2/21/2018

Jennifer Kennedy, 23115 SE 249th CT, Maple Valley WA 98038. 425-413-5372.
Docket Nos. UE-160918 and UG-160919

My Public Comment on The Hearing on PSE's long-term energy plan:

I am a college graduate, wife, mother, volunteer and daughter of two parents fighting cancer. My affiliations are with Earthjustice and Food and Water Watch. PSE Ratepayer & Green power customers. Mother of a Son with ADHD. I want PSE to support a carbon free future by building a renewables infrastruture, Not an LNG infrastructure.

I support a carbon-free future and I strongly oppose PSE's, plans to build an LNG terminal in Tacoma due to human health, human rights, and environmental concerns over hydraulic fracturing for LNG, which leaks methane into our air and introduces radiation and toxic chemicals into vast amounts of our Nations water supply; chemicals stated by the EPA to cause cancer, immune system deficiencies, changes in body weight and blood chemistry and to be specifically toxic to most of our major organs and to human reproduction and development and known to have caused the death of fish and aquatic life. The industry cannot clean its' wastewater and routinely dumps it underground and into fresh water aquifers. The EPA states that these chemicals have already made it into some of our drinking water. In California, where fracking has worsened the drought, a regulatory loophole allows oil companies, who have applied for a permit, to sell "recycled" oil industry wastewater, including fracked water, to farmers to irrigate their conventional and organic crops, even though it contains chemicals not allowed in drinking water. Why is this allowed? A series of regulatory and statutory decisions passed by our trusted servants in government from 1980-2005, granted the oil and gas industry exemptions from most of our Nation's key protective environmental laws, leaving our citizens with virtually no legal defense against being poisoned by the industry. These laws are illegitimate because they violate every citizens' right to clean air and water. I am supported by a growing number of countries, states, counties, cities and townships who are enacting fracking bans or moratoriums due to increasing environmental concerns. Ireland sited the impact on U.S. citizens as the reason for its' ban.

I have been following this industry since 2012. Most of my information comes from The EPA's FracFocus, The LA Times, The MI Watershed Council, The Community-Environmental Legal Defense Fund, Food and Water Watch, and Earthjustice. When I hand this in, I am also attaching pertinent information for The ~~Energy Commissioners~~ (UTC) recommendations to use in their ~~decision~~, including resolutions against fracking from San Francisco, Los Angeles and Sonoma Counties, info on wastewater used on California crops and info on regulations and exemptions governing hydraulic fracturing.

Jennifer Kennedy

CITY OF SONOMA

RESOLUTION NO. 34 - 2014

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SONOMA OPPOSING HYDRAULIC FRACTURING (FRACKING) IN THE STATE OF CALIFORNIA

WHEREAS, hydraulic fracturing, also known as "fracking", is a gas and oil resource extraction technology that drills wells vertically and horizontally deep under the earth's surface, through water tables, requires vast quantities of water, and uses numerous toxic chemicals injected under high pressure to crack shale and dense rock formations, producing toxic waste water, and therefore poses great potential threat to the public, the environment, the State's water supply and our coastal waters; and

WHEREAS, hydraulic fracturing is not regulated in California and the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) has insufficient records of the locations or numbers of wells where hydraulic fracturing is being used to extract oil and gas in the state, and does not maintain records of the types and amounts of chemicals used, the amount of water used or the disposition of the wastewater generated by this process; and

WHEREAS, the oil and gas industry is granted exceptions to compliance with federal legislation designed to protect the public and the environment, including the Safe Drinking Water Act of 1974 and the Clean Water Act of 1972 (amended 1977 and 1987); and

WHEREAS, Senate Bill 4 permits continuing unregulated fracking activity until at least July 1, 2015 when the State is scheduled to complete an environmental review of fracking in the State of California, and

WHEREAS, wastewater from hydraulic fracturing may be laced with hundreds of toxic chemicals, heavy metals and naturally occurring radioactive materials, as documented by the Environmental Protection Agency (EPA) and due to the volume and toxicity of "fracking" wastewater, treating such complex waste is difficult, making safe disposal a significant challenge and posing threats to the environment and public health and safety; and

WHEREAS, current disposal methods in the State of California are inadequate, and allow the possibility that "fracking" wastewater will affect watersheds, reaching rivers, streams, wetlands, bay and coastal waters, as well as agricultural and drinking water supplies; and

WHEREAS, the vast quantities of water required for the hydraulic fracturing process reduce the availability of water for agricultural uses, in a state which relies heavily on agriculture for its economic strength and which suffers from the effects of periodic droughts; and

WHEREAS, the "fracking" process releases such hazardous air pollutants as methanol, formaldehyde, and carbon disulfide, in addition to the release of volatile organic compounds including benzene, toluene and nitrogen oxides. The projected 15 billion barrels of oil from the Monterey Shale are estimated to release 6.45 billion metric tons of carbon dioxide, 15 times the total greenhouse gas emitted from all sources in California in 2010; and

WHEREAS, emissions generated by drilling and "fracking" for shale oil and gas, and producing, refining and burning shale oil and gas, result in significant and uncontrolled emission of methane, a far more lethal greenhouse gas than carbon dioxide; and

WHEREAS, unregulated "fracking" in California will likely undermine the State's efforts to reduce greenhouse gas emissions to 1990 levels by 2020, per AB32, the California Global Warming Solutions Act of 2006, and the extraction of oil and gas, as well as coal, is antithetical to the necessary transition to 100% renewable energy sources needed to aggressively address greenhouse gas emissions and climate change; and

WHEREAS, the City of Sonoma City Council supports possible reductions in the reliance on fossil fuels, and has taken significant steps to address climate change, as evidenced by setting goals to reduce greenhouse gas emissions; and

WHEREAS, protecting the health and safety of the environment and the public is of paramount concern and discouraging reliance on fossil fuels is congruent with the City of Sonoma's goal of reducing greenhouse gas emissions to address climate change.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Sonoma opposes Hydraulic fracturing in the State of California.

ADOPTED this 7th day of July, 2014 by the following vote:

AYES:	Barbose, Cook, Brown, Gallian, Rouse
NOES:	None
ABSENT:	None

Tom Rouse, Mayor

ATTEST:

Gay Johann
Assistant City Manager/City Clerk

San Francisco, CA

Jennifer Kennedy

AMENDED IN BOARD
1/14/14

FILE NO. 131197 RESOLUTION NO. 15-14

[Fracking Moratorium in California]

Resolution supporting a moratorium on hydraulic fracturing in the State of California.

