



Monday, July 16, 2018

Arvin City Council  
 200 Campus Drive  
 Arvin, CA 93203

07-17-18A09:02 RCVD

Re: Adopt and Strengthen Oil and Gas Ordinance updates

Dear Arvin City Council members,

We, the undersigned groups and individuals, strongly support the proposed improvements to the city's oil and gas ordinance currently under review. Signatories include groups working in Kern County as well as those in solidarity with the need to protect public health in Arvin from across the state and nation. The proposed ordinance enacts common sense measures such as a buffer zone around sensitive land uses to protect public health. We urge you to adopt these revisions, and further strengthen the ordinance, such as by widening by the buffer zone to a minimum of 2,500-feet.

Ample scientific literature supports at least a 2,500-foot setback between the surface locations of wells and tanks within an oil and gas site and sensitive receptors, such as schools, parks, clinics, hospitals, long-term health care facilities or residences. Studies have linked proximity to oil and gas wells to myriad short and long term health impacts, including increased risk of asthma and other respiratory illnesses, premature births and high-risk pregnancies, and, in some cases, cancer. Oil and gas extraction produces air toxics, including volatile organic compounds like benzene and formaldehyde, particulate matter, and hydrogen sulfide. Other harms include noise pollution, toxic chemical spills, and explosions.

As you well know, oil and gas extraction poses significant risks to Arvin's air, water, soil, and thus the health and quality of life locally. As the oil reserves in Kern County are depleted and production is naturally declining, extreme extraction techniques are increasingly required to eke out the last remaining oil. During hydraulic fracturing, or fracking, large volumes of water, sand,

and chemicals are pumped at high pressures into the rock formation, causing it to crack and release oil and gas. In cyclic steam injection, one of the most common methods used locally, steam is repeatedly injected into the oil well to heat the crude within the underground formation.

Extreme extraction is dangerous and pollutes our environment, threatens public health, and fuels climate change. The city of Arvin shouldn't have to serve as a dumping ground for the oil industry due to unjust and unsafe practices such as extreme oil and gas extraction. These ordinance updates are an important step forward in protecting the environment and improving quality of life for the local community and should be immediately adopted and significantly strengthened.

Sincerely,

07-17-18A08:02 RCVD

*On behalf of their respective organizations:*

Gustavo Aguirre Jr., Project Coordinator  
Central California Environmental Justice Network

Juan Flores, Organizer  
Center on Race, Poverty, and the Environment

Dolores Weller, Director  
Central Valley Air Quality Coalition

Kevin D. Hamilton, Chief Executive Officer  
Central California Asthma Collaborative

Dr. Catherine Garoupa White, Coordinator  
Californians Against Fracking and Dangerous Drilling

Ronald J. Martin, President  
Berl Hubbell, Treasurer  
Laura Rosenberger Haider, Secretary  
Carol Goiburn  
V. K. Pasnick  
Fresnans Against Fracking

Samuel Molina, California State Director  
Melissa Santos, Stanislaus Regional Coordinator  
Mi Familia Vota

Candice Kim, Director of Climate Campaigns  
Center for Biological Diversity

Sara DeLaney, Clean Energy Nurse Coordinator  
Alliance of Nurses for Healthy Environments

David Braun, Director  
Rootskeeper

Deborah Silvey, Board Chair  
Fossil Free California

Bill Allayaud, Calif. Director of Government Affairs  
Environmental Working Group

Mike Fox, Executive Director  
Progressive Democrats Of America

07-17-13A03:02 RCVD

Mary Sweeters, Climate Campaigner  
Greenpeace USA

Gary Graham Hughes, Senior California Advocacy Campaigner  
Friends of the Earth – US

Patricia McPherson, President  
Grassroots Coalition

Amy Vanderwarker, Senior Policy Strategist  
Tiffany Eng  
California Environmental Justice Alliance

Christina Lares, Community Engagement Manager  
California Latinas for Reproductive Justice

Mark Rose  
National Parks Conservation Association

Mary Kay Benson, Manager  
Chico 350

Grace Feldmann, Lead Organizer  
Santa Barbara Standing Rock Coalition

Adelita Serena, Climate Action Organizer  
Martina Keim, Co-coordinator  
Mothers Out Front

Andrea Miller, Executive Director  
People Demanding Action

Minna Toloui, Program Manager  
Ecology Center

Alvaro Casanova, California Policy Manager  
Center for Environmental Health

Jesus Alonso, Oil and Gas Community Organizer  
Clean Water Action

Sherry Lear, Co-organizer  
350 South Bay Los Angeles

Bahram Fazeli, Policy Director  
Communities for a Better Environment

Antonio Díaz, Organizational Director  
PODER

*Individual signatories:*

Dr. Rosanna Esparza, independent environmental health researcher

Eduardo Martinez, City council member, City of Richmond

Barbara Sattler, Professor, University of San Francisco School of Nursing and Health  
Professions

Karen Jacques

Catherine Fowler

James Kreidler

Linda Hutchins-Knowles

Jean Hays

Nancy Riggleman



**California Independent Petroleum Association**  
1001 K Street, 6<sup>th</sup> Floor  
Sacramento, CA 95814  
Phone: (916) 447-1177  
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July 17, 2018

07-17-18P01:53 RCVD

The Honorable Jose Gurrola Jr.  
Mayor, City of Arvin  
200 Campus Drive  
Arvin, CA 93203

**RE: Proposed Arvin Municipal Code Amendment 2017-04, Oil and Gas Production Regulation of Petroleum Facilities**

Dear Mayor Gurrola:

The California Independent Petroleum Association (CIPA) appreciates the opportunity to provide brief comments regarding the City of Arvin's proposed Municipal Code Amendment 2017-04, Oil and Gas Production Regulation of Petroleum Facilities. CIPA is a non-profit, non-partisan trade association representing approximately 450 independent oil and natural gas producers, royalty owners, and service and supply companies throughout the state of California, including the City of Arvin.

While the proposed amendment under consideration by the City Council has improved since its introduction in 2017, CIPA wishes to express continued concerns over duplicating oversight already provided by local, regional and state agencies as well as creating undue financial burdens on operators. We request the City of Arvin continue to engage in a productive discussion with operators to identify and address instances of duplication as this process continues and ensure that unnecessary and burdensome requirements are not placed on small operators in Arvin. Specifically, CIPA would like to highlight the following items of concern as this process moves forward:

- **Financial Responsibility** – Existing requirements with the Division of Oil, Gas and Geothermal Resources (DOGGR) and the Office of Spill Prevention and Response (OSPR) already require proof of financial responsibility. The City is creating an unnecessary financial burden on operators by duplicating or increasing existing requirements.
- **Timeframes** -- The ordinance lacks specific timeframes for processing and reviewing applications. CIPA requests clear timeframes be established to provide operators greater certainty in the approval process.

- **Compliance Monitoring** -- The ordinance suggests "Environmental Compliance Coordinators" may be hired at the expense of operators. CIPA strongly urges existing expertise found with operators and local, state and federal agencies be utilized to prevent this unnecessary cost from being passed onto Arvin businesses.

CIPA appreciates recent efforts made by the City of Arvin to engage stakeholders and industry and looks forward to continuing a dialogue on how to best support our local oil and gas industry and the prosperity of the City of Arvin. Should you have any questions, please do not hesitate to contact Willie Rivera, CIPA's Director of Regulatory Affairs.

Sincerely,

07-17-18P01:53 RCVD



Rock Zierman  
Chief Executive Officer  
California Independent Petroleum Association

CC: Councilmember Erika Madrigal  
Councilmember Gabriela Martinez  
Councilmember Jess Ortiz  
Councilmember Jazmin Robles



## **CENTER ON RACE, POVERTY & THE ENVIRONMENT**

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[WWW.CRPE-EJ.ORG](http://WWW.CRPE-EJ.ORG)

July 17, 2018

### **Re: In Support of Amendments to the City of Arvin's Oil and Gas Ordinance for the Regulation of Petroleum Facilities and Operations**

To the Arvin City Council,

The Center on Race, Poverty and the Environment ("CRPE") submits the following comments and evidence in support of the adoption of the amendments, unanimously approved by the City Planning Commission, to the Arvin Municipal Code regulating petroleum facilities and operations (hereafter "Ordinance").

