and the SCAQMD's current monitoring practice.

## STRATEGY #2: Establish Moratoriums, Interim Control Ordinances, and Bans on Hydraulic Fracturing and Other Well Stimulation Techniques

The City of Los Angeles has a number of planning tools available to restrict specific types of land uses, including moratoriums, interim control ordinances, and outright bans. In February 2014, a motion was introduced to place a moratorium on the practice of hydraulic fracturing (or "fracking") and related extraction technologies such as acidization, gravel-packing, and the use of waste-disposal injection wells. The proposal asserts that until it can be demonstrated that these methods do not pose environmental or health hazards, these types of operations should cease. While the SCAQMD's recent data shows a limited number of "fracking" incidents in the region, and none in the City of L.A. since June of 2013, the practice of acidizing wells and performing acid treatments of wells (also called "maintenance acidizing" by oil operators) is far more common and a cause for concern, especially for the residents who live and work near such sites (SCAQMD 2014). The proposed moratorium, especially if expanded to cover all forms of well activities, including acidization and maintenance acidizing, represents a preventive and health-protective approach that deserves serious consideration and public discussion.

*Diesel trucks operate next to homes, emitting air toxics known to cause cancer.*

Similar to a moratorium, an Interim Control Ordinance (ICO) is a planning tool that temporarily restricts a specific land use when there is concern about environmental or human health and safety hazards. With a general duration of six months, ICOs provide decision-makers with the time required to study an issue and recommend permanent and responsible land use solutions. For example, ICOs have been used to limit the establishment of medical marijuana retailers and fast-food restaurants, on the grounds that these land uses are over-concentrated in certain neighborhoods and pose a risk to public safety, community health, and quality of life. In the Wilmington-Harbor City Community Plan Area adjacent to the Port of L.A., an ICO was issued to halt the establishment and expansion of open storage yards that caused multiple neighborhood nuisances (e.g., dust, odors, vermin) until more permanent regulations could be drafted and instituted.

***The use of diesel trucks and diesel-powered, unsightly equipment in neighborhoods poses another detriment to public health and the quality of life.***

While the proposed City of Los Angeles moratorium implies a future end-point when a decision will be made based on scientific analysis, many municipalities have already implemented outright bans or permanent abolition of specific forms of oil production activities. In a high profile decision in December 2014, New York State Governor Andrew Cuomo announced a ban on hydraulic fracturing based on a State Department of Health report that cited "the weight of evidence from the cumulative body of information . . . demonstrates that there are significant uncertainties about the kinds of adverse health outcomes, and the likelihood of the occurrence of adverse health outcomes . . ." (New York State Department of Health 2014). Voters in communities throughout the country and state have taken to the polls to approve similar measures. Voters in the City of Denton, Texas approved a November 2014 ballot initiative to ban all hydraulic fracturing within city limits (Hennessy-Fiske 2014). In California in November 2014, voters in San Benito County approved a ban on well stimulation and enhanced recovery methods such as fracking and steam injection. San Benito's measure also imposed a ban on any new gas or oil drilling in areas zoned as residential or rural land uses (Cart 2014).


*Maintenance trucks post signs indicating that they are transporting hazardous chemicals.*

## STRATEGY #3: Expand Role and Authority for Public Health Analysis in Permitting Process

Increasingly, community health is a primary consideration in local planning and land use decision-making. A growing body of evidence demonstrates that social, economic and environmental factors play an important role in determining the health status of populations. Poverty, unemployment, lack of access to healthy food and open space, and exposure to a variety of environmental contaminants all contribute to overall health at both the individual and community levels. The recent adoption of the Health and Wellness Element for inclusion in the City of Los Angeles' General Plan provides a powerful rationale for utilizing a public health framework for policy analysis, development, and decision-making related to oil drilling in Los Angeles.