WHEREAS, Hydraulic fracturing, also known as "fracking", is a gas and oil resource extraction technology that drills wells vertically and horizontally deep under the earth's surface through water tables, requires vast quantities of water, and uses numerous toxic chemicals injected under high pressure to crack shale and dense rock formations, producing toxic waste water, and therefore posing great potential threat to the public, the environment, the State's water supply and our coastal waters; and

WHEREAS, Hydraulic fracturing has been unregulated in California and the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) has at best incomplete records of the locations or numbers of wells where hydraulic fracturing is being used to extract oil and gas in the state, nor maintains records of the types and amounts of chemicals used, the amount of water used or the disposition of the wastewater generated by this process; and

WHEREAS, The oil and gas industry is granted exceptions to compliance with federal legislation designed to protect the public and the environment, including the Safe Drinking Water Act of 1974 and the Clean Water Act of 1972; and

WHEREAS, Wastewater from hydraulic fracturing may be laced with hundreds of toxic chemicals, heavy metals and naturally occurring radioactive materials, as documented by the Environmental Protection Agency (EPA), and due to the volume and toxicity of "fracking" wastewater, treating such complex waste is difficult, making safe disposal a significant challenge and posing threats to the environment and public health and safety; and

WHEREAS, Current disposal methods in the State of California are inadequate, and

allow the possibility that "fracking" wastewater will affect watersheds, reaching rivers, streams, wetlands, bay and coastal waters, as well as agricultural and drinking water supplies; and

WHEREAS, The vast quantities of water required for the hydraulic fracturing process reduce the availability of water for other uses, in a state which often suffers from the effects of periodic droughts; and

WHEREAS, The "fracking" process releases such hazardous air pollutants as methanol, formaldehyde, and carbon disulfide, in addition to the release of volatile organic compounds including benzene, toluene and nitrogen oxides; the projected 15 billion barrels of oil from the Monterey Shale are estimated to release 6.45 billion metric tons of carbon dioxide,15 times the total greenhouse gas emitted from all sources in California in 2010; and

WHEREAS, Emissions generated by drilling and "fracking" for shale oil and gas, and producing, refining and burning shale oil and gas, result in significant and uncontrolled emission of methane, a far more lethal greenhouse gas than carbon dioxide; due to the high quantity of leaked methane, the greenhouse gas emissions from the Monterey Shale is greater than any other fossil fuel, including coal; and

WHEREAS, "Fracking" in California will likely undermine the State's efforts to reduce greenhouse gas emissions to 1990 levels by 2020, per AB32, the California Global Warming Solutions Act of 2006, and the extraction of oil and gas, as well as coal, is antithetical to the necessary transition to 100% renewable energy sources needed to aggressively address greenhouse gas emissions and climate change; and

WHEREAS, Other local jurisdictions have weighed in on the issue of fracking, calling for greater regulation, bans or moratoriums, including Marin County, Santa Cruz County, Ventura County, the City of Los Angeles, and Santa Barbara County, and localities like San Francisco have been asked to add their voices to the state dialogue because State policymakers are currently deciding what is to be done about fracking in California; and

WHEREAS, San Francisco County Board of Supervisors has a long history of supporting all possible reductions in the reliance on fossil fuels, and has taken significant steps to address climate change, as evidenced by setting goals to reduce greenhouse gas emissions (1999), joining Cities for Climate Protection Campaign administered by the International Council for Local Environmental Initiatives (2002), signing the Urban Environmental Accords (2006), adopting a Local Action Plan to reduce the County's greenhouse gas emissions by 20% by 2020 (2006), accepting the report "Fossil Free by '33" (2006), adopting the most recent Countywide Plan (2007), and founding the state's first Community Choice Aggregation agency, Marin Energy Authority (2008), among other actions; and

WHEREAS, Protecting the health and safety of the environment and the public is of paramount concern and discouraging reliance on fossil fuels is congruent with San Francisco County's goal of reducing greenhouse gas emissions to address climate change; now, therefore, be it

RESOLVED, That the San Francisco Board of Supervisors supports a halt to hydraulic fracturing in the State of California.

Jennifer

City and County of San Francisco
Tails
Resolution

City Hall
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4689

File Number: 131197 **Date Passed:** January 14, 2014

Resolution supporting a moratorium on hydraulic fracturing in the State of California.

December 17, 2013 Board of Supervisors - CONTINUED

Ayes: 11 - Avalos, Breed, Campos, Chiu, Cohen, Farrell, Kim, Mar, Tang, Wiener and Yee

January 14, 2014 Board of Supervisors - AMENDED

Ayes: 11 - Avalos, Breed, Campos, Chiu, Cohen, Farrell, Kim, Mar, Tang, Wiener and Yee

January 14, 2014 Board of Supervisors - ADOPTED AS AMENDED

Ayes: 11 - Avalos, Breed, Campos, Chiu, Cohen, Farrell, Kim, Mar, Tang, Wiener and Yee

File No. 131197

I hereby certify that the foregoing Resolution was ADOPTED AS AMENDED on 1/14/2014 by the Board of Supervisors of the City and County of San Francisco.

Angela Calvillo
Clerk of the Board

Unsigned
Mayor

1/24/14
Date Approved

I hereby certify that the foregoing resolution, not being signed by the Mayor within the time limit as set forth in Section 3.103 of the Charter, or time waived pursuant to Board Rule 2.14.2, became effective without his approval in accordance with the provision of said Section 3.103 of the Charter or Board Rule 2.14.2.

Angela Calvillo
Clerk of the Board

File No. 131197

Los Angeles, CA

Jennifer Kennedy

SEP 4 2013

13-1152-S1

PLANNING & LAND USE MANAGEMENT

MOTION

Hydraulic fracturing (also known as "fracking") is an oil and natural gas extraction process that involves the very highly-pressurized injection of hydraulic fracturing fluids containing a mixture of water, sand and unreported amounts of unknown chemicals into underground geologic formations in order to fracture the rock, thereby increasing flows to and furthering the production of oil or gas from a well. Other unconventional highly-pressurized extraction processes called "acidizing" and "gravel packing" involve similar techniques.

In total, fracking, acidizing, gravel packing and other associated well-stimulation practices threaten to contaminate drinking water supplies, cost taxpayers in Los Angeles hundreds of millions of dollars, release potent and dangerous greenhouse gases into the atmosphere and cause earthquakes.

CONTAMINATED DRINKING WATER

After being injected into the ground, the chemicals used in the fracking process may leach into groundwater supplies, contaminating drinking water for local residents. In fact, there have been more than 1,000 documented cases of water contamination next to fracking sites, as well as cases of sensory, respiratory, and neurological damage due to ingested contaminated water in communities throughout the United States.

Fracking, acidizing and gravel packing of oil and gas wells are unregulated and are spurring oil and gas extraction and exploration in California and other states, including within the City of Los Angeles. Additionally, fracking is used in the Colorado River and State Water Project watersheds, as well as near local Southern California groundwater aquifers, utilizing large volumes of water, which competes for and jeopardizes regional, state, and water supplies needed by the people of Los Angeles.