#### **I. The Ordinance Is an Action for the Protection of the Environment**

The stated purpose of the Ordinance is "to protect the health, safety, public welfare, physical environment and natural resources of the city by the reasonable regulation of oil and gas facilities, equipment, and operations. . . ."<sup>1</sup> The Ordinance identifies where oil and gas operations may occur, and what approvals are necessary for the types of operations; establishes development standards for petroleum operations to regulate how sites may be operated; and establishes development standards for site abandonment and redevelopment to address conditions under which a site must be assessed and remediated prior to redevelopment of a current or oil or gas site. Specifically, the Ordinance:

- Prohibits new operations in residential and other sensitive areas (such as schools and medical facilities).
- Requires conditional use permits or development agreements with a public review process for all other locations.
- Regulates facility closure and abandonment.
- Imposes insurance and bonding requirements, including for environmental impairment.
- Requires the applicant shall be fully responsible for all reasonable costs and expenses incurred by the City to review, approve, implement, inspect, monitor, or enforce the ordinance or any permit related to oil and gas production.
- Establishes monitoring and enforcement procedures, including substantial fines and penalties.

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<sup>1</sup> Ordinance, Arvin Municipal Code, Title 17, Chapter 17.46, § 17.46.01.

- Bans expansion of existing petroleum operations in residential and other sensitive use areas.
- Prohibits new operations within 600 feet of sensitive uses unless they can comply with a variety of requirements, including an odor minimization plan, air monitoring plan, community alert system, quiet mode operations plan, photometric analysis (lighting and glare), among others.
- Prohibits the development of new petroleum uses closer than 300 feet from sensitive uses under any conditions.
- Regulates lighting, aesthetics, water quality (including groundwater), air quality, greenhouse gas, inspection and monitoring, safety standards, and other items.

Despite the comprehensive nature of the updated Ordinance, the Western States Petroleum Association (“WSPA”) contends that the Ordinance is not an action for the protection of the environment.<sup>2</sup> At the heart of its contention is the assertion that the Ordinance merely codifies existing standards and regulations. WSPA’s arguments fail as both a factual and legal matter.

WSPA’s argument fails as a factual matter because the Ordinance does far more than maintain the status quo. It limits where oil and gas operations can occur, requires more robust environmental review, establishes new operational conditions to reduce environmental impacts and risks, institutes better financial assurances to ensure any environmental impacts are remedied quickly and completely, and establishes effective enforcement mechanisms to ensure compliance with environmental and safety standards. WSPA’s argument that other regulations can be credited with the environmental benefits the City seeks to address through the Ordinance is erroneous. The Attorney General’s Office explicitly stated that the Ordinance *does not* duplicate existing regulations since “state law does not include provisions prohibiting the location of oil and gas sites in specified zoning areas.”<sup>3</sup> The Attorney General’s office also concurred with the City of Arvin’s findings on environmental protection, opining that “the benefits of siting oil and gas sites away from residences and other sensitive receptors to reduce public health impacts have been recognized” and “the proposed setbacks and prohibited zones in the ordinance are reasonable to reduce air pollution and public health impacts from oil and gas operations within the City.”<sup>4</sup>

WSPA’s argument fails as a legal matter for several reasons. First, WSPA does not allege that the Ordinance fails to protect the environment, rather WSPA attacks the sufficiency of the City’s stated findings.<sup>5</sup> However, CEQA does not require that agencies make any formal findings to document the basis for an exemption determination. (*See CalBeach Advocates v. City of Soluna Beach* (2002) 103 Cal.App.4th 529 [no findings required because, although city made exemption determination at hearing, no hearing on exemption was required by CEQA or other law]; *Association for Protection of Env’tl Values v. Ukiah* (1991) 2 Cal.App.4th 720 [no findings required for exemption determination because, although environmental review was considered at hearing on permit, no hearing on exemption requires by CEQA or other law.];

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<sup>2</sup> July 2, 2018 Letter from Suzanne Noble to Cecilia Vela (hereafter “July 2, 2018 WSPA Letter” at 2.)

<sup>3</sup> June 8, 2018 Letter from Deputy Attorney General Tatiana K. Guar to City of Arvin Mayor, Councilmembers and Planning Commission Members (hereafter “Attorney General Letter”) at 6.

<sup>4</sup> Attorney General Letter at 4.

<sup>5</sup> July 2, 2018 WSPA Letter at 2.

*Dehne v. County of Santa Clara* (1981) 115 Cal.App.3d 827 [no findings were required for exemption, because county was not required by law to hear appeal of exemption.] While the City's findings do contain suitable and sufficient information to support its exemption, the City's voluntary issuance of findings to support its exemption does not change the low evidentiary threshold to meet its burden of proof.

The City need only demonstrate that the record contains substantial evidence that the ordinance fell within the exempt category of projects. (*See Save Our Big Trees v. City of Santa Cruz* (2015) 241 Cal.App.4th 694, 706; *Davidon Homes v. City of San Jose* (1997) 54 Cal.App.4th 106, 115; *Dehne*, 115 Cal.App.3d at 842.) An agency claim that a project is categorically exempt will be upheld unless the record contains no evidence that the project satisfies the exemption criteria. (*California Unions for Reliable Energy v. Mojave Desert Air Quality Mgmt. Dist.* (2009) 178 Cal.App.4th 1225.)

As an initial matter, courts have found that an agency's limitation of an activity that evidence shows is associated with "environmental problems" constitutes an action to assure "protection of the environment." (*Magan v. County of Kings* (2002) 105 Cal.App.4th 468, 476 [ordinance phasing out "the land application of sewage sludge" fell within Class 8 exemption].) Similar to *Magan*, here the record is replete with evidence describing the hazards associated with the regulated activity.<sup>6</sup> By prohibiting oil and gas operations in sensitive locations, the Ordinance necessarily is an action for the protection of the environment.

Moreover, the record contains ample evidence that the Ordinance falls within a class of projects exempt from CEQA – Actions by regulatory agencies to ensure the maintenance, restoration, enhancement, or protection of the environment. (14 CCR § 15308.) The record contains numerous studies on the environmental benefits of restricting the proximity of oil and gas operations from residences and other sensitive receptors.<sup>7</sup> The record contains evidence on

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<sup>6</sup> See e.g. An Independent Scientific Assessment of Well Stimulation in California, 2015 [Accessed January 16, 2018]: Summary available at <http://ccst.us/publications/2015/2015SB4summary.pdf>; Concerned Health Professionals of New York and Physicians for Social Responsibility, *Compendium of Scientific, Medical and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction)*, Fourth Edition, November 2016, available at [http://concernedhealthny.org/wp-content/uploads/2016/12/COMPENDIUM-4.0\\_FINAL\\_11\\_16\\_16Corrected.pdf](http://concernedhealthny.org/wp-content/uploads/2016/12/COMPENDIUM-4.0_FINAL_11_16_16Corrected.pdf); The Denver Post, *CU Denver study links fracking to higher concentration of air pollutants*, March 2012, available at <https://www.denverpost.com/2012/03/19/cu-denver-study-links-fracking-to-higher-concentration-of-air-pollutants/>; The Atlantic, *New, Major Evidence that Fracking Harms Human Health – A child born very close to a well is likely to be smaller and less healthy than a child born farther away*, December 2017, available at [https://www.theatlantic.com/science/archive/2017/12/data-from-11-million-infants-suggests-fracking-harms-human-health/548315/?utm\\_source=twb](https://www.theatlantic.com/science/archive/2017/12/data-from-11-million-infants-suggests-fracking-harms-human-health/548315/?utm_source=twb); *Hydraulic Fracturing and Infant Health: New Evidence from Pennsylvania*, December 2017, full article available at: <http://advances.sciencemag.org/content/3/12/e1603021.full>; Nicole J. Wong, MPH, *Existing Scientific Literature on Setback Distances from Oil and Gas Development Sites*, November 2017.