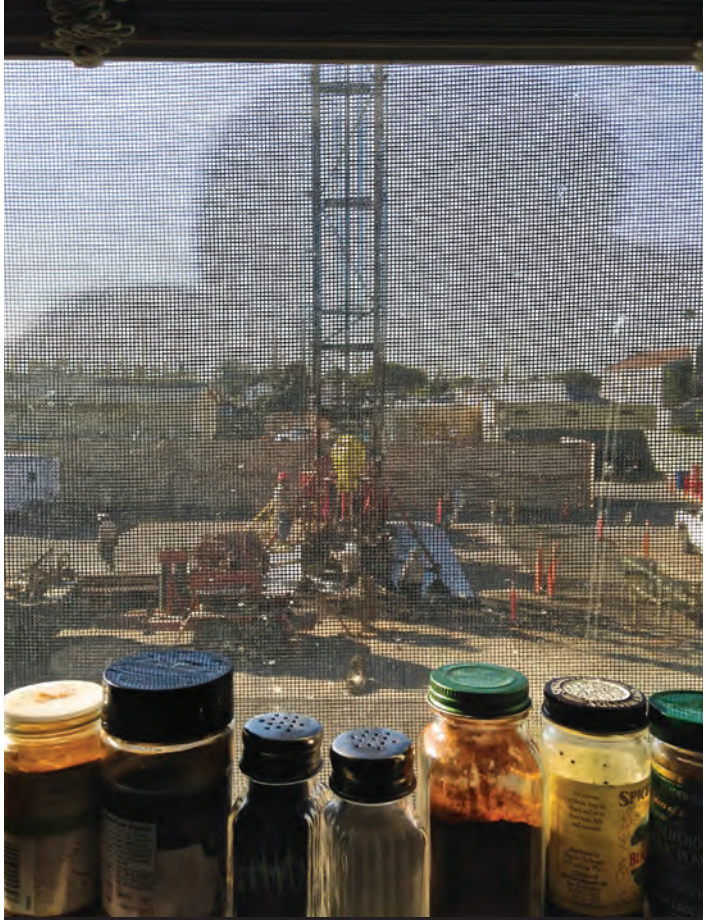
### *Engage the Los Angeles County Department of Public Health in permitting decisions.*

Currently, the L.A. County Department of Public Health (DPH) oversees public health for both the City and County of Los Angeles. While DPH currently does not have a role in the approval of oil-drilling permits, it has recognized the adverse health impacts experienced by residents near the Allenco site. DPH's Preliminary Environmental Health Assessment report dated December 3, 2013, found that, "Petroleum-based compounds and associated odors from the Allenco facility are affecting the health and well-being of the adjoining community" (County of Los Angeles Department of Public Health 2013).

Angelo Bellomo, Director of Environmental Health for the Department, notes that "existing regulations do not adequately consider the risk to public health. The current regulatory system is inadequate, with many urban oil-drilling sites too close to sensitive land uses. We need to ensure the potential health impacts of proposed drilling sites are considered early on in the decision-making process" (A. Bellomo, personal communication 2014). Currently, the Department plays a "downstream" role in assessing and responding to health complaints from oil drilling, rather than an "upstream" role to ensure public health and safety through proactive prevention strategies. Upstream efforts that DPH could undertake include, but are not limited to: informing residents, policy makers and the media about health risks and protective policies associated with locating oil drilling adjacent to residential neighborhoods; and playing an advisory role in advance of project siting decisions.

### *Require Health Impact Assessments for new and expanded oil operations.*

Health Impact Assessments (HIAs) are gaining significant attention as an effective way to bring a comprehensive public health framework to the evaluation of direct and indirect impacts of proposed land use projects



*The view from a kitchen window of oil drilling operations next to homes at the Jefferson Drill Site in Historic West Adams.*

and policies. HIAs have grown in use, particularly in vulnerable community project contexts, since they fill critical gaps left by current regulatory tools. HIAs have been conducted on a wide range of projects (e.g., housing, transportation, and major development projects) and policies (e.g., educational and social policy reforms) in order to better understand the full range of health benefits and risks related to air quality, noise, public safety, local business environment, mobility, jobs, etc. HIAs help decision-makers determine whether to proceed with a project, and if so, how best to mitigate its negative impacts. In the L.A. region, HIAs have been conducted and/or are being considered on the proposed Farmers Field stadium, the Long Beach Downtown Plan and Housing Element, and the I-710 expansion, to name a few. Given the potential for significant human health impacts, new and expanded oil-drilling activities should undergo Health Impact Assessments to document the risks alongside potential benefits. There is also a compelling case to be made for conducting HIAs on existing oil-drilling activities, given that many sites were authorized decades ago, when we had limited knowledge of the adverse health impacts of many pollutants already used. Especially in neighborhoods which have become more densely populated over time, while activities, technologies and the use of chemicals have significantly changed and intensified, it is imperative to have a complete picture of the current health, environmental, noise, public safety, job, and local business impacts associated with oil-drilling activities.