The Department of Water & Power (DWP) has stated that, because the well operators are not required to disclose the chemicals used in fracking, other operations and injections, it therefore does not know all the chemicals for which DWP should be testing the City's water supplies.

Groundwater banking and storage is a critical alternative to building new surface reservoirs and plays an essential role in moving the City of Los Angeles toward greater self-reliance on local water resources. It is critical to the future of Los Angeles that groundwater supplies remain safe.

A FINANCIAL LIABILITY FOR TAXPAYERS

Protecting the City's water supply resources from contamination is a financial necessity for Los Angeles, as treatment of contaminated groundwater resources after the fact is costly and identification of potential responsible parties to determine financial liability is not always possible, particularly in regards to unregulated activities such as fracking, acidizing, gravel packing and

related wastewater disposal. The DWP has announced plans to build the world's largest groundwater treatment center over one of the largest Superfund pollution sites in the United States: the San Fernando Basin. Two plants, costing a combined $600 million to $800 million, will restore groundwater pumping of drinking water from scores of San Fernando Valley wells that the DWP began closing in the 1980s and ensure that other wells remain productive while curtailing the pollution plumes steadily migrating in their direction. Additional measures to address and treat water supplies potentially contaminated by fracking chemicals pose a tremendous financial liability for taxpayers in Los Angeles.

Allowing activities like hydraulic fracturing, acidizing and gravel packing, which threaten to contaminate the City's imported and local groundwater supplies, is inherently dangerous to the long-term safety, health, security and reliability of Los Angeles' water supplies.

UNDERMINING WORK TO ADDRESS THE CLIMATE CRISIS

Higher emissions generated by producing, refining and burning unconventional-produced oil and gas, and drilling and fracking for tight oil and gas can result in massive release of unregulated emissions of methane, a potent greenhouse gas often associated underground with oil.

The California Public Resources Code states that "methane gas hazards...are a clear and present threat to public health and safety" and that "due to the cost and complexity of methane hazard mitigations, property owners and local governments are often unable to mitigate these hazards." These provisions are of grave import to Los Angeles County and City, as Exploration and Production activities has caused and is causing massive releases of methane and hydrogen sulfide gases into communities and the atmosphere.

Fracking in California can also thereby seriously undermine the State's efforts to address the climate crisis by reducing greenhouse gas emissions to 1990 levels by 2020. Unregulated and unchecked fracking must not be allowed to offset the air quality benefits of natural gas used in certain applications.

INCREASED EARTHQUAKE RISKS

Further, all high-pressure fracking and injection creates "seismic events," but not all are felt as earthquakes. The United States Geological Study (USGS) reports that the number of noticeable earthquakes (greater than a 3.0 Richter magnitude) has increased dramatically over the past few years within the central and eastern United States. More than 300 earthquakes above a Richter magnitude 3.0 occurred in the three years from 2010-2012, compared with an average rate of 21 events per year observed from 1967-2000. USGS scientists have also found that at some locations the increase in seismicity coincides with the injection of wastewater into deep disposal wells.

The USGS has determined that fracking wastewater disposal is responsible for triggering earthquakes in Oklahoma, Arkansas and Ohio, among other states. A magnitude 2.1 earthquake matching the description of micro earthquakes caused by fracking wastewater disposal occurred in the Baldwin Hills on August 27, 2013, at a magnitude and depth compatible to stated USGS concerns about earthquakes induced by fracking.

Much of the State of California and the City, in particular, is located on top of fault lines within one of the most active and potentially dangerous earthquake zones in the United States.

COMPREHENSIVE STUDY NEEDED

The Los Angeles Municipal Code, Section 13.01, allows the City to regulate through its land use process various activities related to oil and gas drilling and production.

The City's land use regulations for oil and gas exploration, extraction, and related operations and activities are in need of comprehensive review to determine whether the existing zoning and land use regulations of oil and gas exploration, extraction, and related operations and activities are sufficient to assure public health, safety, environmental quality, and welfare; or whether additional regulations are necessary to address the impacts of oil and gas exploration, extraction, and related operations and activities, including, but not limited to: hydraulic fracturing, acidizing, gravel packing, and related wastewater disposal.

If land use applications, permit applications, or any other applications requesting approval to conduct oil and gas exploration, extraction, production and related operations and activities within the City limits are granted prior to the City examining the impact of such activities and taking all steps necessary to protect public health, safety, and welfare, irreparable harm may be done to the public health, safety, and welfare.

WE THEREFORE MOVE that the City Attorney, with the assistance of the Planning and other relevant departments, be requested to prepare and present an ordinance to change the zoning code to prohibit all activity associated with well stimulation, including, but not limited to, hydraulic fracturing, gravel packing, and acidizing, or any combination thereof, and the use of waste disposal injection wells in the City of Los Angeles, with such a prohibition to remain effective until:

- the City Council is assured that companies conducting fracking within the City of Los Angeles, or in areas providing drinking water to the City, can mitigate the effects on climate change, protect environmental quality and natural resources, promote community awareness, allow government access to and testing of chemicals used, anticipate and include related older and emerging extraction technologies such as hydraulic fracturing, acidizing, gravel packing and all wastewater disposal, and require full disclosure and testing of sites, with adequate time for public input;

- the City Council is assured of the long-term safety, security and reliability of current and future Los Angeles water supplies, the overall health and safety of the people of Los Angeles and the safety of their property from seismic or subsidence concerns related to the exploration and production of oil, natural gas, or other hydrocarbons, and the maintenance of environmental quality;

- state and federal legislation and regulations are put in place that include protections from the adverse effects of hydraulic fracturing, gravel packing, acidizing, wastewater disposal and related activities, consistent with the Clean Air Act, the Clean Water Act, and the Safe Drinking Water Act.