<sup>7</sup> See e.g. An Independent Scientific Assessment of Well Stimulation in California, 2015 [Accessed January 16, 2018]: Summary available at <http://ccst.us/publications/2015/2015SB4summary.pdf>; Concerned Health Professionals of New York and Physicians for Social Responsibility, *Compendium of Scientific, Medical and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction)*, Fourth Edition, November 2016, available at [http://concernedhealthny.org/wp-content/uploads/2016/12/COMPENDIUM-4.0\\_FINAL\\_11\\_16\\_16Corrected.pdf](http://concernedhealthny.org/wp-content/uploads/2016/12/COMPENDIUM-4.0_FINAL_11_16_16Corrected.pdf); The Denver Post, *CU Denver study links fracking to higher concentration of air pollutants*, March 2012, available at <https://www.denverpost.com/2012/03/19/cu-denver-study-links-fracking-to-higher-concentration-of-air-pollutants/>; The Atlantic, *New, Major Evidence that Fracking Harms Human Health – A child born very close to a well is likely to be smaller and less healthy than a child born farther away*, December 2017, available at <https://www.theatlantic.com/science/archive/2017/12/data-from-11-million-infants-suggests->

the air quality benefits from the Ordinance’s development standards such as requirements for odor minimization plans.<sup>8</sup> The record contains evidence that the Ordinance protects groundwater.<sup>9</sup> The record contains evidence of the Ordinance’s benefits to wildlife and vegetation.<sup>10</sup>

CRPE submits additional record evidence on the Ordinance’s benefits to public health, air quality, water quality, transportation, odor reduction, noise reduction, land-use, and environmental enforcement.<sup>11</sup>

## **II. The Ordinance Is Not Subject to CEQA Since No Exception to the Exemption Applies.**

Where an agency establishes that the project is within an exempt class, the burden shifts to the party challenging the exemption to show that the project is not exempt because there are ‘unusual circumstances’ which create a ‘reasonable possibility’ that the activity will have a significant effect on the environment.” (*Davidon Homes*, 54 Cal.App.4th at 115.) To establish an exception to the exemption, WSPA must show that the Ordinance (i) differs from the general circumstances of projects covered by a Class 8 exemption, and (ii) those circumstances create an environmental risk that does not exist for the general class of exempt projects. (*Id.*) WSPA fails on both accounts.

WSPA contends that the unusual circumstance is that other Kern County municipalities have not adopted similar oil and gas ordinances.<sup>12</sup> However, the unusual circumstances exception only applies when the circumstances of a specific project differ from the circumstances of other covered projects within the same class – the assessment is not restricted to a local area nor a particular subject matter. An ordinance which restricts the location of hazardous land uses and establishes development standards to protect health and the environment does not deviate from the characteristics of projects meant to be exempted from CEQA through a Class 8 categorical exemption. (*See e.g. Magan*, 105 Cal.App.4th at 476.)

Secondly, WSPA has not demonstrated that there is a reasonable possibility of a significant impact resulting from the claimed “unusual circumstance.” Rather, WSPA asserts, without evidence, that the Ordinance “foreseeably would result in substantially increased distances and durations of horizontal drilling.”<sup>13</sup> This argument is purely speculative as WSPA introduces no evidence that stricter land use restrictions, approval processes, and development

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[fracking-harms-human-health/548315/?utm\\_source=twb](http://fracking-harms-human-health/548315/?utm_source=twb); *Hydraulic Fracturing and Infant Health: New Evidence from Pennsylvania*, December 2017, full article available at:

<http://advances.sciencemag.org/content/3/12/e1603021.full>; Nicole J. Wong, MPH, *Existing Scientific Literature on Setback Distances from Oil and Gas Development Sites*, November 2017, available at [www.stand.la/uploads/5/3/9/0/53904099/2500\\_literature\\_review\\_report-final\\_jul13.pdf](http://www.stand.la/uploads/5/3/9/0/53904099/2500_literature_review_report-final_jul13.pdf).

<sup>8</sup> *Id.* and see Case Study of the Potential Risks Associated with Hydraulic Fracturing in Existing Oil Fields in the San Joaquin Basin, available at <http://ccst.us/publications/2015/160708-sb4-vol-III-5.pdf>.

<sup>9</sup> *Id.*; Arvin General Plan [Accessed January 16, 2018], available at [http://www.arvin.org/wp-content/uploads/2015/08/ADOPTED\\_ARVIN\\_GP\\_UPDATE\\_Aug-21-121.pdf](http://www.arvin.org/wp-content/uploads/2015/08/ADOPTED_ARVIN_GP_UPDATE_Aug-21-121.pdf).

<sup>10</sup> CCST Independent Scientific Assessment of Well Stimulation in California, Volume II at 311, 364, available at <http://ccst.us/publications/2015/160708-sb4-vol-II.pdf>.

<sup>11</sup> See Appendix A.

<sup>12</sup> July 2, 2018 WSPA Letter at 4.

<sup>13</sup> *Id.*

standards would increase, rather than decrease drilling in Arvin. Moreover, this speculative assumption is simply not borne out by the history of oil and gas production in the City. There are only 10 active producing wells in Arvin with the newest commencing production in 1980.<sup>14</sup> It is disingenuous to suggest that oil and gas production in the City limits would increase in the face of new restrictions and more onerous permitting requirements. In fact, WSPA and other industry stakeholders submitted extensive evidence and commentary to the contrary. On May 14, 2018, WSPA writes “the Ordinance will create a disincentive for existing operators to continue and for new and expanded activities within the City.”<sup>15</sup> Unsubstantiated speculation that oil and gas operators will suddenly commence operations in the face of this new Ordinance after decades of inaction is not substantial evidence of an environmental impact. Opinions which state “nothing more than ‘it is reasonable to assume’ that something ‘potentially ... may occur’” do not constitute substantial evidence “necessary to invoke an exception to a categorical exemption.” (*Apartment Assn. of Greater Los Angeles v. City of Los Angeles* (2001) 90 Cal.App.4th 1162, 1176.) Since WSPA offers no credible evidence that the Ordinance would lead to more, not less oil and gas production in the City, and that those operations would have more, not fewer environmental impacts, it fails to meet its burden of proof to show an exception to the exemption applies.

We appreciate the opportunity to comment on the proposed Ordinance and the City’s CEQA determination. We respectfully request the City to adopt these amendments and to consider further strengthening the Ordinance in the future as more data becomes available.

Sincerely,

/s/

Ingrid Brostrom  
Assistant Director

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<sup>14</sup> See Appendices B1, B2, and B3.

<sup>15</sup> May 14, 2018 Letter from Suzanne Noble to Shannon Chaffin Re Comments on Proposed Ordinance to Adopt Text Amendment No. 2017-04, an Oil and Gas Ordinance for Regulation of Petroleum Facilities and Operations at 1.

## Appendix A - Arvin Ordinance Findings

General Studies	
Citation	Synopsis in Relevant Part
James Sadd, Bhvana Shamasunder, <i>Drilling Down: The Community Consequences of Expanded Oil Development in Los Angeles 31</i> (Liberty Hill Foundation, 2013). Accessible at <a href="https://www.libertyhill.org/sites/libertyhillfoundation/files/Drilling%20Down%20Report_1.pdf">https://www.libertyhill.org/sites/libertyhillfoundation/files/Drilling%20Down%20Report_1.pdf</a>	This report recommends measures required by the ordinance, including limiting the number of wells, limiting the hours of operation, and implementing a public review process when developing new wells. It also examines opportunities in the Los Angeles area to implement new environmental measures to protect vulnerable populations.
Seth B. Shonkoff, Rachel Morello-Frosch, Manuel Pastor, James Sadd, <i>Environmental Health and Equity: A Review of the Literature</i> (California Climate Change Center, 2009). Accessible at <a href="http://www.energy.ca.gov/2009publications/CEC-500-2009-038/CEC-500-2009-038-D.PDF">http://www.energy.ca.gov/2009publications/CEC-500-2009-038/CEC-500-2009-038-D.PDF</a>	This report shows that when Early Action Measures are adopted to reduce NOx and PM pollution, low-SES groups experience greater health. Local mitigation measures can impact pollution levels in the area.
California Air Resources Board, <i>Air Quality and Land Use Handbook: a Community Health Perspective</i> (2005). Accessible at <a href="https://www.arb.ca.gov/ch/handbook.pdf">https://www.arb.ca.gov/ch/handbook.pdf</a>	The Air Resources Board recommends siting pollution-generating industries and facilities away from sensitive facilities.
G.V. Chilingar, B. Endres, <i>Environmental Hazards Posed by the Los Angeles Basin Urban Oilfields: an Historical Perspective of Lessons Learned</i> ( <i>Environmental Geology</i> 47 (2): 307-12. 2005). Accessible at <a href="http://www.saveballona.org/gasoilfields/endreslabasin.pdf">http://www.saveballona.org/gasoilfields/endreslabasin.pdf</a>	This study shows that there is an urgent need for closer coordination and education by the petroleum industry of the local government planning departments. Further, environmental hazards are caused by urban oil and gas drilling, including soil, water, and air contamination.
Theo Colborn, Carol Kwiatkowski, Kim Schultz, Mary Bachran, <i>Natural Gas Operations from a Public Health Perspective</i> ( <i>Human and Ecological Risk Assessment: An International Journal</i> 17 (5): 1039–56. 2011) Accessible at <a href="https://www.biologicaldiversity.org/campaigns/fracking/pdfs/Colborn_2011_Natural_Gas_from_a_public_health_perspective.pdf">https://www.biologicaldiversity.org/campaigns/fracking/pdfs/Colborn_2011_Natural_Gas_from_a_public_health_perspective.pdf</a>	Of chemicals produced by natural gas operations, 75% harm the sensory, respiratory and gastrointestinal organs, 40-50% can affect the brain, lungs, nervous system and kidney, 37% could affect endocrine systems and 25% cause cancer and mutations.
Los Angeles County Department of Public Health, <i>Key Indicators of Health: Physical Determinants, Social Outcomes</i> (2013). Accessible at <a href="http://publichealth.lacounty.gov/docs/keyindicators.pdf">http://publichealth.lacounty.gov/docs/keyindicators.pdf</a>	This study demonstrates that living in a neighborhood with pollution can lead to negative health outcomes.
Bahram Fazeli, <i>Cumulative Impacts: Changing Regulatory Culture to Address Environmental Injustice &amp; Environmental Racism - Case Studies and Recommendations</i> (Communities for a Better Environment, 2009). Accessible at: <a href="https://www.cbecal.org/wp-content/uploads/2012/05/Cumulative-Impacts-report.pdf">https://www.cbecal.org/wp-content/uploads/2012/05/Cumulative-Impacts-report.pdf</a>	This report demonstrates that local regulatory culture can have a substantial impact on addressing public health crises. It recommends using local ordinances to meet gaps left by Federal and State policies that leave Environmental Justice (EJ) communities behind.
Office of Environmental Health Hazard Assessment, <i>Cal Enviro Screen 3.0</i> . Accessible at <a href="https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-3.0">https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-3.0</a>	Tool that shows the air quality of EJ communities in Kern County.
South Coast Air Quality Management District, <i>Multiple Air Toxics Exposure Study in the South Coast Air Basin</i> :	Since the last MATES study, there have been numerous regulations and initiatives to reduce diesel exhaust emissions