## Recommended Performance Standards

- Require Environmental Impact Review and Health Impact Assessment for all projects applying for new wells, modified wells, and well expansion.
- Mandate the most protective measures in pollution prevention, best engineering practices, leak detection, Best Available Control Technology and Best Available Retrofit Control Technology.
- Limit the number of wells.
- Limit the hours of operation.
- Install enclosures or other technologies to trap fugitive emissions.
- Implement continuous monitoring of and reporting on emissions, air quality, and noise levels with results made publicly available and regularly reviewed by SCAQMD and DPH; thresholds should be set for when to investigate for leaks and equipment problems, and for when to cease operations until corrected.
- Develop emergency response plans, with plans for reassessment and upgrades.
- Issue protective warnings and notifications on-site, including posting of planned maintenance schedules so that sensitive populations can take precautions.
- Review periodically conditions, proper compliance, and the feasibility of improving operations at all sites.
- Implement long-term surveillance, monitoring, and reporting of health impacts among residents living adjacent to sites by DPH, including the addition of a question about proximity to oil wells in their current survey of Key Indicators of Health by Service Planning Area.
- Require a super-majority (e.g., 2/3) vote to approve any variance from standards by area or citywide commissions.

***Exposure to hazards can be significantly reduced by establishing a distance separation or set-back—commonly referred to as a "buffer" zone.***

### Recommended Inspection, Monitoring, and Enforcement Practices

- Establish an Ombudsperson Office where all permitting, regulatory and enforcement entities can regularly coordinate on all aspects of oil drilling approvals, complaints, and compliance issues.
- Increase the frequency of unannounced inspections with costs to be defrayed through a fee structure borne by site operators.
- Increase air quality, water quality, and noise monitoring and testing, along with reporting and transparency about all emissions, including both routine and accidental leaks.
- Improve the response time and protocols of regulatory agencies to residents' complaints (especially fence-line neighbors), including ongoing efforts to update and strengthen SCAQMD rules 1148.1 and 1148.2.
- Require inspectors to bring appropriate air-quality testing equipment whenever responding to complaints on oil-production activities.
- Increase agency accountability and follow-through in response to residents' complaints and concerns, with specified next steps and clearly stated deadlines for corrective action.
- Use SCAQMD authority to impose heavy fines and penalties on serial violators, including increased fees to allow for more comprehensive inspection and enforcement.
- Use SCAQMD authority to deny permit renewals for serial violators.

## POLICY OPTIONS TO MITIGATE PUBLIC HEALTH IMPACTS

In addition to strategies that seek to prevent health risks, there are many policy options that can mitigate and reduce current and potential health and safety concerns for residents. These mitigation strategies and safeguards would offer key public health benefits to residents affected by neighborhood drilling.

### STRATEGY #1: Strengthen Performance Standards for Special Oil Districts

The City of Los Angeles has established Oil Districts (known as "O" Districts) in the Los Angeles Municipal Code Section 13.01. These are special geographic "overlay" zones with specific rules to govern oil drilling and production operations. The Department of City Planning's November 5, 2014 report notes that "Many of Section 13.01 provisions were established in the Code prior to the passage of the California Environmental Quality Act in 1970; therefore, they do not reflect current mandated environmental review requirements." In fact, the report describes how many of the current oil and gas regulations were established as early as the 1940s and 1950s. After review of the "O" Districts, the L.A. Department of City Planning stated, "Updates to the code section have not kept time with the changing industry, economy, urban environment, or the City's evolving information management strategies" (Los Angeles Department of City Planning 2014). With most of the provisions of the "O" District standards now decades old, new regulations to govern future oil development are desperately needed. Moreover, a comprehensive review of all existing "O" District boundaries and compliance with permitting standards and/or conditional use permits would be prudent. Drilling sites that have introduced changes in operations since their original permit approvals should be reevaluated by regulatory authorities based on existing operations rather than grandfathered in under old permits.

### STRATEGY #2: Strengthen Comprehensive Inspection, Monitoring and Enforcement

A patchwork of regulatory and permitting authorities contributes to confusion, delays and lack of responsiveness to resident concerns.

## *Are we ready to spur innovation towards a just transition to a clean, renewable, and safe energy future?*

Especially as the industry adopts new, advanced technologies to increase oil production at locations originally permitted long ago, it is critical that oversight be systematic and coordinated to ensure that the health and safety of residents are safeguarded. The current situation is riddled with gaps in jurisdiction, legal authority and poor enforcement of inadequate regulations, resulting in delayed responses, conflicting information, and inaction around resident concerns.

### STRATEGY #3: Strengthen Transparency, Information Access and Public Engagement

Current information-sharing practices by local, regional, and state agencies for local residents are in need of serious improvement. Originally developed to respond to producers' concerns, transparency and public engagement measures are not responsive to the legitimate health and safety concerns of nearby residents and the community at large. While procedures for community notification, information sharing, public participation, and input to the policy and regulatory process vary across agencies, pervasive deficiencies include the lack of any public hearing; insufficient advanced notice of permit requests; public hearings held at inconvenient times of day and at inconvenient locations for community residents; notifications and meetings in English only, excluding monolingual or bilingual residents; notifications shared only with a subset of impacted and concerned residents; lengthy advanced notice requirements for information requests by residents; and other barriers for accessing information (such as the requirement to access information only during standard business hours). And while recent legislation, most notably California State Senate Bill 4, has improved industry reporting and the accessibility of information by the public, the use of the "trade secrets" provision to prevent disclosure of the chemicals used in oil drilling and production is very troubling (California Senate Bill 4, 2013).