PRESENTED BY _____
PAUL KORETZ
Councilmember, 5th District

_____
MIKE BONIN
Councilmember, 11th District

SECONDED BY _____

ORIGINAL

SEP 4 2013

SEP 1 0 2013

13-0002-S130 **RESOLUTION**

WHEREAS, any official position of the City of Los Angeles with respect to legislation, rules, regulations or policies proposed to or pending before a local, state, or federal government body or agency must have first been adopted in the form of a Resolution by the City Council with the concurrence of the Mayor; and

WHEREAS, hydraulic fracturing, commonly known as fracking, is a method of extracting petroleum and gas used for energy from rock layers and shale, and may pose public health risks and lead to property damage, contaminated air and groundwater, and increased seismicity; and

WHEREAS, The Energy Policy Act of 2005 exempted fracking operations from the provisions of Federal Clean Water Act and the Federal Safe Drinking Water Act unless diesel additives are used; and

WHEREAS, provisions of the Federal Clean Air Act also exempt fracking operations from Federal oversight; and

WHEREAS, since 2007, fracking-related oil production has increased from approximately 39 barrels to 217 million barrels, and similar natural gas production has increased from 1.6 trillion cubic feet to 7.2 trillion cubic feet; and

WHEREAS, despite claims that chemicals used in the fracking process are safe, the drilling industry refuses to provide a comprehensive list of chemical additives used; and

WHEREAS, to protect the health and welfare of the public and the environment, it is vital that Federal regulatory oversight of fracking operations be restored; and

WHEREAS, to achieve this, fracking exemptions from the Federal Clean Water Act, Federal Safe Drinking Water Act and Federal Clean Air Act should be removed; and

WHEREAS, these Acts were originally enacted to protect the public and the environment from harmful activities such as fracking;

NOW, THEREFORE, BE IT RESOLVED, with the concurrence of the Mayor, that by the adoption of this Resolution, the City of Los Angeles hereby includes in its 2013-2014 Federal Legislative Program SPONSORSHIP/SUPPORT for legislation that seeks to remove exemptions for fracking from the provisions of the Federal Clean Water Act, Federal Safe Drinking Water Act and the Federal Clean Air Act in order to protect the health and welfare of the public and the environment.

PRESENTED BY: Paul Koretz
PAUL KORETZ
Councilmember, 5th District

SECONDED BY:

ORIGINAL

SEP 1 0 2013

12-0002-S61 JUN 13 2012 RULES, ELECTIONS & INTERGOVERNMENTAL RELATIONS

RESOLUTION

WHEREAS, any official position of the City of Los Angeles with respect to legislation, rules, regulations, or policies proposed to or pending before a local, state, or federal governmental body or agency must first have been adopted in the form of a Resolution by the City Council with the concurrence of the Mayor; and

WHEREAS, hydraulic fracturing, also known as fracking, is a type of resource extraction that potentially threatens the health of both the public, the Los Angeles city water supply and the environment, and requires unconventional drilling techniques, vast quantities of water, and the use of toxic chemicals; and

WHEREAS, the oil and gas industry has been granted exceptions to multiple laws and regulations, such as the Safe Drinking Water Act and the Clean Water Act, and employs potentially hundreds of unknown chemicals of concern; and

WHEREAS, in a study of Pavillion, Wyoming, the Environmental Protection Agency (EPA) recently documented water contamination from fracking chemicals; and

WHEREAS, fracking wastewater may often be laced with hundreds of toxic chemicals, heavy metals, and naturally occurring radioactive materials (NORM); and

WHEREAS, due to the volume and chemical complexity of fracking waste, treating such unknown waste is difficult, making the disposal of fracking wastewater a significant challenge; and that the disposal methods currently available in California have an imminent possibility of reaching local streams and rivers, which supply Los Angeles' drinking water; and

WHEREAS, rivers, streams and wetlands across our state and particularly within the watersheds from which the City of Los Angeles derives its water supply are vulnerable to pollution by fracking; and

WHEREAS, fracking is currently causing serious local and regional air pollution problems across the country, including the release of such hazardous air pollutants as methanol, formaldehyde, and carbon disulfide; in addition to the release of volatile organic compounds, including benzene and toluene, and nitrogen oxides; and emissions from heavy-duty truck traffic, large generators and compressors at well sites which contribute to smog formation; and

WHEREAS, emissions generated by producing, refining and burning shale oil, and drilling and fracking for shale oil can result in significant uncontrolled emissions of methane, a potent greenhouse gas often associated underground with oil; and

WHEREAS, fracking in California may undermine the state's efforts to reduce greenhouse gas emissions to 1990 levels by 2020; and

WHEREAS, much of the State of California and Los Angeles, in particular, is located on top of fault lines within one of the most active and potentially dangerous earthquake zones in the United States; and

JUN 13 2012

WHEREAS, Ohio has experienced a dozen unusual earthquakes, the most severe occurring on December 31, 2011, caused by a Class II injection well disposing of fracking wastewater, which resulted in a moratorium on injection wells in the Youngstown, Ohio, area; and

WHEREAS, there have been thousands of recorded minor earthquakes clustered around fracking wastewater disposal wells in central Arkansas and Oklahoma, which the United States Geological Survey "almost certainly" attributes to fracking wastewater disposal activities, and a 5.6 quake in Oklahoma which "was possibly triggered by fluid injection" at nearby wastewater wells; and

WHEREAS, numerous townships, cities, states, and countries have banned or issued moratoriums on horizontal hydraulic fracturing and waste injection wells, including the states of New Jersey, North Carolina, and New York; the cities of Buffalo, NY and Pittsburgh, PA; the Delaware River Gap; and, internationally, in the Canadian Province of Quebec, Germany, France and Bulgaria; and

WHEREAS, the EPA is currently conducting a study, to be completed in 2015, to determine the risks associated with this new industry; and

WHEREAS, the State of California's Division of Oil, Gas & Geothermal Resources (DOGGR) reports that oil and gas companies are currently fracking in California and specifically, in the Inglewood Oil Field in Los Angeles County, in a region which also affects the residents of Los Angeles, and that these companies have proposed future fracking activities; and

WHEREAS, the State of California's Division of Oil, Gas & Geothermal Resources (DOGGR) is not currently able to "identify where and how often hydraulic fracturing occurs within the state" and "has not yet developed regulations to address this activity."

NOW, THEREFORE, BE IT RESOLVED, with the concurrence of the Mayor, that by the adoption of this Resolution, the City of Los Angeles hereby includes in its 2011-2012 Legislative Program support for Governor Jerry Brown, for the Los Angeles Board of Supervisors, and for the State of California's Division of Oil, Gas & Geothermal Resources (DOGGR) to move swiftly to place a moratorium on hydraulic fracturing and on the disposal of fracking wastewater by injection wells until DOGGR, in conjunction with local and state authorities, makes a determination that such processes are safe for public health, for the Los Angeles water supply and for the environment.