<p>MATES IV (2015). Accessible at <a href="https://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf?sfvrsn=7">https://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf?sfvrsn=7</a></p>	<p>by local, state and national authorities. These efforts have been successful in reducing actual risks from air toxics exposure.</p>
<p>Susan Blackwell et al., Public Health and Safety Risks of Oil and Gas Facilities in Los Angeles County (Los Angeles County Department of Public Health, 2018). Accessible at: <a href="http://publichealth.lacounty.gov/eh/docs/PH_OilGasFacilitiesPHSafetyRisks.pdf">http://publichealth.lacounty.gov/eh/docs/PH_OilGasFacilitiesPHSafetyRisks.pdf</a></p>	<p>Quality exposure data to accurately assess risk is lacking for epidemiological studies, but case studies, reports, and findings indicate that public health intervention to protect against potential negative environmental and health impacts from oil and gas operations is needed. The report specifically recommends that Los Angeles County and local jurisdictions within the County should expand the minimum setback distance beyond 300 feet.</p>

Transportation	
Link to Report, Study or Document	Synopsis in Relevant Part
<p>A.B. Lobscheid et al., <i>Intake Fractions of Primary Conserved Air Pollutants Emitted from On-road Vehicles in the United States</i>, 69 Atmospheric Env't (2012).  <a href="https://www.sciencedirect.com/science/article/pii/S1352231012008989">https://www.sciencedirect.com/science/article/pii/S1352231012008989</a></p>	<p>This study shows how to calculate potential exposure to transportation related emissions.</p>
<p>J.D. Marshall et al., <i>Intake Fraction of Primary Pollutants: Motor Vehicle Emissions in the South Coast Air Basin</i>, 37 Atmospheric Env't (2003).  <a href="https://depts.washington.edu/airqual/Marshall_3.pdf">https://depts.washington.edu/airqual/Marshall_3.pdf</a></p>	<p>This study examines exposure to air pollutants in the South Coast Air Basin. The approach demonstrated here can inform policy decisions requiring a metric of population exposure to airborne pollutants.</p>
<p>Liberty Hill Foundation, <i>The Community Consequences of Expanded Oil Development in Los Angeles</i> (2015).  <a href="https://www.libertyhill.org/sites/libertyhillfoundation/files/Drilling%20Down%20Report_1.pdf">https://www.libertyhill.org/sites/libertyhillfoundation/files/Drilling%20Down%20Report_1.pdf</a></p>	<p>This study demonstrates that the most precautionary approach to reduce exposure to environmental toxins is to restrict—or even prohibit—both new and current oil extraction operations inside of a buffer zone, thereby better protecting the health and quality of life of adjacent neighborhood residents. The study also suggests that a strong case can be made for a 1,500-foot buffer zone to provide for maximum safety - see page 29.</p>
<p>California Air Resources Board, <i>Environmental Health and Equity Impacts From Climate Change and Mitigation Policies in California: A Review of the Literature</i>, (2009).  <a href="http://www.energy.ca.gov/2009publications/CEC-500-2009-038/CEC-500-2009-038-D.PDF">http://www.energy.ca.gov/2009publications/CEC-500-2009-038/CEC-500-2009-038-D.PDF</a></p>	<p>This study suggests that low-income and minority communities that live closer to highways and goods transport corridors could bear disproportionate health burdens if fuels like E85 prove to be more toxic than gasoline. See page 16.</p>
<p>California Air Resources Board, <i>Air Quality and Land Use Handbook: A Community Health Perspective</i>, (2005).  <a href="http://www.arb.ca.gov/ch/handbook.pdf">http://www.arb.ca.gov/ch/handbook.pdf</a></p>	<p>The handbook contains recommendations for transport and other localized separation measures and shows that air pollution exposure can be reduced as much as 80%. See pages 4 - 5.</p>
<p>B. Brunekreef et al., <i>Air Pollution From Truck Traffic and Lung Function in Children Living Near Motorways</i>, <i>Epidemiology</i> (1997).  <a href="https://www.ncbi.nlm.nih.gov/pubmed/9115026">https://www.ncbi.nlm.nih.gov/pubmed/9115026</a></p>	<p>This study from the Netherlands indicates that exposure to traffic-related air pollution, in particular diesel exhaust particles, may lead to reduced lung function in children living near major motorways.</p>

<p>S. Lin et al., <i>Childhood asthma hospitalization and residential exposure to state route traffic</i>, <i>Env't Res.</i> (2002). <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1448429/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1448429/</a></p>	<p>This study found a clustering of asthma cases in close proximity to a large freeway in New York and a decreased risk of asthma prevalence the farther an individual resides from the source of exposure. The study suggested that living near a freeway increases the chances of contracting asthma.</p>
<p>Venn. et al., <i>Living Near a Main Road and the Risk of Wheezing Illness in Children</i>, 164 <i>Am. J. of Respiratory and Critical Care Med.</i>, (2001). <a href="https://www.atsjournals.org/doi/pdf/10.1164/ajrccm.164.12.2106126">https://www.atsjournals.org/doi/pdf/10.1164/ajrccm.164.12.2106126</a></p>	<p>This study shows that among children living within 150 meters of a main road, the risk of wheeze increased. Most of the increased risk was localized to within 90 meters of the roadside. The study concludes that living within approximately 90 meters of a main road is associated with a proximity-related increase in the risk of wheezing illness in children.</p>
<p>J. Kim et al., <i>Traffic-Related Air Pollution and Respiratory Health: East Bay Children's Respiratory Health Study</i>, 170 <i>Am. J. of Respiratory and Critical Care Med.</i> (2004). <a href="https://www.atsjournals.org/doi/full/10.1164/rccm.200403-281OC">https://www.atsjournals.org/doi/full/10.1164/rccm.200403-281OC</a></p>	<p>This study observed differences in concentrations between schools nearby versus those more distant (or upwind) from major roads finding associations between respiratory symptoms and traffic-related pollutants. The findings support the hypothesis that traffic-related pollution is associated with respiratory symptoms in children.</p>
<p>Y. Zhu et al., <i>Study of Ultra-Fine Particles Near A Major Highway With Heavy Duty Diesel Traffic</i>, 36 <i>Atmospheric Env't</i> (2002). <a href="https://www.researchgate.net/publication/222700765_Study_of_ultrafine_particles_near_a_major_highway_with_heavy-duty_diesel_traffic">https://www.researchgate.net/publication/222700765_Study_of_ultrafine_particles_near_a_major_highway_with_heavy-duty_diesel_traffic</a></p>	<p>This study provides a method for determining air pollution from a major highway. The study shows that particulate matter stays near highways and the surrounding area.</p>
<p>RJ Delfino, <i>Epidemiologic Evidence for Asthma and Exposure to Air Toxics: Linkages Between Occupational, Indoor, and Community Air Pollution Research</i>, 110 <i>Env'tl. Health Persp.</i> (2002). <a href="https://escholarship.org/uc/item/1pt8r9vk">https://escholarship.org/uc/item/1pt8r9vk</a></p>	<p>This study demonstrates that outdoor ambient air pollutant exposures in communities are relevant to the acute exacerbation and possibly the onset of asthma.</p>
<p>P. English et al., <i>Examining Associations Between Childhood Asthma and Traffic Flow Using a Geographic Information System</i>, 107 <i>Env'tl. Health Persp.</i> (1999). <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1566466/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1566466/</a></p>	<p>This study used geographic information systems and routinely collected data to explore whether childhood residence near busy roads was associated with asthma in a low-income population in San Diego County, California. The results of this exploratory study suggest that higher traffic flows may be related to an increase in repeated medical visits for children with asthma. Repeated exposure to particulate matter and other air pollutants from traffic exhaust may aggravate asthmatic symptoms in individuals already diagnosed with asthma.</p>
<p>Andrea Hricko, <i>Global Trade Comes Home: Community Impacts of Goods Movement</i>, 116 <i>Env'tl. Health Persp.</i> (2008). <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2235209/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2235209/</a></p>	<p>This report provides a discussion of the impacts that air pollution has on communities near highways that transport our nation's commodities.</p>
<p>Ninez A. Ponce et al., <i>Preterm Birth: The Interaction of Traffic-Related Air Pollution with Economic Hardship in Los Angeles Neighborhoods</i> (<i>American Journal of Epidemiology</i> 162 (2): 140–48, 2005). <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3636775/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3636775/</a></p>	<p>Traffic-related air pollution exposure disproportionately affected low socioeconomic status neighborhoods in the winter, which is correlated to an increased rate of preterm births among women in low socioeconomic status neighborhoods.</p>