### Recommended Transparency, Information Access, and Public Engagement Practices

- Expand citizen oversight and/or inclusion in review panels.
- Increase the advanced notice of public meetings (to a minimum of one month).
- Share meeting notices with property owners and residents, including renters, living or studying within 1,500 feet of an oil extraction site.
- Provide all notices in English, Spanish and other appropriate languages, and make appropriate translation available at all public meetings; provide interpretation for neighborhoods where other languages are commonly spoken.
- Hold meetings on evenings and weekends when residents are not as likely to be at work.
- Hold meetings in the impacted community (rather than at more remote agency offices).
- Schedule appointments with residents who wish to obtain records during non-business hours to accommodate resident work schedules.
- Reduce the advanced period for residents to request information to one week or less.
- Require permit applicants to provide full disclosure of all chemicals and processes used in oil drilling and production operations.
- Continue work to amend SCAQMD Rules 1148.1 and 1148.2 to ensure that reporting and notification requirements are strengthened for oil drilling, maintenance, and production wells, and ensure that complainants receive follow-up analysis and reports on corrective action from SCAQMD and other agencies.


*An aggressive commitment to rooftop solar installations in Los Angeles will expand the local economy, accelerate the transition to clean energy, and lead to dynamic job growth.*

## TOWARD A HEALTHY AND SUSTAINABLE LOS ANGELES

This report highlights the changes in the oil drilling and development landscape that have taken place in Los Angeles since the original permitting of many older pumps. In many instances, drilling operations now take place directly adjacent to residential neighborhoods and sensitive land uses. Many of these areas are densely populated with high proportions of low-income residents, people of color, and renters. These communities also bear disproportionate pollution exposure burdens that make them more vulnerable to the health hazards resulting from oil-drilling operations.

The City of Los Angeles has emerged as a leader in adopting far-reaching environmental, land use, and public health policies. Innovative sustainability policies at the city's proprietary agencies—the Port of Los Angeles, the Los Angeles World Airports, the Department of Water and Power—as well as recent initiatives such as the aforementioned Health and Wellness Element, Mayor Garcetti's Sustainable City pLAn and Re:Code LA (a five-year initiative to systematically update and revise the city's outdated zoning code) represent opportunities for rethinking the way that the City governs planning and land use activities that directly impact the quality of life and well-being of residents and businesses.

Similarly, the State of California has demonstrated unprecedented leadership in setting ambitious and visionary goals to affect climate change by significantly reducing greenhouse gas emissions from fossil fuels. The Global Warming Solutions Act of 2006, along with a suite of other innovative policies for investing in carbon reduction strategies that can also deliver social equity and economic development benefits, is breaking new ground in the fight to address climate change. Recent carbon-reduction targets announced in early 2015 by the Governor and other Legislators for 2030 and 2050, and highlighted in Mayor Garcetti's Sustainable City pLAn, promise to accelerate the pace of change.

We are on the threshold of a decisive moment: Will we perpetuate land use and energy policies which support the expansion of a dirty, fossil-fuel based economy with damaging health, neighborhood, and environmental consequences?

Or, are we ready to spur innovation towards a just transition to a clean, renewable, and safe energy future—not only through investments in energy and water conservation, mass transit, and solar generation—but through a reformed land use policy which recognizes and limits the resulting health inequities and quality of life burdens suffered by far too many of its inhabitants?

Now is the time to engage in that public discussion.

The time has come to move toward a preventive approach that protects human health while advancing us towards a renewable, clean, sustainable, and green economy.

## Sustainability Policies Passed by the City of Los Angeles and Proprietary Agencies

| CITY DEPARTMENT/AGENCY | PROGRAM TITLE | LINK TO DOCUMENTS |
|---|---|---|
| Port of Los Angeles | Clean Air Action Plan & Clean Truck Program | http://www.cleanairactionplan.org/ |
| Los Angeles World Airports | LAWA Sustainability Plan | http://tinyurl.com/LAWA-Sustainability-Plan |
| Los Angeles Department of Water and Power | LADWP Sustainability Plan | http://tinyurl.com/LADWP-Sustainability-Plan |
| Los Angeles Department of City Planning | PLAN for a Healthy Los Angeles | http://healthyplan.la/ |
| Office of Mayor Eric Garcetti | Sustainable City pLAn | http://plan.lamayor.org/ |

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