PRESENTED BY _____
PAUL KORETZ
Councilmember, 5th District

_____
HERB WESSON
Councilmember, 10th District

_____
BERNARD PARKS
Councilmember, 8th District

SECONDED BY _____

ORIGINAL

Jennifer Kennedy

(/)

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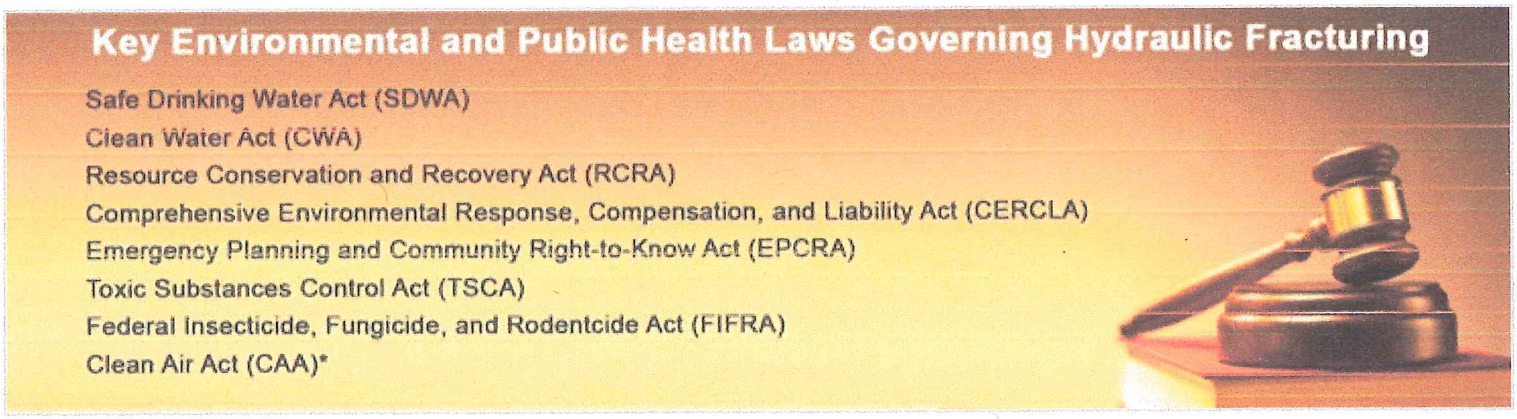
Regulations and Exemptions

Federal Law
Oil and gas development is primarily regulated under eight federal environmental and public health laws. These laws apply to drilling and hydraulic fracturing from unconventional sources. However, exemptions or limitations exist within many of these laws which affect the applicability of federal law. In general, the Environmental Protection Agency (EPA) retains authorities under federal law to respond to incidents of environmental contamination.



*Clean Air Act is out of the primary scope of work for Tip of the Mitt Watershed Council and is not evaluated below.

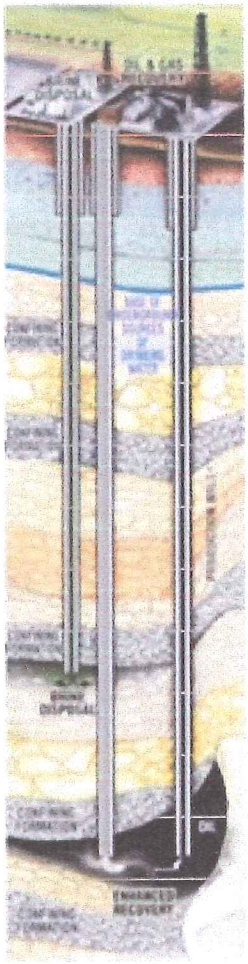
Federal laws provide some basic protections from oil and gas development activities. For example, the federal Clean Water Act (CWA) and Safe Drinking Water Act (SDWA) protect surface waters and groundwater from contamination and wastewater disposed of in injection wells are regulated to ensure that injected fluid does not endanger drinking water sources. However, in six of the federal laws, there are exemptions or limitations in regulatory coverage for preventative programs. These exemptions do not limit EPA's overall authority under federal environmental and public health laws to respond to environmental contamination, but there is less oversight of oil and natural gas development as a result.

Federal Law	Applicable to Oil and Gas Development	Exemptions or Limitations	Source of Exemption Exemption or Limitation
Safe Drinking Water Act	• Underground Injection Control Program • Imminent and Substantial Endangerment Provision	• Hydraulic fracturing fluids other than diesel fuels do not require Underground Injection Control Permit	Statutory – 2005 Energy Policy Act
Clean Water Act	• National Pollutant Discharge Elimination System program • Spill reporting and spill prevention and response planning requirements	• Federal stormwater permits not required for uncontaminated stormwater at oil and gas construction or well sites	Statutory - 1987 Water Quality Act and 2005 Energy Policy Act
Resource Conservation and Recovery Act	• Non-exempt wastes present at well sites may be regulated as hazardous • Imminent and Substantial Endangerment Provision	• Oil and gas exploration and production wastes not regulated as hazardous waste	1988 Regulatory/EPA decision
Comprehensive Environmental Response, Compensation, and Liability Act	• Hazardous substance release reporting • Imminent and Substantial Endangerment Provision for releases of a pollutant or contaminant	• Liability and reporting provisions do not apply to injections of fluids authorized by state law for production, enhanced recover, or produced water • Petroleum releases not covered	Statutory – 1980
Emergency Planning and Community Right-to-Know Act	• Reporting on use, inventories, and releases into the environment of hazardous and toxic chemicals above threshold quantities	• Oil and gas well operations not required to report releases of listed chemicals to Toxics Release Inventory	1997 Regulatory/EPA decision

Safe Drinking Water Act (SDWA)

The Safe Drinking Water Act is the main federal law that ensures the quality of Americans' drinking water. EPA regulates the injection of fluids underground through the Underground Injection Control (UIC) Program (http://water.epa.gov/type/groundwater/uic/index.cfm). In 2005, the Energy Policy Act amended SDWA to specifically exempt hydraulic fracturing from the UIC program, except in instances where diesel fuel is injected as part of the hydraulic fracturing. Therefore, the process of injecting fracturing fluid into the target formation as part of oil or gas production is exempt from these requirements unless the fluid contains diesel.

While fracking fluids are exempt under SWDA, wastewater from oil and gas operations, flowback and produced water, are not exempt if disposed of in deep injection wells. Wells used for the disposal of waste fluids associated with oil and production, including produced water, are Class II wells (http://water.epa.gov/type/groundwater/uic/class2/index.cfm). UIC regulations include minimum federal requirements for most Class II wells including obtaining a permit from the EPA or state, demonstrating that casing and cementing are adequate, and passing an integrity test prior to beginning operation of the injection well and at least once every 5 years.



Class II Wells — *Injection wells associated with oil and gas production.*

Purpose: Regulate and manage safe injection (1) of fluid brought to the surface in connection with oil and gas production and some natural gas storage operations, (2) for enhanced recovery of oil or natural gas, or (3) for hydrocarbon storage operations. Prohibit movement of fluids into USDWs.

Examples of Fluids:
- **Produced high salinity brine.**
- **Crude oil (for storage).**
- **Polymers and vicosifiers for enhanced recovery wells.**
- **Drilling fluids and muds.**

Protective Requirements:
Construction and siting
- Cased and cemented to prevent movement of fluids into USDWs.
- Construction and design of well (casing, tubing and packer) varies.

Monitoring and Testing
- Internal/external mechanical integrity testing.
- Periodic monitoring and reporting.