<p>Rachel Morello-Frosch et al., Environmental Justice and Southern California's 'Riskscape': The Distribution of Air Toxics Exposures and Health Risks among Diverse Communities (Urban Affairs Review 36 (4): 551–78, 2001).</p> <p><a href="http://journals.sagepub.com/doi/10.1177/10780870122184993">http://journals.sagepub.com/doi/10.1177/10780870122184993</a></p>	<p>Lifetime cancer risks attributable to outdoor air toxics in Southern California are mostly attributable to transportation and small-area sources, not large facilities. Race plays an explanatory role in risk distribution even when accounting for other economic, land-use, and population factors.</p>
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Setbacks / Buffer Zones for AQ	
Link to Report, Study or Document	Synopsis in Relevant Part
<p>Marsha Haley et al., <i>Adequacy of Current State Setbacks for Directional High-Volume Hydraulic Fracturing in the Marcellus, Barnett, and Niobrara Shale Plays</i>, 124 <i>Envtl. Health Persp.</i> (2016).</p> <p><a href="https://ehp.niehs.nih.gov/15-10547/#tab1">https://ehp.niehs.nih.gov/15-10547/#tab1</a><a href="http://ehp.niehs.nih.gov/15-10547/http://ehp.niehs.nih.gov/wp-content/uploads/advpub/2016/2/ehp.1510547.acco.pdf/">http://ehp.niehs.nih.gov/15-10547/http://ehp.niehs.nih.gov/wp-content/uploads/advpub/2016/2/ehp.1510547.acco.pdf/</a></p>	<p>This study suggests that a setback is a reasonable start but that regulators should go further.</p>
<p>S.T.A.N.D. L.A., Existing Scientific Literature on Setback Distances from Oil and Gas Development Sites (2017).</p> <p><a href="https://www.stand.la/uploads/5/3/9/0/53904099/2500_literature_review_report-final_jul13.pdf">https://www.stand.la/uploads/5/3/9/0/53904099/2500_literature_review_report-final_jul13.pdf</a></p>	<p>[There is] a positive correlation between distance of a home from an active oil or gas well and adverse health outcomes. The closer people live to oil and gas wells, the more likely they will be exposed to toxic air contaminants and the more elevated their risk of associated health effects.</p>
<p>Seth Shankoff et al., <i>A Case Study of the Petroleum Geological Potential and Potential Health Risks Associated with Hydraulic Fracturing and Oil and Gas Development in the Los Angeles Basin</i>, California Council on Science and Technology (2015).</p> <p><a href="https://ccst.us/publications/2015/vol-III-chapter-4.pdf">https://ccst.us/publications/2015/vol-III-chapter-4.pdf</a></p>	<p>Proximity to oil and gas activity is the most important factor to consider - rather than a particular oil and gas activity (i.e. extraction method).</p>
<p>Liberty Hill Foundation, <i>The Community Consequences of Expanded Oil Development in Los Angeles</i> (2015).</p> <p><a href="https://www.libertyhill.org/sites/libertyhillfoundation/files/Drilling%20Down%20Report_1.pdf">https://www.libertyhill.org/sites/libertyhillfoundation/files/Drilling%20Down%20Report_1.pdf</a></p>	<p>This source provides a conversation of policy options that reduce exposure to environmental hazards which includes the concept of creating a buffer zone around hazardous activities. See page 28.</p>
<p>California Air Resources Board, <i>Environmental Health and Equity Impacts From Climate Change and Mitigation Policies in California: A Review of the Literature</i>, (2009).</p> <p><a href="http://www.energy.ca.gov/2009publications/CEC-500-2009-038/CEC-500-2009-038-D.PDF">http://www.energy.ca.gov/2009publications/CEC-500-2009-038/CEC-500-2009-038-D.PDF</a></p>	<p>Prevention of exposure to hazardous chemicals is accomplished generally through the elimination of chemicals in the environment.</p>
<p>California Air Resources Board, <i>Air Quality and Land Use Handbook: A Community Health Perspective</i>, (2005).</p> <p><a href="http://www.arb.ca.gov/ch/handbook.pdf">http://www.arb.ca.gov/ch/handbook.pdf</a></p>	<p>In this 2005 air quality and land use handbook, the California Air Resources Board recommended buffer zones as a method to protect communities from hazardous materials in the environment. See pages 29-30. The handbook also recommends land use agencies to separate industry and sensitive land use (like homes, hospitals, schools). See ES 1 - ES 3.</p>
<p>Michael Jerrett et al., <i>Spatial Analysis of Air Pollution and</i></p>	<p>This report suggests that chronic illness due to PM 2.5 is</p>

<p><i>Mortality in Los Angeles</i>, 16 <i>Epidemiology</i> 727–36 (2005).</p> <p><a href="http://www.scientificintegrityinstitute.org/Jerrett110105.pdf">http://www.scientificintegrityinstitute.org/Jerrett110105.pdf</a></p>	<p>higher than believed in metropolitan areas. The report notes that PM 2.5 is strongly correlated with heart disease</p>
<p>Lisa McKenzie et al., <i>Birth Outcomes and Maternal Residential Proximity to Natural Gas Development in Rural Colorado</i>, 122 <i>Envtl. Health Persp.</i>, 412-17, (2014).</p> <p><a href="https://ehp.niehs.nih.gov/1306722/">https://ehp.niehs.nih.gov/1306722/</a></p>	<p>This study found an association between density and proximity of natural gas wells within a 10-mile radius of maternal residences and prevalence of birth related disorders.</p>
<p>David Peden, <i>Pollutants and Asthma: Role of Air Toxics</i>, 110 <i>Envtl. Health Persp.</i>, (2002).</p> <p><a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1241207">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1241207</a></p>	<p>PM contributes to inflammation in the pathway of humans leading to asthma. This study is specific to poor air quality and asthma, which leads to the inference that air toxics must be removed to reduce asthma.</p>
<p>Arden Pope III, <i>Epidemiology of Fine Particulate Air Pollution and Human Health: Biologic Mechanisms and Who's at Risk?</i>, 108 <i>Envtl. Health Persp.</i> (2000).</p> <p><a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1637679/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1637679/</a></p>	<p>This study shows that the most vulnerable individuals to air pollution are the elderly, children and people with certain respiratory disorders. This information can be used to show that people in these populations should be protected by air pollution measures.</p>
<p>James Sadd et al., <i>Playing It Safe: Assessing Cumulative Impact and Social Vulnerability through an Environmental Justice Screening Method in the South Coast Air Basin, California</i>, 8 <i>Int'l J. of Envntl. Res. and Pub. Health</i> (2011)</p> <p><a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3108119/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3108119/</a></p>	<p>This study provides a look at air pollution and socioeconomic status. The information shows where regulatory strategies are needed to reduce air pollution especially for those who are most at risk.</p>
<p>Louis Sahagun, <i>EPA Officers Sickened by Fumes at South L.A. Oil Field</i>, <i>L.A. Times</i>, November 8, 2013.</p> <p><a href="http://www.latimes.com/local/la-me-1109-fumes-20131109-story.html">http://www.latimes.com/local/la-me-1109-fumes-20131109-story.html</a></p>	<p>This newspaper article highlights the dangers of oil and gas operations when they are located near cities.</p>
<p>Seth Shonkoff et al., <i>Environmental Public Health Dimensions of Shale and Tight Gas Development</i>, 122 <i>Envtl. Health Persp.</i>, (2014).</p> <p><a href="https://ehp.niehs.nih.gov/1307866/">https://ehp.niehs.nih.gov/1307866/</a></p>	<p>This study provides data showing that there is an environmental health risk associated with shale gas production (highlighting air pollution and water pollution). This shows that humans would benefit from a buffer zone protecting them from oil and gas production.</p>
<p>Ellen Webb et al., <i>Developmental and Reproductive Effects of Chemicals Associated with Unconventional Oil and Natural Gas Operations</i>, 29 <i>Rev. on Envntl. Health</i> (2014).</p> <p><a href="https://www.researchgate.net/publication/269186278_Developmental_and_reproductive_effects_of_chemicals_associated_with_unconventional_oil_and_natural_gas_operations">https://www.researchgate.net/publication/269186278_Developmental_and_reproductive_effects_of_chemicals_associated_with_unconventional_oil_and_natural_gas_operations</a></p>	<p>This is a review of scientific literature that shows that provides evidence that adult and early life exposure to chemicals associated with oil and gas production operations can result in adverse reproductive health and developmental effects in humans, mostly from air and water pollution associated with these operations.</p>
<p>Michelle Wilhelm and Beate Ritz, <i>Local Variations in CO and Particulate Air Pollution and Adverse Birth Outcomes in Los Angeles County, California, USA</i>, 113 <i>Envtl. Health Persp.</i> (2005).</p> <p><a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1280404/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1280404/</a></p>	<p>This study shows that women who live near air pollution have a 27% increase in risk for high first-trimester carbon monoxide exposures and preterm birth and a 36% increase for high third-trimester pregnancy carbon monoxide exposures and term low birth weight. This indicates that women who are pregnant should not be living near source air pollution and would benefit from buffer zones.</p>
<p>Thomas Zoeller et al., <i>Endocrine-Disrupting Chemicals and Public Health Protection: A Statement of Principles from The Endocrine Society</i>, 153 <i>Endocrinology</i> (2012).</p>	<p>This study shows that a very low dose exposure to an endocrine-disrupting chemical has potent and irreversible effects. The study states that this very low dose is sometimes</p>

<p><a href="https://www.ncbi.nlm.nih.gov/pubmed/22733974">https://www.ncbi.nlm.nih.gov/pubmed/22733974</a></p>	<p>described as a “safe” dose. This indicates that young children especially should not be near any operation that uses an endocrine-disrupting chemical which may enter the air or water.</p>
<p>Susan Blackwell et al., L.A. County Department of Public Health, Public Health and Safety Risks of Oil and Gas Facilities in Los Angeles County, (2018).  <a href="http://publichealth.lacounty.gov/eh/docs/PH_OilGasFacilitiesPHSafetyRisks.pdf">http://publichealth.lacounty.gov/eh/docs/PH_OilGasFacilitiesPHSafetyRisks.pdf</a></p>	<p>This document provides an overview of setbacks implemented in other areas across the state and country to protect communities from oil and gas wells. See page 17.</p>
<p>A.K. Werner et al., <i>Environmental Health Impacts of Unconventional Natural Gas Development: A Review of the Current Strength of Evidence</i>, 505 Sci. of the Total Env't, (2015).  <a href="https://www.ncbi.nlm.nih.gov/pubmed/25461113">https://www.ncbi.nlm.nih.gov/pubmed/25461113</a></p>	<p>This is a review of over 100 scientific studies that shows that the current evidence in the scientific research reporting leaves questions unanswered about the actual environmental health impacts of oil and gas production. The authors note that this clear gap in scientific knowledge requires urgent attention. Communities should act with caution in regards to siting oil and gas production and protect their populations.</p>
<p>L.M. McKenzie et al., <i>Birth Outcomes and Maternal Residential Proximity to Natural Gas Development in Rural Colorado</i>, 122 <i>Envtl. Health Persp.</i> (2014).  <a href="https://ehp.niehs.nih.gov/1306722/">https://ehp.niehs.nih.gov/1306722/</a></p>	<p>This study observed an association between population density and proximity of natural gas wells within a 10-mile radius of maternal residence and prevalence of congenital heart defects and neural tube defects.</p>
<p>C.R. Thompson et al., <i>Influence of Oil and Gas Emissions on Ambient Atmospheric Non-methane Hydrocarbons in Residential Areas of Northeastern Colorado</i>, 2 <i>Elementa: Sci. of the Anthropocene</i> (2014).  <a href="https://www.elementalscience.org/articles/10.12952/journal.elementa.000035/">https://www.elementalscience.org/articles/10.12952/journal.elementa.000035/</a></p>	<p>This study provides a look at chemicals released from oil and gas production sites in Colorado. The study highlights the need for local regulations as federal regulations are not strict enough to reduce chemicals in the environment from oil and gas production.</p>
<p>U.S. EPA (1992), Screening Procedures for Estimating the Air Quality Impact of Stationary Sources.  <a href="https://www3.epa.gov/scram001/guidance/guide/EPA-454R-92-019_OCR.pdf">https://www3.epa.gov/scram001/guidance/guide/EPA-454R-92-019_OCR.pdf</a></p>	<p>This document provides a discussion on the methodology for screening air quality and can be useful for understanding how to create an effective setback.</p>

Water	
Citation	Synopsis in Relevant Part
<p>Michael Planert, J. S. Williams, <i>Groundwater Atlas of the United States: California, Nevada</i> (Hydrologic Atlas 730-B, US Geological Survey, 1995). Accessible at: <a href="https://pubs.usgs.gov/ha/730b/report.pdf">https://pubs.usgs.gov/ha/730b/report.pdf</a></p>	<p>This survey shows that groundwater is an important resource in Central California, and management must be done carefully to avoid overusing or contaminating groundwater sources.</p>
<p>E. G. Reichard et al., <i>Geohydrology, Geochemistry, and Ground-Water Simulation-Optimization of the Central and West Coast Basins, Los Angeles County, California</i> (U.S. Geological Survey, Water Resources Investigations Report 03-4065, 2003). Accessible at <a href="https://pubs.usgs.gov/wri/wrir034065/wrir034065.pdf">https://pubs.usgs.gov/wri/wrir034065/wrir034065.pdf</a></p>	<p>There is a continuing need to base regional groundwater management on scientific information.</p>

<p>United States Environmental Protection Agency, Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States (2016). Accessible at <a href="https://www.epa.gov/sites/production/files/2016-12/documents/hfdwa_executive_summary.pdf">https://www.epa.gov/sites/production/files/2016-12/documents/hfdwa_executive_summary.pdf</a></p>	<p>Impacts from hydraulic fracking on the water supply include:</p> <ul style="list-style-type: none"> <li>• Water withdrawals in times or areas of low water availability,</li> <li>• Spills during the management of hydraulic fracturing fluids and chemicals,</li> <li>• Injection of hydraulic fracturing fluids directly into groundwater resources,</li> <li>• Discharge of inadequately treated hydraulic fracturing wastewater to surface water resources,</li> <li>• Disposal or storage of hydraulic fracturing wastewater in unlined pits, resulting in contamination of groundwater resources.</li> </ul>
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Wellbores and Abandoned Wells	
Citation	Synopsis in Relevant Part
<p>Susan Blackwell et al., L.A. County Department of Public Health, Public Health and Safety Risks of Oil and Gas Facilities in Los Angeles County, (2018). <a href="http://publichealth.lacounty.gov/eh/docs/PH_OilGasFacilitiesPHSafetyRisks.pdf">http://publichealth.lacounty.gov/eh/docs/PH_OilGasFacilitiesPHSafetyRisks.pdf</a></p>	<p>Idle wells pose are a source of direct exposure to petroleum, particularly to children or pets, and also present long-term health risks to residents from fugitive emissions.</p> <ul style="list-style-type: none"> <li>• DOGGR violations to the well owner, which were not enough to protect public health and safety: over a year after the violations were submitted, there was a hazardous release of crude oil.</li> </ul>