Recordkeeping and Reporting
- Plan for safe plugging and abandoning of wells, including demonstration of financial responsibility.

Regulatory Citations:
- 40 CFR 144 Subparts A - E
- 40 CFR 146 Subparts A and C

Source: EPA Protecting Drinking Water Through Underground Injection Control: UIC Pocket Guide

SWDA also gives EPA the authority to issues orders when the agency received information about present or likely contamination of a public water system or an underground source of drinking water that may present an imminent and substantial endangerment to human health.

Clean Water Act (CWA)

The CWA is the principal law to protect the nation's waters. CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and water quality standards for surface waters.

The National Pollutant Discharge Elimination System (NPDES) permit program (http://cfpub.epa.gov/npdes/) controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The NPDES program regulates the types and amounts of pollutants that industrial sites, industrial wastewater treatment facilities, and municipal wastewater treatment facilities can discharge into the nation's surface waters. Currently, there is a zero discharge limit for direct discharges to surface waters for oil and gas wastewater. This means that oil and gas wells cannot directly discharge produced water or wastewater into surface waters.

In 1987, the Water Quality Act amended CWA to establish a specific program for regulating stormwater discharges. Oil and gas sites were largely exempt from these requirements, as long as the stormwater was not contaminated by raw materials or waste products. The 2005 Energy Policy Act further expanded the exemption to include construction activities at oil and gas sites meaning uncontaminated stormwater discharges from oil and gas construction sites do not require an NPDES permit.

CWA does require facilities, including oil and gas well sites, to report any unpermitted releases of oil or hazardous substances above threshold quantities to the National Response Center. Oil discharges must be reported if they cause a film or sheen on the surface of the water or if it violates water quality standards. Certain oil and gas well sites are also subject to the Spill Prevention, Control, and Countermeasure (SPCC) rule and are required to prepare and implement a plan describing how they will control, contain, clean up, and mitigate the effects if any oily discharges occur. Oil and gas wells sites are subject to the SPCC rule if they have total aboveground oil

storage capacity greater than 1,320 gallons and could reasonably be expected to discharge into navigable waters of the U.S, based on location. Nearly all drill rigs have fuel tanks larger than 1,320 gallons, so if they are near navigable waters, they are subject to the SPCC rule.

Resource Conservation and Recovery Act (RCRA)

RCRA gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. In 1980, the Solid Waste Disposal Act Amendments exempted drilling fluids, produced water, and other wastes associated with the exploration, development, or production of oil or gas wells from being regulated as hazardous waste. Therefore, regardless of if a waste exhibits hazardous characteristics, wastewater including flowback, from oil and gas wells is exempt from the "cradle to grave" provisions under RCRA.

Other wastes generated from activities other than the well or field operations may be regulated as hazardous, such as unused fracturing fluids or acids, waste solvents, painting wastes, and oil and gas service wastes. RCRA also authorizes EPA to issue orders in cases where handling, treatment, or storage of hazardous or solid waste may present an imminent and substantial endangerment to health or to the environment.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

CERCLA, or Superfund, provides clean up of uncontrolled or abandoned hazardous waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. CERCLA requires operators of oil and gas sites to report releases of hazardous substances above reportable quantities to the National Response Center. However, releases of petroleum and petroleum products are excluded. The liability and reporting provisions also do not apply to injections of fluids authorized by state law for production, enhanced recovery, or produced water. Oil and gas well operators would be required to report any releases to the environment of hazardous substances, other than petroleum. For example, CERCLA applies if a stored hazardous substance was accidentally spilled onto the ground or if hazardous substances above the reportable quantity were injected but not authorized by state law.

EPA also has investigative and response authority under CERCLA, including provisions allowing EPA access to information and the authority to enter property to conduct an investigation or a removal of contaminated material.


Material Safety Data Sheet
Ethylene glycol MSDS

Section 1: Chemical Product and Company Identification

Section 2: Composition and Information on Ingredients

Section 3: Hazards Identification

Section 4: First Aid Measures

Emergency Planning and Community Right-to-Know Act (EPCRA)

EPCRA is designed to help local communities protect public health, safety, and the environment from chemical hazards. EPCRA provides individuals and their communities with access to information regarding storage or release of certain chemicals within their communities. Release notification and chemical storage reporting apply to oil and gas well sites. The release notification requires companies that produce, use, or store certain chemicals to notify state and local emergency planning authorities of certain releases that would affect the community. The chemical storage reporting provision requires facilities storing or using hazardous or extremely hazardous chemicals over certain thresholds to submit an inventory report including detailed chemical information to state and local emergency planning authorities. The requirements generally apply to facilities storing or using 1) more than 500 pounds or the threshold planning quantity, whichever is lower, of extremely hazardous substances or 2) more than 10,000 pounds of other hazardous chemicals. These facilities are required to provide chemical information through Material Safety Data Sheets, or other detailed lists.

Examples of some CERLCA hazardous chemicals used in hydraulic fracturing operations include hydrochloric acid, formaldehyde, formic acid, acetaldehyde, ethylene glycol, methanol, acetic acid, sodium hydroxide, potassium hydroxide, acrylamide, and naphthalene.

EPCRA also established the Toxics Release Inventory (TRI), a publically available database containing information about chemical releases from industrial facilities. However, oil and gas well sites are not required to report to TRI.

Toxic Substances Control Act (TSCA)

TSCA provides EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. EPA maintains the TSCA inventory, a list of chemicals that are or have been manufactured or processed in the United States. It is expected that most of the chemicals used in hydraulic fracturing are on the list.

Federal Insecticide, Fungicide, and Rodentcide Act (FIFRA)

FIFRA provides for federal regulation of pesticide distribution, sale, and use. Pesticides may be used in oil and gas wells to kill bacteria or other organisms that may interfere with the hydraulic fracturing process. Some pesticides registered under FIFRA are used in hydraulic fracturing.

State Law

Oil and gas wells in Michigan are regulated by the Michigan Department of Environmental Quality Office of Oil, Gas, and Minerals. Part 615 (http://www.legislature.mi.gov/(S(cfmoaakozfjbdxqkjrbu5e4s))/mileg.aspx?page=getObject&objectName=mcl-451-1994-III-3-2-615) is the primary state law regulating the drilling and operation of oil and gas wells, gas storage wells, and associated waste disposal or injection wells in Michigan.

Part 615 states that it is the declared policy of the state to protect the interests of its citizens and landowners from unwarranted "waste" of gas and oil and to foster the development of the industry along with the most favorable conditions and with the view to the ultimate recovery of the maximum production of these natural products.

"Waste" is defined as the following:

- Inefficient or improper use of reservoir energy;
- Drilling or operating of a well in a manner that reduces the amount of oil or gas that can be recovered;
- Unnecessary damage to fresh water or brines;
- Unnecessary loss of gas or oil from leakage or fire;
- Unnecessary damage to or destruction of the surface, soils, animal life, property, or other environmental values;
- Unnecessary endangerment of public health, safety, or welfare; and
- Drilling of unnecessary well.

Michigan has addressed some specific issues associated with high volume hydraulic fracturing by supplementing the Part 615 requirements with a permitting instructions (http://www.watershedcouncil.org/uploads/7/2/5/1/7251350/document_5_-_supervisor_of_wells_insruction_1-2011.pdf) issued in May 2011. In addition, in March of 2015, the MDEQ completed a revision of the administrative rules for oil and gas operations (/uploads/7/2/5/1/7251350/document_1._1298_2013-101eq_admincode.pdf) under Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).

The revised administrative rules codifies many of the requirements in the 2011 Supervisor of well instructions and contain additional requirements for wells using high volume hydraulic fracturing.

Under the new rule, high volume hydraulic fracturing (HVHF) is defined as a hydraulic fracturing well completion operation that is intended to use a total volume of more than 100,000 gallons of primary carrier fluid. Primary carrier fluid is the base fluid, such as water, into which chemical additive are mixed to form the hydraulic fracturing fluid.

Michigan's regulations pertaining to various aspects of the oil and drilling process, including the hydraulic fracturing, are explained below.

Water Withdrawals

Part 327 is the primary law governing water withdrawals in Michigan. Part 327 prohibits new or increased "large quantity withdrawals" of more than 100,000 gallons per day averaged over 30 days from adversely impacting water resources and requires users who develop capacity for a large quantity withdrawal to utilize an online assessment tool, register, and report. Users who develop capacity to withdraw more than 2 million gallons per day are required to obtain a permit. **However, withdrawals for oil and gas wells, including water for hydraulic fracturing, are currently EXEMPT under Part 327.**

While oil and gas activities remain exempt from Michigan's Water Use Law, the amended rules require operators to obtain approval for a large volume water withdrawal for high volume fracking operations. This requires an evaluation of large-volume water withdrawals using the MDEQ's (http://www.deq.state.mi.us/wwat/(S(xyb2etx314nhx1tpwnfirpgd))/default.aspx)Water Withdrawal Assessment Tool (WWAT) (http://www.deq.state.mi.us/wwat/(S(xyb2etx314nhx1tpwnfirpgd))/default.aspx). The WWAT is designed to estimate the likely impact of a water withdrawal on nearby streams and rivers to confirm that a withdrawal will not cause an adverse resource impact.

In addition, monitoring of groundwater levels is required if a drinking water supply well is within 1,320 feet of a proposed large volume water withdrawal. The operator is required to measure and record the water level in the monitor well daily during water withdrawal and weekly thereafter until the water level stabilizes and report all data to the MDEQ.

Prevention of Contamination

To prevent surface spills, part 615 requires "secondary containment" under tanks and wellheads. Fracking fluid and wastewater must be stored in frac tanks rather than open pits. To prevent underground leaks, Part 615 has well construction requirements, requires the

identification of nearby wells that could act as conduit for fluid, and sets requirements for monitoring and recording of pressures during fracking.

Baseline Testing
The revised administrative rules require operators to collect baseline samples from up to 10 drinking water wells within a quarter mile of the site before drilling. Samples are to be analyzed for what would be most likely found in the event of contamination including benzene, toluene, ethylbenzene, xylene, total dissolved solids, chlorides, and methane.

Chemical Disclosure
Michigan's amended administrative rules for high volume hydraulic fracturing, which became effective March of 2015, require operators to submit information on chemical additives used in a fracking operation using the internet-based FracFocus Chemical Disclosure Registry (http://fracfocus.org/) within 30 days after completion of the fracking.

The following information is required to be submitted:

- A list of all chemical additives used during the treatment specified by general type, such as acids, biocides, breakers, corrosion inhibitors, cross-linkers, demulsifiers, friction reducers, gels, iron controls, oxygen scavengers, pH adjusting agents, scale inhibitors, and surfactants.
- The specific trade name and supplier of each chemical additive.
- A list showing the specific identity of each chemical constituent intentionally added to the primary carrier fluid and its associated Chemical Abstract Service (CAS) Number
- The maximum concentration of each chemical constituent listed expressed as a percent by mass of the total volume of hydraulic fracturing fluids utilized.

There are provisions allowing operators to withhold the specific identity of a chemical constituent if it is identified as a trade secret. If a claim of trade secret protection is made, the operator must still identify the chemical family associated with the constituent.

Additionally, there exists a confidentiality periods for oil and gas wells in which well data and samples may not be disclosed to the public for 90 days from completion of drilling. This confidentiality period does not apply to information associated with spills of fracking fluid and wastewater.

Monitoring and Reporting
Operators are required to:

- Identify whether high volume fracturing is expected to be utilized in permit applications for new wells.
- Submit separate applications for HVHF operations on existing wells.
- Notify the MDEQ at least 48 hours before starting the operation.
- Monitor and report fluid pressures and volumes for all HVHF operations.

Disposal
According to state law, flowback must be disposed of in injection wells. Other forms of disposal, such as discharge to surface waters through publicly owned treatment works or evaporation pits, are thus prohibited.

Injection wells for disposal are regulated by the EPA Underground Injection Control Program and MDEQ Office of Oil, Gas, and Minerals. As part of disposal, the volume of flowback must be reported by the well operator, but there are no requirements to test waste for hazardous characteristics.

Local Zoning
Michigan's local units of government have broad regulatory authority to protect the health of their residents, the environment, and the local economy. However, the Michigan Zoning Enabling Act (ZEA) expressly preempts regulation of the" drilling, completion, or operation of oil or gas wells or other wells drilled for oil or gas exploration purposes" by counties or townships. Counties and townships are also prohibited from exercising jurisdiction over the issuance of permits for location, drilling, completion, operation, or abandonment of wells. Cities and villages are not restricted by the express preemption provision in the ZEA. But cities and villages can only regulate wells, including those that use fracking, if the ordinance does not directly conflict with detailed state and federal requirements, other environmental laws do not preempt local action, and the ordinance is not considered exclusionary.

A typical drill pad in the Marcellus Shale gas play of southwestern Pennsylvania.

Photo: USGS

While federal and state regulations exist to govern the development of oil and gas in Michigan, more protections are needed. In the case of high volume hydraulic fracturing, there are very few federal requirements because of exemptions and limitations in federal environmental laws. The State of Michigan is more prepared than many other states to regulate fracking due to Michigan's long history of oil and gas development. However, this oil and gas development is different than any other gas and oil development which has preceded it. Subsequently, more robust oversight is needed to address future development in an orderly and sustainable manner while protecting Michigan's natural resources.

The regulations and rules for oil and gas development must keep pace with the advancements in technology. If the use of fracking techniques increases in Michigan without proper regulations to provide necessary protections, there is concern that Michigan's surface, ground, and drinking water could be contaminated. Strategically located in the heart of the Great Lakes, we must make sure that Michigan's oil and gas regulations will protect our magnificent water resources and what makes Michigan the Great Lakes state.

Additional Resources

- GAO, Unconventional Oil and Gas Development: Key Environmental and Public Health Requirements, GAO-12-874 (/uploads/7/2/5/1/7251350/document_2_-_gao_report_key_environmental_and_public_health_requirements.pdf) (Washington, D.C.:September 2010)
- Summary of Federal Regulations, Regulatory Gaps and Proposed Legislation (/uploads/7/2/5/1/7251350/document_3_-_fracking_federal_regulations.pdf)
- Hydraulic Fracturing in the Great Lakes Basin: The State of Play in Michigan and Ohio (/uploads/7/2/5/1/7251350/document_6_-_hydraulic_fracturing_great_lakes_basin_report.pdf)
  This analysis offers recommendations to protect the water, people, and wildlife of the Great Lakes Basin.
- Michigan Zoning Enabling Act (/uploads/7/2/5/1/7251350/12-3-12-order.pdf)
- Michigan Part 615 Administrative Rules (/uploads/7/2/5/1/7251350/document_1._1298_2013-101eq_admincode.pdf)
- Michigan Part 615 Law (http://www.legislature.mi.gov/(S(1yiaekfuyjmnr4krggrwvlmc))/mileg.aspx?page=GetObject&objectname=mcl-451-1994-III-3-2-615)
- Hydraulic Fracturing in Michigan Integrated Assessment (AI) (http://graham.umich.edu/emopps/hydraulic-fracturing)
  A comprehensive review of policy options for high volume hydraulic fracturing in Michigan.

Additional Information

- Michigan's Oil and Gas History (/michigans-oil-and-gas-history.html)
- Concerns (/hydraulic-fracturing---concerns.html)
- (/hydraulic-fracturing---regulations-and-exemptions.html)Baseline Testing (/hydraulic-fracturing---baseline-testing.html)
- What we are doing to protect Michigan's Waters (/what-we-are-doing-to-protect-michigans-waters.html)

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Avian Botulism Monitoring (/avian-botulism-monitoring.html)

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California Produce Growing Strong on Oil Water

Due to water scarcity, more oil drilling companies are applying for permits to sell their wastewater to California's farmers.

By **Miranda Fox** | September 28, 2015

2k

Associate Producer

MIRANDA FOX

Miranda is a graduate of the Master's in Global & International Studies program at the University of California, Santa Barbara, where her research focused on the social and cultural impacts of climate change. She was part of the Communications team in San Francisco from 2014–2016.

An oil pumpjack towers above almond orchards in Shafter, Calif., a small city in Kern County.

"RED AND WHITE" BY SARAH CRAIG/FACES OF FRACKING

California's Central Valley is a world entwined in contradiction. Lush rows of crops and orchards stretch as far as the eye can see while bone-dry, caramel-colored hills surround them. This farming mecca exported approximately $21.24 billion in agricultural products in 2013, but the valley's largest cities hover in the top five U.S. regions hosting the highest percentages of people living in poverty. Agricultural wealth, much like its water during drought, hardly trickles.

In a region known for feeding America, the oil and gas industry is also booming. Seven of California's 10 largest oil fields run beneath the valley. Because of California's water scarcity, the interplay of these two industries is creating one more dangerous contradiction: the use of toxic drilling wastewater for agricultural irrigation.

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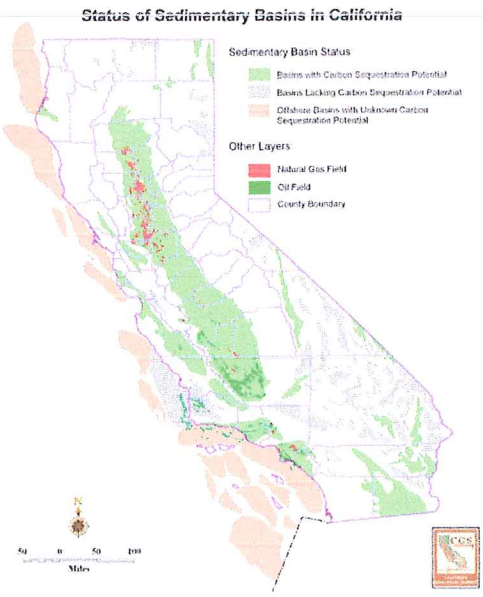

A map of California indicating the location of oil and gas reserves.

COURTESY OF CALIFORNIA GEOLOGICAL SURVEY

According to a *Los Angeles Times* report, Chevron recycles 21 million gallons of oil field wastewater every day, selling it to farmers who use it to water 45,000 acres of citrus, nut and grape crops. This program has been in effect for 20 years, but the ongoing drought is inspiring more companies to apply for the permits they need to begin similar programs.

New permit holders can expect higher chemical-testing standards than those accepted in the past. Earlier this year, all oil producers received a notification from the Central Valley water authority requiring them to test for more chemicals in wastewater to comply with new state fracking regulations passed in December 2014. Until now, regulators didn't require testing of

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wastewater for the range of chemicals used in modern oil production. This includes the process of hydraulic fracturing or "fracking," a technique in which oil and gas are drilled from rock under a high-pressure mixture of water and chemicals.

The tests are in, and the findings are a little hard to swallow. Chevron's recycled wastewater contains traces of oil, the carcinogenic chemical benzene, and acetone, a powerful industrial solvent. While California's regulations do not allow even trace amounts of benzene in drinking water, there is no state standard for crop irrigation water. Another regulatory hole allows this water to be used on farms that are USDA certified organic, and a portion of those 45,000 acres irrigated with Chevron's water belongs to Sunview, a company selling organic raisins and grapes.

In response to these findings, Assemblyman Mike Gatto (CA-D) introduced a bill that would require agriculture irrigated with water previously used in oil production to display the warning, "Produced using recycled or treated oil-field wastewater." If passed, this law would give consumers the opportunity to make an informed decision about how their food is produced.

Earthjustice is working to block a federal plan

to open up more than a million acres of public land and mineral rights in central California to oil drilling. We are also working to protect freshwater supplies by stopping the injection of industry wastewater into protected aquifers.

Tags:
Clean Water Act, Drought, Food, Fracking, Gas, Oil, Water

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"The people of Dryden stood up to defend their way of life against the oil and gas industry."

– DEBORAH GOLDBERG
Earthjustice managing attorney, on successful fight by Dryden, NY, to ban fracking in their town.

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