Performance and Inspection	
Citation	Synopsis in Relevant Part
<p>Liberty Hill Foundation, The Community Consequences of Expanded Oil Development in Los Angeles (2015). <a href="https://www.libertyhill.org/sites/libertyhillfoundation/files/Drilling%20Down%20Report_1.pdf">https://www.libertyhill.org/sites/libertyhillfoundation/files/Drilling%20Down%20Report_1.pdf</a></p>	<p>Regulations adopted in the 1940s and 50s are not sufficient to adapt to changing environmental science, and are currently unable to protect the health of residents who live near oil and gas facilities.</p>

Land Use Controls	
Citation	Synopsis in Relevant Part
<p>Liberty Hill Foundation, The Community Consequences of Expanded Oil Development in Los Angeles (2015). <a href="https://www.libertyhill.org/sites/libertyhillfoundation/files/Drilling%20Down%20Report_1.pdf">https://www.libertyhill.org/sites/libertyhillfoundation/files/Drilling%20Down%20Report_1.pdf</a></p>	<p>Sound land use planning has a beneficial impact on community health, and can reduce exposure to environmental contaminants and improve overall health at both the individual and community level.</p>
<p>Rachel Morello-Frosch, End Double Jeopardy, New Principles Can Stop Us from Dumping on Minorities and the Poor, Scientific American, (2009)</p>	<p>Local agencies must adopt policies to address the cumulative impact of environmental stressors and social stressors that are prevalent in low-income rural neighborhoods. People come</p>

<a href="https://www.scientificamerican.com/article/end-double-jeopardy/">https://www.scientificamerican.com/article/end-double-jeopardy/</a>	<p>into contact with pollutants where they live, work and play, therefore agencies to assess and address exposures and health risks holistically while integrating the precautionary principle into environmental regulation and enforcement.</p>
<p>Susan Blackwell et al., Public Health and Safety Risks of Oil and Gas Facilities in Los Angeles County (Los Angeles County Department of Public Health, 2018)</p> <p><a href="http://publichealth.lacounty.gov/eh/docs/PH_OilGasFacilitiesPHSafetyRisks.pdf">http://publichealth.lacounty.gov/eh/docs/PH_OilGasFacilitiesPHSafetyRisks.pdf</a></p>	<p>Community Safety Plans and enhanced Emergency Response Plans should be developed to address the significant possible safety hazards associated with oil and gas activities and to prepare for leaks, seepage and other potential disasters. Alongside preparedness plans and mitigation measures, environmental monitoring that is both comprehensive and continuous will allow operators and regulatory agencies to develop evidence-based strategies to protect public health.</p>

<b>Odor</b>	
<b>Citation</b>	<b>Synopsis in Relevant Part</b>
<p>Liberty Hill Foundation, The Community Consequences of Expanded Oil Development in Los Angeles (2015).</p> <p><a href="https://www.libertyhill.org/sites/libertyhillfoundation/files/Drilling%20Down%20Report_1.pdf">https://www.libertyhill.org/sites/libertyhillfoundation/files/Drilling%20Down%20Report_1.pdf</a></p>	<p>Providing example of petroleum-based and associated odors affecting the health and well-being of the adjoining community.</p>
<p>California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, (2005).</p> <p><a href="http://www.arb.ca.gov/ch/handbook.pdf">http://www.arb.ca.gov/ch/handbook.pdf</a></p>	<p>Some common sources of odors emitted by facilities are sulfur compounds, organic solvents, and the decomposition/digestion of biological materials. Because of the subjective nature of an individual's sensitivity to a particular type of odor, there is no specific rule for assigning appropriate separations from odor sources. Under the right meteorological conditions, some odors may still be offensive several miles from the source.</p>
<p>Susan Blackwell et al., Public Health and Safety Risks of Oil and Gas Facilities in Los Angeles County (Los Angeles County Department of Public Health, 2018)</p> <p><a href="http://publichealth.lacounty.gov/eh/docs/PH_OilGasFacilitiesPHSafetyRisks.pdf">http://publichealth.lacounty.gov/eh/docs/PH_OilGasFacilitiesPHSafetyRisks.pdf</a></p>	<p>Hydrogen sulfide (H<sub>2</sub>S) occurs naturally in crude petroleum and natural gas and is also a byproduct of desulfurization processes in oil and gas industries. It is an odor with a "rotten-egg" smell that may be associated with oil fields. Hydrogen sulfide has a low odor threshold.</p>
<p>Louis Sahagun, "Chemical odor, kids' nosebleeds, few answers in South L.A. neighborhood." Los Angeles Times, September 21, 2013</p> <p><a href="http://articles.latimes.com/2013/sep/21/local/la-me-0922-oil-20130922">http://articles.latimes.com/2013/sep/21/local/la-me-0922-oil-20130922</a></p>	<p>Providing example of community health impacts associated with chemical odors from production from an oil field and local air district findings of incompatible zoning decisions.</p>

<b>Noise/Construction</b>	
<b>Citation</b>	<b>Synopsis in Relevant Part</b>
<p>Kristin Agostoni, "Drilling decision delayed." Los Angeles Daily News August 29, 2017</p> <p><a href="https://www.dailynews.com/2008/05/03/drilling-decision-delayed/">https://www.dailynews.com/2008/05/03/drilling-decision-delayed/</a></p>	<p>Providing example of damage and disruption to local property owners due to oil/gas construction</p>

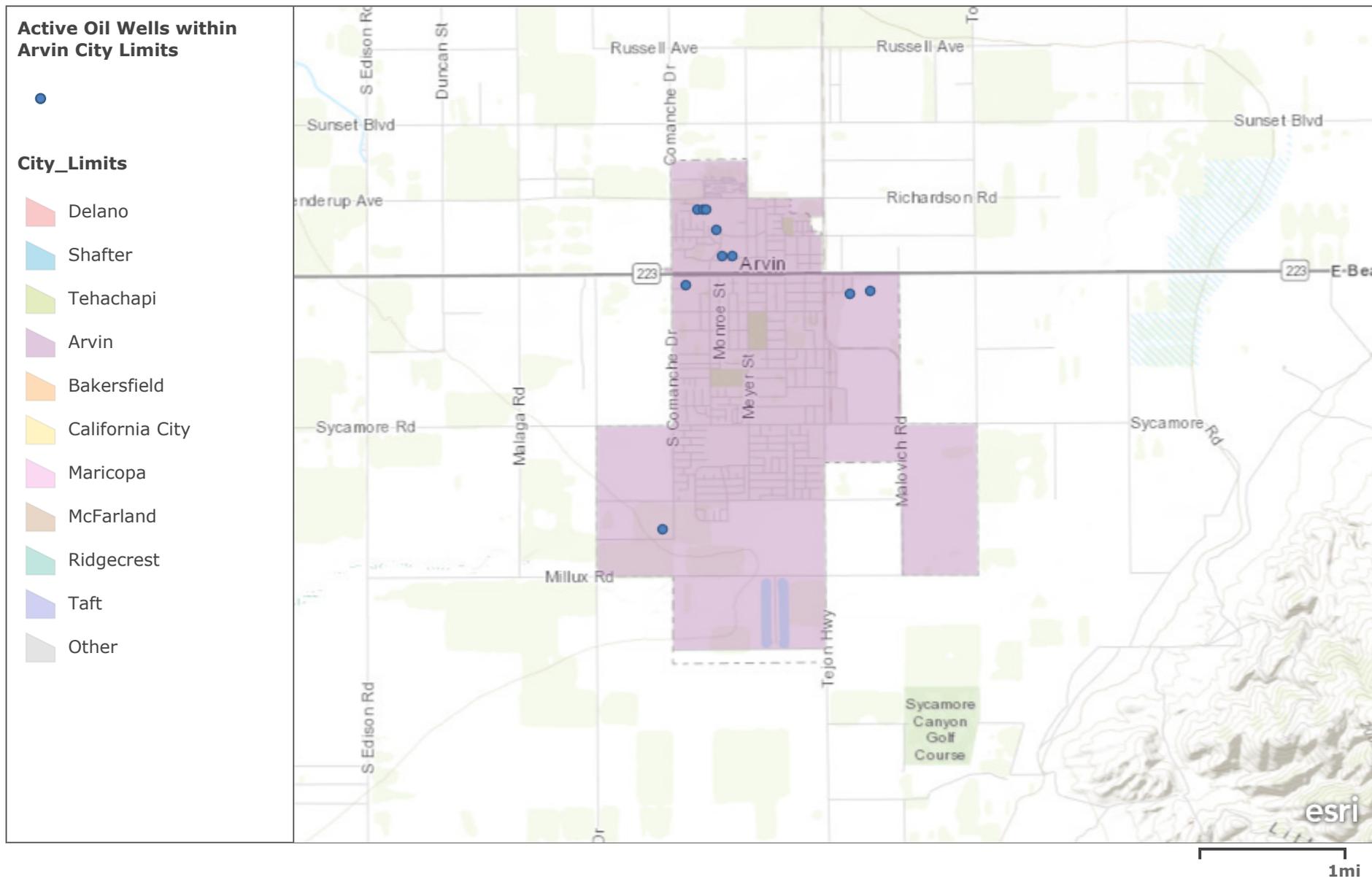
<p>Susan Blackwell et al., Public Health and Safety Risks of Oil and Gas Facilities in Los Angeles County (Los Angeles County Department of Public Health, 2018)</p> <p><a href="http://publichealth.lacounty.gov/eh/docs/PH_OilGasFacilitiesPHSafetyRisks.pdf">http://publichealth.lacounty.gov/eh/docs/PH_OilGasFacilitiesPHSafetyRisks.pdf</a></p>	<p>There are a number of activities associated with oil and gas that can increase noise levels. Additionally, health impacts from noise can result from exposure to pure tones and low frequency noise sources.</p>
<p>Kern County, Mitigation Monitoring and Reporting Program for the Kern County Gas &amp; Oil Zoning Ordinance Environmental Impact report. (2015).</p> <p><a href="https://www.kerncounty.com/planning/pdfs/eirs/oil_gas/oil_gas_MMRP_final.pdf">https://www.kerncounty.com/planning/pdfs/eirs/oil_gas/oil_gas_MMRP_final.pdf</a></p>	<p>Providing setback distances to mitigate noise impacts between 820 and 3270 feet depending on activity.</p>

OBJECTID	API	OpWellID	Status	Type	OpCode	OpName	LeaseName	Initial Production	Commenced	Redrilled?	AreaName	County	Section	Range	Latitude	Longitude	Elevation	TotalDepth	RedrillFt	RedCanFlag	Location	GISSource	Dryhole	ConfWell	DirDrill	HydFrac	BLMWell	EPAWell	SpudDate	URL	x	y
1	2914431	Jewett' 3	A	OG	S7155	Sun Mountain Oil & Gas	Jewett	10/10/1954	No		Arvin	Kern	23	29E	35.210893	-118.836224	453 KB	0	0	Fr S/4 cor 670N 880W	gps	N	N	N	N	N		<a href="https://secure.conservation.ca.gov/WellSearch/Details?api=02914431">https://secure.conservation.ca.gov/WellSearch/Details?api=02914431</a>	-118.8362364	35.21089795		
2	2944449	Jewett' 1-1	A	OG	P2520	Petro Capital Resources, LLC	Jewett	12/12/1970	No		Arvin, West	Kern	23	29E	35.215414	-118.839138	459 KB	0	0	Fr W/4 cor 330S 1170E	gps	N	N	N	N	N		<a href="https://secure.conservation.ca.gov/WellSearch/Details?api=02944449">https://secure.conservation.ca.gov/WellSearch/Details?api=02944449</a>	-118.8391504	35.21541895		
3	2914358	Knowles' 86-34	A	OG	V0725	Vaquero Energy, Inc.	Knowles	5/28/1962	No		Vaccaro	Kern	34	29E	35.184441	-118.843252	415 KB	0	0	Fr E/4 cor 990S 380W	gps	N	N	N	N	N		<a href="https://secure.conservation.ca.gov/WellSearch/Details?api=02914358">https://secure.conservation.ca.gov/WellSearch/Details?api=02914358</a>	-118.8432644	35.18444594		
4	2947703	Jewett' 1-3	A	OG	P2520	Petro Capital Resources, LLC	Jewett	4/18/1973	No		Arvin, West	Kern	23	29E	35.215377	-118.838347	461 KB	0	0	Fr W/4 cor 320S 935E	gps	N	N	N	N	N		<a href="https://secure.conservation.ca.gov/WellSearch/Details?api=02947703">https://secure.conservation.ca.gov/WellSearch/Details?api=02947703</a>	-118.8383594	35.21538195		
5	2914432	Simpson' 1	A	OG	S7155	Sun Mountain Oil & Gas	Simpson	10/16/1953	No		Arvin, West	Kern	26	29E	35.208037	-118.840381	440 GL	0	0	Fr NW cor 330S 530E	gps	N	N	N	N	N		<a href="https://secure.conservation.ca.gov/WellSearch/Details?api=02914432">https://secure.conservation.ca.gov/WellSearch/Details?api=02914432</a>	-118.8403934	35.20804195		
6	2946808	Jewett' 1-23	A	OG	S7155	Sun Mountain Oil & Gas	Jewett	5/10/1972	No		Arvin	Kern	23	29E	35.213376	-118.83681	458 KB	0	0	Fr W/4 cor 990S 1593E	gps	N	N	N	N	N		<a href="https://secure.conservation.ca.gov/WellSearch/Details?api=02946808">https://secure.conservation.ca.gov/WellSearch/Details?api=02946808</a>	-118.8368224	35.21338095		
7	2914599	H. S. Jewett' 4	A	OG	S7155	Sun Mountain Oil & Gas	H. S. Jewett	3/26/1954	2015		Arvin	Kern	23	29E	35.210854	-118.834933	455 KB	0	0	Fr S/4 cor 675N 515W	gps	N	N	N	N	N	2/26/1954	<a href="https://secure.conservation.ca.gov/WellSearch/Details?api=02914599">https://secure.conservation.ca.gov/WellSearch/Details?api=02914599</a>	-118.8349454	35.21085895		
8	2958875	Buttes-Stockton' 25-1	A	OG	S7155	Sun Mountain Oil & Gas	Buttes-Stockton	4/1979	No		Arvin	Kern	25	29E	35.207274	-118.821114	454 KB	0	0	Fr NW cor 656S 926E	gps	N	N	N	N	N		<a href="https://secure.conservation.ca.gov/WellSearch/Details?api=02958875">https://secure.conservation.ca.gov/WellSearch/Details?api=02958875</a>	-118.8211264	35.20727895		
9	2960289	Stockton' 25-3	A	OG	S7155	Sun Mountain Oil & Gas	Stockton	4/18/1980	No		Arvin	Kern	25	29E	35.207542	-118.818638	456 KB	0	0	Fr NW cor 625S 1660E	gps	N	N	N	N	N		<a href="https://secure.conservation.ca.gov/WellSearch/Details?api=02960289">https://secure.conservation.ca.gov/WellSearch/Details?api=02960289</a>	-118.8186504	35.20754695		
10	2944679	Jewett' 1-2	A	OG	P2520	Petro Capital Resources, LLC	Jewett	4/26/1971	No		Arvin, West	Kern	23	29E	35.215293	-118.838123	459 KB	0	0	Fr W/4 cor 365S 1228E	gps	N	N	N	N	N		<a href="https://secure.conservation.ca.gov/WellSearch/Details?api=02944679">https://secure.conservation.ca.gov/WellSearch/Details?api=02944679</a>	-118.8381354	35.21529795		

Source: Department of Conservation, Division of Oil, Gas, and Geothermal Resources - Well Search

OBJECTID	API	OpWellID	Status	Type	OpName	LeaseName	WellNumber	Initial Production	Commenced	Years Idle	Redrilled?	AreaName	County	Latitude	Longitude	Elevation	URL
1	2914681	Union-Signal-Ancora-Tipton-Stockton'	I	OG	Green Earth Resources, Inc.	Union-Signal-Ancora-Tipton-Stockton	77-34		2/10/1960	26	No	Vaccaro	Kern	35.18262	-118.845	417	<a href="https://secure.conservation.ca.gov/WellSearch/Details?api=02914681">https://secure.conservation.ca.gov/WellSearch/Details?api=02914681</a>
2	2914598	H. S. Jewett'	I	OG	Sun Mountain Oil & Gas	H. S. Jewett	3		12/6/1953	Unknown	No	Arvin	Kern	35.21139	-118.835	457	<a href="https://secure.conservation.ca.gov/WellSearch/Details?api=02914598">https://secure.conservation.ca.gov/WellSearch/Details?api=02914598</a>
3	2947968	Kirkorian'	I	OG	Sunray Petroleum, Inc.	Kirkorian	14X-23		9/19/1973	6		Arvin, West,	Kern	35.21753	-118.842	460	<a href="https://secure.conservation.ca.gov/WellSearch/Details?api=02947968">https://secure.conservation.ca.gov/WellSearch/Details?api=02947968</a>

# Arvin Oil Wells



City of Bakersfield, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA