CITY OF OAKLAND

CITY HALL • 1 FRANK H. OGAWA PLAZA • OAKLAND, CALIFORNIA 94612

City Council
Vice Mayor and Councilmember
District Three

(510) 238-7003
FAX (510) 238-6129
TTY (510) 238-7413

MEMORANDUM

TO: CITY COUNCILMEMBERS

FROM: NANCY NADEL, COUNCIL DISTRICT 3

SUBJECT: SUPPLEMENTAL MEMORANDUM IN SUPPORT OF RESOLUTION REQUESTING THE GOVERNOR AND THE STATE OF CALIFORNIA'S DIVISION OF OIL, GAS AND GEOTHERMAL RESOURCES (DOGGR) TO MOVE SWIFTLY TO PLACE A MORATORIUM ON HYDRAULIC FRACTURING AND ON THE DISPOSAL OF FRACKING WASTEWATER BY INJECTION WELLS UNTIL THE DOGGR, IN CONJUNCTION WITH STATE AND LOCAL AUTHORITIES, MAKES A DETERMINATION THAT SUCH PROCESSES ARE SAFE FOR PUBLIC HEALTH, FOR THE STATE'S WATER SUPPLY, AND FOR THE ENVIRONMENT

DATE: NOVEMBER 13, 2012

REASONS FOR SUPPLEMENTAL MEMORANDUM:

Additional information was requested to support the proposed Resolution. Specifically, Rules and Legislation Committee requested the following information:

1. What other California municipalities have done/are doing to regulate fracking;
2. Are there gas and oil wells located in the Bay Area; and
3. Is fracking currently a practice in the Bay Area?

Response to requests:

1. To date, seven California cities have taken steps to regulate/ban fracking.

   - Berkeley, CA - The City Council voted in May 2011 to support FRAC Act H.R. 1084/S.587 and BREATHE Act H.R. 1204 to repeal the Fracking Exemption to the Safe Drinking Water Act and Require Disclosure of Chemicals used in Fracking (Attachment A)
   - Culver City, CA - unanimously approved anti-fracking resolution in July 2012, becoming the first municipality to call for a statewide ban on fracking (Attachment B)
   - Carson City, CA - followed Culver City's lead and passed a similar resolution in July 2012. (Attachment C)
   - Mar Vista Community Council in Los Angeles, CA - Voted July 2012 to support a ban on fracking with a letter to the Governor of California, the Los Angeles City Council, the Los Angeles Board of Supervisors, and the Mayor of Los Angeles (Attachment D)

- The City of Los Angeles has introduced legislation to support a moratorium and, with five co-sponsors, the resolution is expected to pass later this month or next month (Attachment E)
- Monterey County rejected applications from Venoco to frack based on the risks and the fact that both California and the federal government are doing nothing to protect people and the environment from fracking (Attachment *F*)
- Santa Barbara County voted that fracking proposals must get approved by the planning commission, which could determine if a CEQA review is warranted (Attachment G)

In addition, a coalition of environmental advocates filed suit against California oil regulators in Alameda County Superior Court on October 16, 2012, and that lawsuit is pending. The lawsuit is an effort to stop hydraulic fracturing as regulators attempt to devise new rules for this practice.

2. Without regulation, it is impossible to determine the number and exact locations of oil and gas fields the Bay Area; another reason regulation is necessary. However, according to Andrew Alden, QUEST Northern California, "The oil and gas fields of the Central Valley intrude into the Bay Area from the Delta as far as Concord and the Suisun Bay to its north. Gas was produced from the hills north of Concord in the 1960s, and today the old Los Medanos gas field is used by PG&E for storage."

3. The lack of regulation also makes it difficult to determine if fracking is currently occurring in the Bay Area; however, now is the time to ban fracking. Fracking is taking place from the Sacramento Valley to Los Angeles County, and the Bay Area will be next. See the attached report, C*alifornia,* H*ere* T*hey* C*ome: N*ow *i*s the T*ime* to B*an* F*racking*, from Food & Water Watch, May 2012. (Attachment **H**)

Finally, I have attached two additional documents that further define the activity of fracking and how that activity can induce seismicity:

- ***What** is **Fracking***, from Food & Water Watch, June 2012 (Attachment I)
- Information on Induced Seismicity (Attachment J)

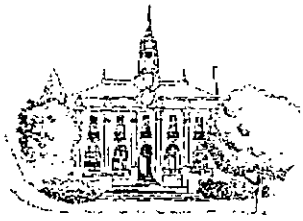
Respectfully submitted,

Nancy J. Nadel

Nancy Nadel

Attms:

A - Berkeley, CA Resolution
B - Culver City Resolution
C - Carson City Resolution
D - City of Los Angeles Proposed Resolution
E - Mar Vista Community Support Letter
F - Monterey County rejection of Venoco project
G - Santa Barbara mandate that fracking proposals must get Planning Commission approval
H - Food & Water Watch Report, California, Here They Come
1 - Food & Water Watch Report, What is Fracking
J - Information on Induced Seismicity



Kriss Worthington

Councilmember, City of Berkeley, District 7
2180 Milvia Street, 5th Floor, Berkeley, CA 94704
PHONE 510-981-7170 FAX 510-981-7177 kworthington@ci.berkeley.ca.us

ACTION CALENDAR
May 17, 2011

To: Honorable Mayor and Members of the City Council
From: Councilmember Kriss Worthington

Subject: Support FRAC Act, H.R. 1084/S.587, and BREATHE Act, H.R. 1204 to Repeal the Fracking Exemption to the Safe Drinking Water Act and Require Disclosure of Chemicals Used in Fracking

RECOMMENDATION

Adopt a Resolution supporting the Fracturing Responsibility and Awareness of Chemicals Act ("FRAC Act"), H.R. 1084/S.587, and the Bringing Reductions to Energy's Airborne Toxic Health Effects Act ("BREATHE Act"), H.R. 1204 to repeal the fracking exemption to the Safe Drinking Water Act and require disclosure of chemicals used in fracking.

BACKGROUND

Fracking is the hydraulic fracturing for natural gas that involves the use of chemical and hazardous material during construction, drilling, hydraulic fracturing, gas production and delivery, well maintenance, and workover operation. Hydraulic fracturing of underground geologic formations is often accomplished by injecting a complex mix of fluids and chemicals, including large volumes of water, on average 4.5 million gallons per well, under very high pressure to create fractures in gas bearing geologic formations.

Many of the chemical constituents injected during hydraulic fracturing have documented adverse health effects and/or adverse environmental impacts. There have been more than a 1,000 documented cases of water contamination near fracking sites; some people who live near these sites can now light their drinking water on fire. The pollution of water caused by fracking threatens the long term economic well being of communities, as businesses and consumers depend on clean drinking water.

The Fracturing Responsibility and Awareness of Chemicals Act ("FRAC Act"), which is currently pending in Congress, would repeal the fracking exemption to the Safe Drinking Water Act and require disclosure of chemicals used in fracking.

The Bringing Reductions to Energy's Airborne Toxic Health Effects Act ("BREATHE Act"), which is currently pending in Congress would repeal the exception to the Clean Air Act for aggregation of emissions from oil and gas development sources.

ATTM A

FINANCIAL IMPLICATIONS
Unknown.

CONTACT PERSON
Councilmember Kriss Worthington 510-981-7170

Attachment:
1. Resolution Calling for the End of Fracking

RESOLUTION NO. --N.S.

CALLING FOR THE END OF FRACKING

WHEREAS, the hydraulic fracturing (fracking) for natural gas involves the use of chemicals and hazardous materials during construction, drilling, hydraulic fracturing, gas production and delivery, well maintenance, and workover operations; and

WHEREAS, hydraulic fracturing of underground geologic formations is often accomplished by injecting a complex mix of fluids and chemicals, including large volumes of water, on average 4.5 million gallons per well, under very high pressure to create fractures in gas bearing geologic formations; and

WHEREAS, many of the chemical constituents injected during hydraulic fracturing have documented adverse health effects and/or adverse environmental impacts; and

WHEREAS, there have been more than a 1,000 documented cases of water contamination near fracking sites; some people who live near these sites can now light their drinking water on fire; and

WHEREAS, wastewater from fracking can contain radioactive elements and has been discharged into rivers that supply drinking water for millions, according to the *New York Times*; and

WHEREAS, use of these hydraulic fracturing mixes exposed adjacent land and surface waters to the risk of contamination through open pit storage, truck transport on roadways, and activities during well development; and

WHEREAS, the pollution of water caused by fracking threatens the long term economic well being of communities, as businesses and consumers depend on clean drinking water; and

WHEREAS, the problems associated with fracking were featured in the Academy Award nominated documentary Gasland; and

WHEREAS, in 2005, as part of the federal Energy Policy Act and over objections of health care, scientific, environmental, and conservation communities, regulation of hydraulic fracturing fluids under the Safe Drinking Water Act by the Environmental Protection Agency was exempted, thereby allowing oil and gas companies to use these substances without federal oversight or standards; and

WHEREAS, the oil and gas industry is not required by federal law to publicly disclose chemical formulas of hydraulic fracturing fluids so that this information is publicly available for health and safety purposes; and

WHEREAS, Former President George W. Bush's EPA point person on water now admits fracking should never have been exempted from regulation; and

WHEREAS, the Fracturing Responsibility and Awareness of Chemicals Act ("FRAC Act"), which is currently pending in Congress, would repeal the fracking exemption to the Safe Drinking Water Act and require disclosure of chemicals used in fracking; and

WHEREAS, the Bringing Reductions to Energy's Airborne Toxic Health Effects Act ("BREATHE Act"), which is currently pending in Congress would repeal the exception to the Clean Air Act for aggregation of emissions from oil and gas development sources; and

WHEREAS, protection of water supplies and resources is better accomplished by prevention of contamination and environmental degradation, rather than attempting to cleaning up contamination and restoring degraded environments after the fact.

NOW THEREFORE, BE IT RESOLVED by the Council of the City of Berkeley that the City of Berkeley supports the FRAC Act and BREATHE Act.

MEETING DATE: 07/02/12
AGENDA ITEM: 1) Adoption of a Resolution Urging the State of California's Division of Oil, Gas & Geothermal Resources (DOGGR) to Place a Moratorium on Hydraulic Fracturing ("Fracking"); and 2) Discussion of Options Related to Local Regulation of Fracking.

ATTACHMENTS

ATTM B

RESOLUTION NO. 2012-R_____

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CULVER CITY, CALIFORNIA, URGING THE STATE OF CALIFORNIA, DEPARTMENT OF CONSERVATION, DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES (DOGGR) TO PLACE A MORATORIUM ON HYDRAULIC FRACTURING ("FRACKING").

WHEREAS, currently, and over the next several years, hundreds of new oil wells will be drilled in the Inglewood Oil Field (the "Oil Field'), which spans across the jurisdictions of the City of Culver City and unincorporated Los Angeles County and is located in a heavily populated urban area; and

WHEREAS, hydraulic fracturing, also known as "fracking," is generally a technique to increase oil and gas production by injecting fluids at pressures sufficient to create fractures in subsurface rock or other tight geological formations in order to release petroleum or natural gas for extraction; and

WHEREAS, the neighborhoods and communities surrounding the Oil Field, including Culver City residents, have expressed alarm about the potential impacts of fracking on the public health and safety and the environment; and

WHEREAS, the California State Department of Conservation, Division of Oil, Gas & Geothermal Resources (DOGGR) is currently engaged in the process of studying potential regulations on fracking. As part of this effort, DOGGR has held several community meetings throughout the State seeking public comment relating to potential regulation of fracking; and

WHEREAS, On June 12, 2012, DOGGR held one such community meeting in the City of Culver City, during which a significant number of people in the Los Angeles

County Region, including Culver City residents and the Culver City City Council (the "City Council"), provided testimony regarding the potential risks of fracking, the concern that fracking is generally unregulated and that no further fracking should occur, at least until DOGGR has adopted fracking regulations that can ensure protection against the risks to air quality, water quality and ground movement; and

WHEREAS, at the community meeting, little or no evidence or testimony was offered that fracking was safe in the absence of such regulations while numerous members of the public offered considerable testimony that fracking posed a substantial risk to the community and the environment; and

WHEREAS, at the City Council meeting of June 18, 2012, in response to the community's concerns, the Council directed staff to agendize the consideration of a resolution urging DOGGR to place a moratorium on fracking and the disposal of fracking wastewater by injection wells until such time as DOGGR enacts legislation to regulate fracking.

NOW, THEREFORE, the City Council of the City of Culver City DOES HEREBY RESOLVE as follows:

1. The City of Culver City urges Governor Jerry Brown and the California State Department of Conservation, Division of Oil, Gas & Geothermal Resources (DOGGR), to immediately place a moratorium on hydraulic fracturing and on the disposal of fracking wastewater by injection wells until DOGGR takes ail necessary and appropriate actions to adopt, implement and enforce comprehensive regulations concerning the practice of fracking that will ensure that public health and safety and the environment will be adequately protected.

2. The City Clerk is hereby directed to transmit a copy of this Resolution to Governor Jerry Brown and DOGGR.

APPROVED and ADOPTED this _____ day of _____ 2012.

ANDREW WEISSMAN, MAYOR
City of Culver City, California

ATTEST:

MARTIN R. COLE, City Clerk

APPROVED AS TO FORM:

CAROL A. SCHWAB, City Attorney

A12-00521

City of Carson
Report to Mayor and City Council

July 17, 2012
New Business Discussion

SUBJECT: CONSIDER RESOLUTION NO. 12-078 CALLING UPON THE STATE OF CALIFORNIA, DEPARTMENT OF CONSERVATION, TO PLACE A BAN ON HYDRAULIC FRACTURING

Submitted by William W. Wynder
City Attorney

Approved by David C. Biggs
City Manager

I. SUMMARY

This item is on the agenda at the request of Councilmember Gipson and Councilmember Davis-Holmes.

Presented for the Council's consideration is a resolution calling upon the State of California, Department on Conservation, to prohibit a drilling practice commonly known as "fracking."

II. RECOMMENDATION

CONSIDER and PROVIDE direction.

III. ALTERNATIVES

1. WAIVE further reading and ADOPT Resolution No. 12-078, "A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CARSON, CALIFORNIA, URGING THE STATE OF CALIFORNIA, DEPARTMENT OF CONSERVATION, DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES (DOGGR) TO PLACE A BAN ON HYDRAULIC FRACTURING."
2. TAKE no action on this item.
3. TAKE such other or additional action as is permitted by law.

IV. BACKGROUND

Advances in drilling technology and hydraulic fracturing, or "fracking," have now made it economically feasible to extract oil and natural gas from shale and other impermeable rock formations. However, while such drilling and fracking has been a boon for the oil and gas industry in the United States, various environmental groups have characterized the technology as a "nightmare for Americans exposed to the pollution that accompanies shale development."

"Fracking" involves the injection of millions of gallons of "frack fluid" into dense shale rock in order to crack the rock and release oil or natural gas. Frack fluid contains any combination of up to nearly 600 chemicals along with millions of gallons of water and sand. After frack fluid is injected into the earth, some of it

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ATTM C

comes back out in the form of wastewater that cannot safely be treated in standard wastewater facilities.

Private oil and gas companies are providing capital for California shale development. Fracking has been implicated in the contamination of water supplies across the United States. *ProPublica* identified more than 1,000 cases of water contamination near drilling sites documented by courts, states and local governments around the country prior to 2009. Pennsylvania cited 451 Marcellus Shale gas wells for 1,544 violations in 2010 alone.

According to *Food & Water Watch.com*, fracking is causing the following adverse impacts in California (and nation wide):

1. Fracking chemicals are toxic and can contaminate water as a result of spills or accidents.

2. Fracking produces hazardous wastewater, which can contain radioactive substances as well as toxic chemicals, making disposal difficult and dangerous.

3. Fracking requires millions of gallons of water, which can deplete local water supplies.

4. Fracking can cause natural gas to migrate into drinking water sources, which can cause houses and wells to explode.

There have been more than 1,000 documented cases of water contamination near drilling sites around the country. People who live in areas where fracking occurs experience contaminated water, reduced property value, increased truck traffic, loud noise, explosions and even illness.

For the reasons set forth in the attached resolution, Councilmember Gipson requests favorable consideration of, and adoption by, the attached resolution.

V. FISCAL IMPACT

None directly impacting the City of Carson.

VI. EXHIBITS

Resolution No. 12-078. (pgs. 4-5)

Prepared by: William W. Wynder, City Attorney

TO:Rev03-08-12

Reviewed by:

City Clerk	City Treasurer
Administrative Services	Development Services

City of Carson **Report to Mayor and City Council**

Economic Development	Public Services

Action taken by City Council

Date_____ Action_____

_____

RESOLUTION NO. 12-078

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CARSON, CALIFORNIA, URGING THE STATE OF CALIFORNIA, DEPARTMENT OF CONSERVATION, DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES (DOGGR) TO PLACE A BAN ON HYDRAULIC FRACTURING

WHEREAS, currently, and over the next several years, hundreds of new oil wells will he drilled in the Inglewood Oil Field (the "Oil Field'), which spans across the jurisdictions of the City of Carson and unincorporated Los Angeles County and is located in a heavily populated urban area; and

WHEREAS, hydraulic fracturing, also known as "fracking," is generally a technique to increase .oil and gas production by injecting fluids at pressures sufficient to create fractures in subsurface rock or other tight geological formations in order to release petroleum or natural gas for extraction; and

WHEREAS, the neighborhoods and communities surrounding the Oil Field, including Carson residents, have expressed alarm about the potential impacts of fracking on the public health and safety and the environment; and

WHEREAS, the California State Department of Conservation, Division of Oil, Gas & Geothermal Resources (DOGGR) is currently engaged in the process of studying potential regulations on fracking. As part of this effort, DOGGR has held several community meetings throughout the State seeking public comment relating to potential regulation of fracking; and

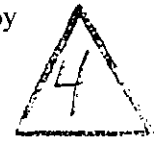
WHEREAS, On June 12, 2012, DOGGR held one such community meeting in the City of Carson, during which a significant number of people in the Los Angeles County Region, including Carson residents and the Carson City Council (the "City Council"), provided testimony regarding the potential risks of fracking, the concem that tracking is generally unregulated and that no further fracking should occur, at least until DOGGR has adopted fracking regulations that can ensure protection against the risks to air quality, water quality and ground movement; and

WHEREAS, at the community meeting, little or no evidence or testimony was offered that fracking was safe in the absence of such regulations while numerous members of the public offered considerable testimony that fracking posed a substantial risk to the community and the environment.

NOW, THEREFORE, the City Council of the City of Carson DOES HEREBY RESOLVE as follows:

1. The City of Carson urges Governor Jerry Brown and the California State Department of Conservation, Division of Oil, Gas & Geothermal Resources (DOGGR), to immediately place a ban on hydraulic fracturing and on the disposal of fracking wastewater by

EXHIBIT NO. 01



injection wells until DOGGR takes all necessary and appropriate actions to adopt, implement and enforce comprehensive regulations concerning the practice of fracking that will ensure that public health and safety and the environment will be adequately protected.

2. The City Clerk is hereby directed to transmit a copy of this Resolution to Governor Jerry Brown and DOGGR.

PASSED, APPROVED and **ADOPTED** this ___ day of July, 2012.

_____
Mayor Jim Dear

ATTEST:

_____
City Clerk Donesia L. Cause, CMC

APPROVED AS TO FORM:

_____
City Attorney

MAR VISTA COMMUNITY COUNCIL
Regular Meeting of the Board of Directors
Tuesday, JULY 10, 2012, at 7:00 PM
Mar Vista Recreation Center Auditorium
11430 Woodbine Street, Mar Vista, CA 90066
www.marvista.org

The audience is requested to fill out a "Speaker Card" to address the Board on any item of the Agenda prior to the Board taking action on an item. Comments from the public on Agenda items will be heard only when the respective item is being considered. Comments from the public on other matters not appearing on the Agenda that are within the Board's subject matter jurisdiction will be heard during the public comment period. Public comment is limited to two minutes per speaker, unless waived by the presiding officer of the Board. Mar Vista Community Council meetings will follow Rosenburg's Rules of Order, the latest edition. For more information, please visit the MVCC web site.

AGENDA

1. **Call to Order and Welcome – Chair** (1 min.)
2. **Presentation of the Flag and Pledge of Allegiance** (1 min)
3. **Approval of Minutes** (public comment permitted) (2 min)
4. **Public Comment & Announcements** for items not on the agenda (max1 min each)
5. Elected **Officials and City Department Reports** (max 1 min. each)
   a. DWP Neighborhood Council Liaison Victoria Cross Victoria.Cross@WATER.LADWP.com
   b. Mar Vista Recreation Center – Jason Kitahara, Director
   c. CD 11 - Bill Rosendahl, rep. by Len Nguyen Len.Nguyen@lacity.org , Field Deputy
   d. CD 5 – Paul Koretz, rep. by David Giron David.Giron@lacity.org , Field Deputy
   e. US 36 – Janice Hahn
   f. CA Senate 28 – Ted Lieu, rep. by Robert Pullen-Miles Robert.Pullen-Miles@sen.ca.gov
   g. CA Assembly 47 – Holly Mitchell
   h. CA Assembly 62 – Steven Bradford
   i. 2nd Dist. L. A. County Board Super.– Mark Ridley Thomas, rep. by Karly Katona Karly.Katona@bos.lacounty.gov
   j. Mayor of Los Angeles – Antonio Villaraigosa, rep. by Joe Hari Joseph.Hari@lacity.org
6. **Officers and Liaison Reports** (Action items included with public comment permitted, 1 min per speaker)
   a. **Chair-Sharon Commins**
   b. **First Vice Chair-Bill Koontz**
   c. **Second Vice Chair-Chuck Ray**
   d. **Secretary-Michael Millman**
   e. **Treasurer-Bill Scheding**
      i. Approval of JUNE 2012 US Bank Card Statement
      ii. **FUNDING MOTION:** Executive Committee: Motion to allocate up to $250 towards the costs of the annual Congress of Neighborhoods event calendared for September 22, 2012. Funds must be spent in Fiscal year 2012-13 and must conform to all Empower funding guidelines
      iii. **FUNDING MOTION:** Outreach Committee [via email]: The MVCC will allocate up to $200 for the Hilltop Neighbors Association Block party to be held in September 2012. Funds will be used to pay for a "bounce house" for the children, food for the barbeque (hot dogs, buns, condiments, etc.) supplies for the food service (paper goods, water, soft drinks, charcoal, etc.), as well as supplies for other community festivities such as face painting for children. Funds must be spent in Fiscal year 2012-13 and must conform to all Empower funding guidelines. See Attachment A.
   f. **Animal Welfare Agencies and Organizations** – Curt Steindler
   g. **DWP MOU** – Chuck Ray
   h. **DWP/BOS Recycled Water Advisory Group**-Christopher McKinnon
   i. **Mar Vista Bi Monthly LADOT/CD11/LAPD Traffic Committee** - Linda Guagliano
   j. **LANCC Delegate Report** – Maritza Przekop, Chuck Ray
      i. **POLICY MOTION:** Neighborhood Council Performance [LANCC] See Attachment B.
7. **Committee reports - Action items included** (public comment permitted, 1 min per speaker) **; items** may be received and filed by consent if no discussion or public comment
   a. **Executive & Finance Committee-Chair Sharon Commins**
      i. **POLICY MOTION: Amend Standing Rules: Grants Funding Policies: See Attachment C for full** text
   b. **Election & Bylaws Committee** – Bob Fitzpatrick & Geoff Forgione, Co-Chairs
      i. Election update and future committee meeting schedule
   c. **Green Committee** – Sherri Akers & Jeanne Kuntz, Co-Chairs
      i. **POLICY MOTION**: Fracking: The Mar Vista Community Council supports a ban on fracking and approves the text of the attached letters to be sent to the Governor, the LA City Council, the LA Board of Supervisors and the Mayor. See Attachment D
      ii. **POLICY MOTION**: California Homemade Food Act, AB 1616: The MVCC supports AB 1616, the California Homemade Food Act and approves the attached letter to be sent to the State Assembly and the Governor. See Attachment E.

ATTM D

Governor Jerry Brown
State Capitol, Suite 1173
Sacramento, CA 95814

The Mayor of the City of Los Angeles
Mayor Antonio Villaraigosa
200 North Spring St., Room 303
Los Angeles, CA 90012

County of Los Angeles Board of Supervisors

Los Angeles City Council
City Hall Office
200 N. Spring Street, Room 410
Los Angeles, CA 90012

RE: Fracking in California-Ban

Dear Governor Brown:
CC: Mayor Antonio Villaraigosa; The County of Los Angeles Board of Supervisors; Los Angeles City Council

From the Sacramento Valley to Los Angeles County, the oil and gas industry has only just begun to frack California. Next generation fracking is now here, and will effect the Mar Vista Community.

Millions of gallons of a mixture of water, sand and chemicals can now be injected deep underground at high pressure to fracture shale and other tight rock formations, allowing oil or gas to flow. This is a radical departure from the fracking traditionally done in California to "rework" wells, wringing out more production after wells were first drilled.

While modern drilling and fracking may be an engineering marvel, it results in millions of gallons of toxic wastewater and thousands of tons of solid waste for each new well. It causes serious air pollution problems and creates serious short- and long-term risks to drinking water resources. And it compounds the already alarming threats that global climate change poses to the California economy.

In order to protect California public health and environment, the Mar Vista Community Council urges you to place an immediate ban on fracking in California.

Fracking pollutes water
Known and suspected carcinogens, including naphthalene, benzene, toluene, ethylbenzene and acrylamide, have been consistently used in fracking fluid. In a draft report published in December 2011, the U.S. Environmental Protection Agency (EPA) recently found that fracking likely explained groundwater contamination in Pavilion, WY. In addition to fracking chemicals, fracking wastewater contains potentially extreme levels of naturally occurring but harmful contaminants, such as toxic metals and radioactive material.

The Plains Exploration and Production Corporation (PXP) has already fracked two wells at the Inglewood Field in Los Angeles – which is boarded by Culver City on the west, on the north by the Los Angeles Mid-City district, and on the east by the Crenshaw district. However PXP plans to continue tracking, and a large amount of the untapped oil reserves are located underneath Culver City residential homes which is miles outside the actual boarders of the oil field. Fracking on the Inglewood Oil Field threatens to contaminate local groundwater and Ballona Creek, which discharges into Santa Monica Bay. In June of 2011, the EPA found that the Division of Oil, Gas and Geothermal Resources (DOGGR) is not adequately safeguarding California's water from pollution from faulty wells citing inadequate staffing among other problems. In addition, many of the industry's targeted wells are in the Sacramento River watershed and San Francisco Bay Delta areas, a source of drinking water for over 23 million Californians.

In 2002, California agencies reviewed oil exploration and production wastes to consider whether such wastes should continue to be considered "non-hazardous". Thanks to a special oil and gas industry exemption, the non-hazardous status was maintained. However, waste from fracking was not considered in this review.

In California, wastewater from fracking and conventional drilling is often injected underground into wells not designed to hold fracking wastewater. In 2008 oil companies in Kern County pumped 425 million barrels of wastewater into such wells. These wells have been known to leak, resulting in groundwater pollution. One farmer in Kern County suffered $2 billion in economic loss when his crops died as a result of groundwater contaminated from oil drilling wastewater. In 2011 alone, industry wastewater from the Inglewood Oil Field of Los Angeles produced over 126 million barrels of wastewater that was then pumped back into over 200 wells.

Fracking pollutes air
Fracking is resulting in serious local and regional air pollution problems across the country. Hazardous air pollutants found near fracking sites include methanol, formaldehyde, and carbon disulfide. Volatile organic compounds, including nitrogen oxides, benzene and toluene, are also discharged during fracking. These compounds mix with emissions from heavy-duty truck traffic, large generators and compressors at well sites and contribute to smog formation. A recent study by the University of Colorado found rates of air pollutants five times above a federal hazard standard near fracking sites in Colorado. Increased air pollution from fracking is of particular concern in California, with many areas having some of the worst air qualify in our nation.

In addition, widespread drilling and fracking in California will only undermine the state's efforts to reduce greenhouse gas emissions to 1990 levels by 2020, pursuant to AB 32. In addition to emissions generated by producing, refining and burning shale oil, drilling

and fracking for shale oil can result in significant uncontrolled emissions of methane; a potent greenhouse gas often associated underground with oil.

Fracking: earthquakes and ground movement
What is known is that oil and gas extraction has caused earthquakes in California in the past, most notably in Wilmington, California from 1947 to 1961, and more recently a dozen small earthquakes shook Eastern Ohio due to fracking wastewater being disposed of in underground injection disposal wells. What is unknown is whether the modern fracking in California, and the disposal of massive volumes of fracking wastewater, will end up causing potentially destructive earthquakes in California's future.

The Inglewood Oil Field, situated In a community of 300,000 people, lies over two earthquake faults. One of the fault lines is already expected to have a 7.4 earthquake. Since PXP escalated its drilling in 2006, local residents in communities such as Culver City and Baldwin Hills have seen their homes crack and their land sink. Ever more powerful and intense fracking could result in much greater and more costly property damages for these local residents.

Fracking and property values
In addition fracking is causing further economic woes for communities across the country, leaving plummeting property values in its wake. A homeowner in Pennsylvania was recently denied a mortgage based on fracking underway on his neighbor's property and Quicken Loans has cited plummeting values near fracking cites as consideration in its loan-making decisions. If PXP moves ahead with increasing fracking operations on the Inglewood Oil Field, and in and under Culver City, this could have a real impact on the Mar Vista Community.

Conclusion
Because of these severe consequences, a ban is essential to protect California. Culver City Council has already unanimously passed a resolution calling on the state to ban fracking. And Los Angeles City Council has introduced the same resolution which the Mar Vista Community Council wholeheartedly endorses. The mere disclosure of where fracking is occurring and the chemicals used in the process does not prevent them from polluting our air and water. The fracking process is simply too dangerous to be properly regulated. As fracking operations continue to threaten California, we urge you to take swift action and issue an immediate ban on all fracking operations in California.

Attachment E: California Homemade Food Act

Christina Oatfield
Sustainable Economies Law Center
436 14th St., Suite 1120
Oakland, CA, 94612

June 2012

Dear Members of the California Legislature:

On behalf of the Mar Vista Community Council, I am writing to officially express our support for AB 1616, the California Homemade Food Act, authored by Assembly member Mike Gatto. The California Homemade Food Act will legalize artisanal food production and promote neighborhood-based economic opportunities for micro-entrepreneurs.

We recognize the Act's potential to help residents more easily launch small businesses by using their home kitchens and encourages the use of fresh, locally sourced ingredients like those available at our Mar Vista Farmer's Market on Grandview Boulevard. We believe this will enhance our neighborhood's food environment and is aligned with the efforts of the Los Angeles Food Policy Council.

By helping return food production to the local level, the Homemade Food Act represents an effort to strengthen bonds between local residents and businesses as neighbors produce food specifically for their community. We believe that those who prepare food for loved ones, friends and neighbors naturally hold themselves to a high standard and level of accountability for the health and safety of those they feed and that the human connection is an important ingredient in food prepared by local residents for local residents. At the same time, we recognize the importance of protecting the public against food-borne illness, and we are confident that the education, training, registration, permitting, and Inspection provisions of the California Homemade Food Act will enable California's Environmental Health Departments to safeguard the public's health as these not-potentially-hazardous foods enter the marketplace.

We also support the California Homemade Food Act's stance on zoning laws. It will require local governments to classify such operations as an allowable use of residential property in accordance with local zoning ordinances and in no way create an inappropriate public use of a residential community.

Thank you for giving the California Homemade Food Act, AB1616, the strongest consideration at a time when our economy and our food system would benefit greatly from it.

Sincerely,

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

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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

EXHIBIT B

DISCUSSION

Present Position of County Staff

In December of 2010, while staff had not concluded that the proposed project should require an Environmental Impact Report (EIR), staff had written that additional expertise was needed and that further study was warranted. Without a public discussion before the Planning Commission on the substantive matters of oil exploration and fracking (just discussions of continuing the matter) the Commission has not had an opportunity to direct staff or the applicant regarding the issues. Staff now recommends that a comprehensive EIR be prepared for the exploratory oil and gas well proposals, or that the project be denied. Staff makes these recommendations for the following reasons that will be addressed in further detail:

1. Environmental issues need additional authoritative study;
2. Staff has an eroded confidence in the California Department of Gas and Geothermal Resources (DOGGR) to provide appropriate oversight for fracking activities;
3. A United States Environmental Protection Agency (EPA) study on the potential of ground water contamination from the practice of fracking has not been published; and
4. Lack of communication from Venoco LLC, and missed meetings without follow-up.

Of the two staff recommendations, staff s preferred alternative would be to support the appeal and deny the Zoning Administrator's approval of Venoco LLC's exploratory oil and natural gas well Use Permits: PLN090118 (Resolution 10-039), PLN090119 (Resolution 10-040), and PLN090120 (Resolution 10-041).

1. Environmental issues and subjects that need additional authoritative study

   - The general practice of "fracking" for oil and gas exploration; what is known and not known.
   - The potential effects of exploring for oil and gas and fracking these nine particular well sites.
   - Topics within an environmental impact report should include:
     - Site specific geological and geotechnical studies, including an authoritative analysis of potential effects on regional and local seismicity;
     - Identification of the water supply source for the millions of gallons of water to be mixed with fracking fluids and the potential environmental impacts of removing these waters from their original source;
     - Hazardous materials handling: Specific identification and disclosure of the chemical compounds, volumes and proportions to be assembled as fracking fluids. Identification and review of how these chemical fluids are transported to the site, stored, mixed together and injected into the well bore;
     - Full disclosure and analysis of the transportation of and disposal of waste fracking fluids; number and size of trucks to and from the site, all pipe types with safety and reliability information, pumps, routes, distances,

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potential sensitive receptors, and disposal locations in state-authorized injection or disposal wells;

- o Review and analysis of potential biological impacts across several scenarios: the setting up phase, testing phase, the operational time of a (non-production) exploration regime, and break down and return of the site to its original condition.
- o Water Quality, Aquifer Protection, Air Quality, Greenhouse Gas Emissions; and
- o Other issues raised during a scoping session for such an Environmental Impact Report.

2. DOGGR Oversight lacking

Staff has an eroded confidence in the California Division of Gas and Geothermal Resources (DOGGR) to provide appropriate oversight and regulation and protection of Monterey County's land and water resources. Staff's previously understood relationship with DOGGR was material to staff's former support for the nine-well drilling project to the Zoning Administrator. Staff had been assured that DOGGR would provide appropriate oversight, regulation and protection of resources where local, county and regional agency jurisdictions left off

Since the time of the appeal in October 2010, staff has become aware of numerous concerns arising from the practice of fracking. There are weekly reports and stories appearing across the country of concern for potential environmental contamination, and calls for greater disclosure and oversight by appropriate authorities.

As the regulatory authority for "down-hole" activities in California, staff has called or contacted DOGGR on numerous occasions for clarification of issues and authority. An e-mail was sent to Pat Able, Regional Manager of District 3 of DOGGR who has oversight of oil and gas drilling and production activities for Santa Cruz, Monterey, San Luis Obispo and Santa Barbara Counties. This message was sent to Pat Able the day before Venoco representatives were to meet with County Staff to discuss the exploratory wells on appeal. The e-mail requested information on wells where fracking may have occurred in Monterey County. DOGGR responded that while their division has the authority under California Code to regulate such matters, that they are unable to identify where and how often hydraulic fracturing occurs within the state. There are neither reporting requirements nor regulatory parameters of when, how, and what needs to be reported when applying for permits. Additionally, DOGGR reported that operators may request that the division maintain well records confidential for onshore exploratory wells. See the e-mails in **Exhibit H.**

This email acknowledges that DOGGR is the statutory authority for such matters, but also that they are "hands-off" for any particular accounting of or regulation of fracking activities. What this means is that County planning staff has no assurance of regulatory oversight or monitoring by the state for down-hole fracking activities. Even if DOGGR had material information, it would likely be "confidential" and not disclosed, as the sites for exploration are not within an existing field boundary. In CEQA terms, this is a Potentially Significant Effect, warranting an EIR.

Unrelated to this e-mail exchange with DOGGR, Bruce Carter and Steve Greig of Venoco cancelled their August 17, 2011 meeting with County Staff This also meant

that staff was not able to directly speak with Venoco whether they had fracked wells in Monterey County.

1. EPA study on the matter still not published

Of major concern to many in the public is whether or not the practice of fracking has an effect on critical resources such as drinking water. The United States Environmental Protection Agency (EPA) has commissioned a study on the matter; however the results have not been published. Additional concerns have arisen that fracking may or may not affect seismicity and earth movement (although this is not a subject of the EPA study to staff s knowledge). In some portions of the country there are great concerns for human, animal and crop exposure to hazardous materials contaminations from the practice of fracking. While the practice of hydraulic fracturing or "fracking" has primarily been used for the extraction of natural gas resources (not oil) elsewhere in the country, the practice of fracking for oil or natural gas has not been confirmed to occur in Monterey County.

The EPA continues to study the potential links of ground water contamination from the practice of fracking, and the study has not been published. Such a publication would provide an authoritative resource for Monterey County staff to evaluate the potential effects on water quality from fracking. Without an authoritative resource, published study, or national, state or local standard to hold the exploratory drilling projects accountable to, staff cannot determine if this particular proposal to drill nine exploratory oils and gas wells using the fracking process will have less than significant effects on the environment. In CEQA terms again, this is a Potentially Significant Effect, warranting an EIR.

4. Lack of communication, missed meeting withottt follow-up

Since December 2010, staff has recommended that the County hire an environmental consultant at the applicant's expense to further explore environmental issues raised. Without a discussion yet before the Commission on the substantive matters of fracking and oil exploration – just the continuance – the commission has not had opportunity to direct staff or the applicant in this manner.

The applicant has not shown willingness to pursue such an environmental disclosure. Following the cancelled meeting in August, staff has had no contact from Venoco. In general, applicants desiring to have their development proposals reviewed and approved by a public agency communicate with staff and share and distribute information as necessary. If the planning and land use and development processes are working well, applicants adjust and modify their development proposals to better meet the expectations of the public, to meet the goals and policies of the General Plan, or to better avoid potential environmental impacts. Aside from the anticipated meeting with the applicant in August, and then the cancellation messages, Venoco LLC, has not communicated with the County of Monterey Planning Department. Months have now passed without further project specific analysis. Telephone messages were left again with both Venoco representatives Tuesday October 18, 2011.

Conclusion

Staff has concluded that the previously prepared environmental review is inadequate, that state oversight is lacking and secretive, that the United States Environmental Protection

Agency has not completed their study of the effects of fracking on water quality, and that the applicant has not been communicative.

For these reasons staff has prepared the attached resolution and recommends that the Planning Commission support the appeal and deny the Zoning Administrator's approval of Venoco LLC's applications: PLN090118, PLN090119, and PLN090120.

County-level 'tracking' rules get board OK

Supervisors say changes are needed to protect public health, safety

DECEMBER 13, 2011 12:05 AM • BY MARGA K. COOLEY / ASSOCIATE EDITOR / MCOOLEY@SYVNEWS.COM

Oil producers in the inland part of Santa Barbara County who want to conduct hydraulic fracturing on any well must get an oil-drilling production plan from the Santa Barbara County Planning Commission, after a unanimous vote of the county Board of Supervisors.

The board also approved language that specifically defines the oil-extraction process, commonly called fracking, in both the county's Land Use Development Code and Coastal Zoning Ordinance.

Additionally, Doug Anthony, deputy director of the county Planning and Development Department, told the board on Tuesday, Dec. 6, that Fire Marshall Rick Todd has amended the procedure for the business plans that must be filed whenever hazardous chemicals are used.

Instead of providing a 30-day grace period to submit a plan, the plan must be submitted prior to the storage of eligible hazardous materials on a site, Anthony said.

The change was requested by the supervisors and by members of the public who are concerned about identifying what chemicals are being injected into the ground during fracking operations.

Fracking, a process that pumps pressurized liquid into a wellbore so that the pressure cracks the surrounding rock and releases more oil or natural gas, has been used since the 1940s, but only recently in Santa Barbara County. How it's regulated is being debated at the state and federal level, as well as locally.

The process gained local prominence in June when rancher Steve Lyons discovered that wells on his property near Los Alamos had been fracked by Venoco Inc. Property owners have no power to stop the owners of their land's mineral rights from drilling on the land.

The operations on the Lyons ranch were the first known instances of fracking in the county.

Four members of the public spoke on the issue Dec. 6, with Chris Wrather, a Los Alamos rancher who has been a leader in the push to develop county-level regulation of the oil extraction process, telling the board that the changes will allow him to "sleep a little better at night."

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"Our clean water is our essential resource, and it must be protected," he said. "The environmental consequences of hydraulic fracturing are not fully understood."

Andy Caldwell, representing the Coalition of Labor, Agriculture and Business, noted that his organization has members on both sides of the issue, but told board members they were making a mistake in using an environmental review process to solve an engineering and geological question.

"You create engineering standards to ensure that water's not impacted and not polluted," he said. "You don't throw it into the black hole of environmental review."

Fifth District Supervisor Steve Lavagnino, saying he supports the oil industry as one of the largest employers in his district, added that "the No. 1 thing we're elected to do is protect public health and safety."

"There's a lot of gray in this issue," he said. "Without making a judgment, I think this is a safe and proper path that we need to take."

Added 3rd District Supervisor Doreen Farr, "This (fracking) can impact agricultural resources besides water. This provides a process where everybody who's concerned about it knows what that process is and can be part of it if they need to."

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Issue Brief • May 2012

From the Sacramento Valley to Los Angeles County, the oil and gas industry has been fracking in California without clear regulatory oversight for many years. Now, the next generation of drilling and fracking – involving much more fluid and chemicals injected at much higher pressure, and creating much more waste, pollution and risk – has arrived on the West Coast. Californians will regret it if the drilling and fracking industry succeeds in extracting as much oil and gas as possible, as quickly as possible, from the Monterey Shale and other "tight" rock formations that lie beneath the state.

Fracking has long been used in California to stimulate oil production, often to rework aging or damaged wells.[1] The new generation of drilling and fracking, however, marks a radical departure. Indeed, when Zodiac Exploration inc. announced in February 2012 that it had drilled a horizontal well more than 14,000 feet below Kings County, and that it had then "stimulated" the well in 10 stages to produce oil, the company's president stated, "This type of deep high pressure and high temperature operation is new to California."[2]

Across the United States, this new generation of drilling and fracking technology has unleashed a rush to extract "unconventional" oil and gas resources, particularly shale gas and tight oil.[3] Now, new intensive drilling, fracking and "acidizing" methods are expected to drive future oil extraction from the sprawling Monterey Shale in California.[4]

If this happens, it would be a boon for the oil and gas industry, but Californians will pay a steep price:

- Deeper and longer drilling and higher-volume, more-intense fracking will mean much more toxic waste and subsequent disposal problems;
- Increasing demand for fresh water, leaking toxic waste pits, well-cementing failures and injection of chemicals underground all pose serious short- and long-term water risks;
- Drilling and fracking hundreds of new wells in a region each year can result in serious air pollution problems, among other public health and safety problems;
- Increased unconventional drilling and fracking for oil and gas will only intensify the already alarming threats of global climate change.

California does not need to go down this road. The state should avoid enrolling its citizens in this large, uncontrolled public health experiment. An immediate ban on fracking in California would set a sustainable course for the state, one demonstrating that the goals of economic and environmental prosperity can both be met.

California is already getting worked over

Fracking is short for fracturing. Fluid – typically a mix of water, sand and chemicals – is pumped underground at a high enough pressure to fracture the rock that surrounds a part

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does not keep track, the portion of well completions and the portion of well workovers that involved fracking or acidizing aren't publicly known.

FracFocus.org – an online registry where companies can voluntarily disclose information on specific fracking operations – shows that at least 91 wells were fracked in California from January 2011 to April 2012, including two in Los Angeles County.[14]

More drilling and fracking means more waste, not less

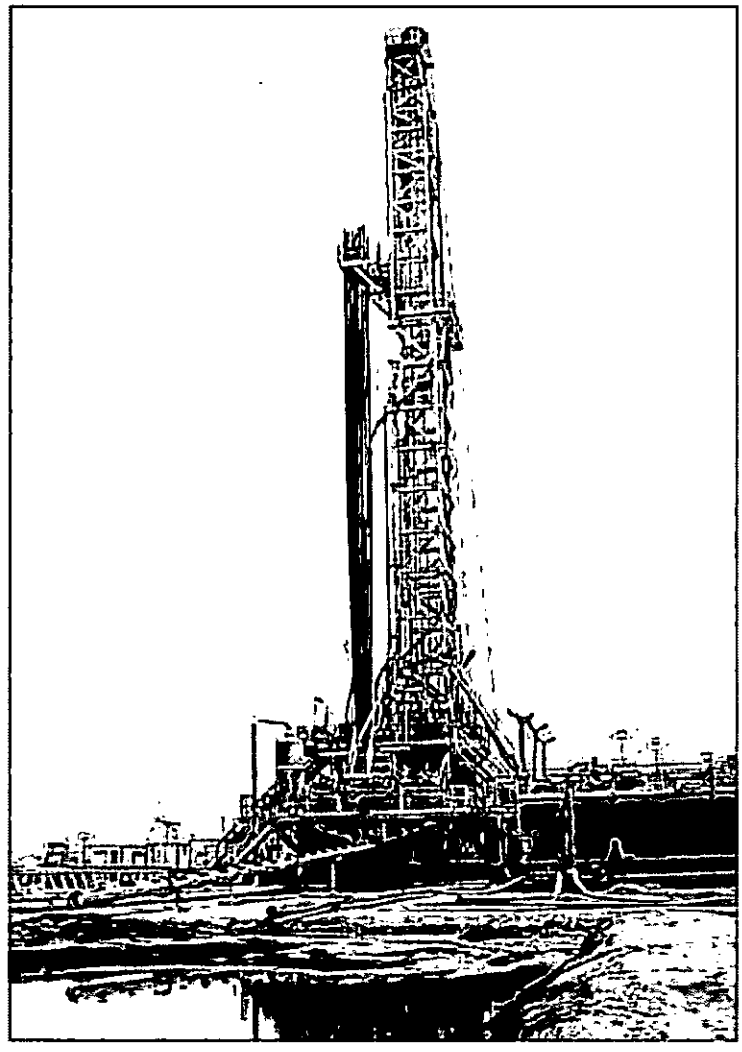
In granting the oil and gas industry the freedom "to do what a prudent operator using reasonable diligence would do," California law clearly states the policy goal: "to further the elimination of waste by increasing the recovery of underground hydrocarbons."[15] This is ironic – the notion that leaving oil and gas in the ground is wasteful – given the massive volume of waste that results from oil and gas extraction operations.

In its 2002 study, California's Environmental Protection Agency reported that in 1995, the estimated total volume of California drilling waste, both solid and liquid, was over 1.8 million barrels, enough to cover more than 235 acres one-foot deep.[16] Assuming the same amount of waste for every foot drilled from the beginning of 1995 through 2009, Food & Water Watch estimates that the oil and gas industry generated 5,659 acre-feet of drilling waste over 15 years in California.[17]

But this 15-year timeframe hardly overlaps with the current technological era, in which it is possible to frack a two-mile long horizontal section of a well in 30 or more stages, all up to two miles or more below ground.[18] If such intensive drilling and fracking become widespread in California, more lagoons of toxic waste can be expected to color and contaminate the state's Central Valley. Increasing amounts of such waste would pose particular problems if generated and disposed of in and around Los Angeles, which sits above large pockets of the Monterrey Shale.

Drill cuttings, about the size of coarse grains of sand, are coated with used drilling fluids that can contain harmful contaminants such as benzene, cadmium, arsenic, mercury and radium-226.[19] Dumping drill cuttings in landfills could expose workers to harmful levels of some of these environmental toxins.[20] Radium-226 contamination would persist for more than 1,000 years after the landfill closed, ruining the productivity of the land for many generations.[21]

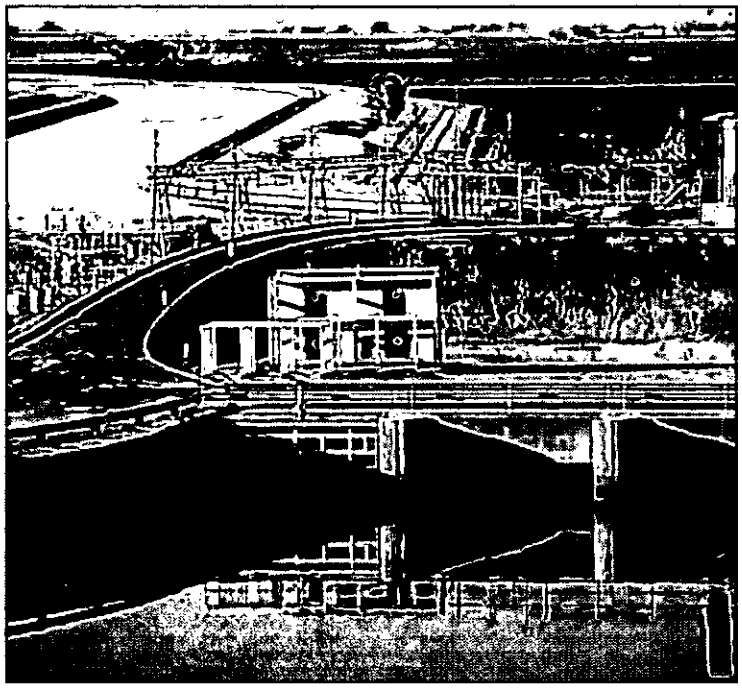
Dumping loads of drilling cuttings in landfills could lead to operational problems as well. The landfill linings could be degraded, resulting in leaks of radioactive material and other harmful contaminants.[22] Also, layers of drilling cutting wastes could plug up the flow of landfill fluids, causing spills out the sides of the landfill.[23]



The estimated 5,659 acre-feet of this drilling waste from 1995 to 2009 in California is dwarfed by the volume of wastewater brought to the surface along with any oil or gas.[24]

For decades, California's oil and gas industry has injected water and steam underground to more easily pump heavy, viscous oil out of reserves.[25] In 2009, the industry injected underground a total of about 1.4 billion barrels, or about 180,000 acre-feet of water or steam into onshore oil and gas wells.[26] It is not clear whether this estimate, which is the total volume used in "waterflood," "steamflood" and "cyclic steam" injections, includes water that is injected as part of fracking fluid.[27]

Produced water is any water produced from a well, along with oil or gas.[28] This wastewater is a varying mix of any water injected underground and any naturally occurring "formation" water that has long been trapped deep underground.[29] Produced water potentially contains extreme levels of naturally occurring but harmful contaminants, including arsenic, lead, hexavalent chromium, barium, strontium, benzene, polycyclic aromatic hydrocarbons, toluene, xylene, corrosive salts and naturally occurring radioactive material, such as ra-



developing other health problems because of air pollution, compared to people who live farther away.[53]

But the air pollution concerns are not just local. Ozone from gas drilling operations has also created a regional air pollution problem in Wyoming, where ground-level ozone levels on several days in 2011 were higher than the highest recorded level in Los Angeles in all of 2010.[54] It would be unfortunate if increased drilling and fracking in the Los Angeles Basin – not decreased emissions in Wyoming – ensured that this didn't happen more often.

Finally, on a global scale, drilling and fracking result in significant greenhouse gas emissions,[55] which of course threaten the climate on which we depend.[56]

Earthquakes

Disposing of fracking wastewater by injecting it deep below ground has caused numerous small earthquakes across the United States, so it is not unreasonable to expect the same in California.[57] It is unknown whether increased fracking in California and underground disposal of the resulting wastewater would increase the chance of a larger, more destructive earthquake in the state.

On the other hand, regardless of its cause, a large earthquake could compromise the integrity of wells that either are already producing or are still being drilled and fracked. For the hundreds of thousands of Californians living near the Inglewood Oil Field in Los Angeles County and along active fault lines, such unknowns justify genuine precaution.

California can do better

In late 2011, Governor Jerry Brown fired two top regulators, following industry complaints that their office's review of permits for new wells was taking too long.[58] The firings came despite a horrific accident, months before, in which an oil worker was boiled alive when a sinkhole, created by injected steam, formed near an oil well.[59]

The result has been streamlined permitting that bodes well for an industry seeking to develop and adapt new extraction methods to tap the Monterey Shale and other "tight" rock formations in the state.[60] Given the water needed for drilling and fracking in the San Joaquin, Santa Maria, Los Angeles and Ventura Basins, Governor Brown's decades-long push to build a Peripheral Canal around the Sacramento-San Joaquin River Delta to send more water to southern parts of the state also bodes well for the industry.[61] In Kern County, for example, much of the water used by the oil and gas industry arrives via the Central Valley and State Water Projects, and the plan for a Peripheral Canal would bolster this supply.[63]

Furthermore, water from the Peripheral Canal being sold to the oil industry to drill and frack would add insult to the public injury of how the state relinquished control of the state-funded Kern Water Bank to largely private interests.[63] While these interests are well positioned to make large profits off of the oil industry's growing demand for water, Californians would be left paying the costs to build the infrastructure to deliver it, as well as left with the legacy of drilling and fracking pollution.

Take Action

Californians should not be forced to join the large, uncontrolled public health experiment that is unconventional oil and gas development.[64] State legislation to require disclosure of fracking chemicals will only provide the public with a heads-up on the chemicals that could be contaminating their groundwater a decade or two from now. Likewise, requiring advance notice to families when oil or gas wells nearby will be fracked will do nothing to address the potential harms.

The solution is to ban fracking now. The negative impacts of maximum extraction would be far-reaching for our water, air, land and climate. These impacts would far outweigh the the shortsighted, exaggerated and sometimes just plain false promises made about the economic and energy security benefits of widespread drilling and fracking.[65]

Endnotes

1 Nagy, Claudia Zagrean. Department of Toxic Substances Control, California Environmental Protection Agency. "Oil exploration and production wastes initiative." May 2002 at 6; Sharp, Renée and Bill Allayaud. Environmental Working Group. "California regulators: see no fracking, speak no fracking." February 2012 at 9 to 10.

2 Zodiac Exploration Inc. [Press Release]. "Zodiac updates status of 1-10 well completion." February 13, 2012.

3 Kelley, General P.X. et al. Securing America's Future Energy. "The new American oil boom: implications for energy security." May 2012 at 5 to 12.

4 Freeman, John and Eller, David L. Raymond James & Associates. "A golden opportunity in the Golden State: a Monterey Shale primer." December 20, 2010 at 1; Tight Oil Reservoirs California 2012. [Conference agenda]. Bakersfield, California. May 30–31, 2012.

food&waterwatch

WATER

Ban Fracking in California

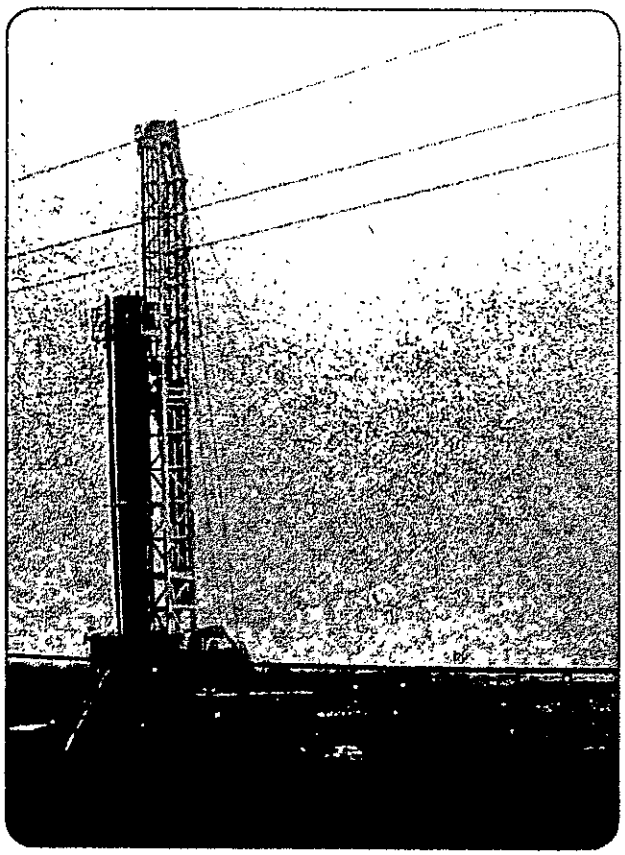
Fact Sheet • June 2012

What is Fracking?

Fracking, or hydraulic fracturing, is the process of injecting millions of gallons of water, sand and toxic chemicals underground at high pressure in order to release and extract oil or gas.

Where is Fracking happening?

The State of California does not require companies to disclose if and where they are fracking, but industry documents reveal that fracking has taken place in the counties of Sacramento, Sutter, Yolo, Solano, Kern, Ventura, Santa Barbara, Los Angeles, Monterey, and in the San Francisco Bay Delta, a source of drinking water for over 20 million Californians.



Why should Fracking be banned?

Water Pollution

Fracking generates massive amounts of wastewater that contains known and suspected carcinogens including naphthalene, benzene, toluene, ethylbenzene and acrylamide. In California, wastewater from fracking and conventional drilling is often injected underground into wells. In 2008, oil companies in Kern County pumped 425 million barrels of wastewater into such wells, which often leak, resulting in groundwater pollution. A farmer in Kern County lost over $8.5 million when his crops died as a result of groundwater contaminated with wastewater from oil drilling.

Air Pollution

According to the U.S. Environmental Protection Agency, fracking wells emit volatile organic compounds, which contribute to smog formation and air toxics, including benzene and hexane, which can cause cancer and other serious health effects. In addition, fracking releases methane, a greenhouse gas (GHG) 20 times more potent than carbon dioxide, undermining California's goal to reduce GHG emissions under AB 32.

Earthquakes and Property Damage

Wastewater from fracking promotes earthquakes and property damage. The U.S. Geological Survey has documented a tripling of earthquakes greater than 3.0 in the Midwest due to wastewater wells from fracking. The Inglewood Oil Field, situated in a community of 300,000 people, lies over two earthquake faults. Since PXP escalated its drilling in 2006, local residents have seen their homes crack and their land sink. Future fracking threatens greater economic loss and property damage for local residents.

For more information:
web: www.foodandwaterwatch.org
email: info@fwwatch.org
phone: (202) 683-2500 (DC) • (415) 293-9900 (CA)

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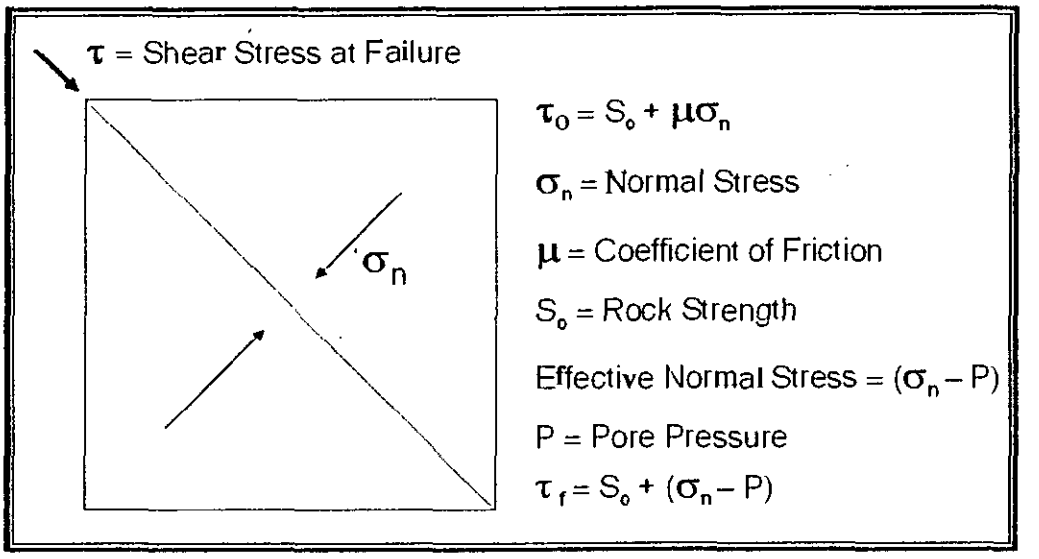

Figure 1. Concept of effective stress. The diagonal line is the plane of slippage or failure (fault). The two opposing arrows are the forces keeping the fault from slipping (normal stress, sigma). Tau is the value at which failure (slippage on a fault plane) occurs. As the pore pressure, P, rises the normal stress decreases because the pore pressure acts against the normal stress, resulting in a lower "effective stress," thus allowing seismicity to occur at lower shear stresses. It should be noted that the coefficient of friction and rock strength are usually constant, but in a small minority of cases, if thermal and chemical conditions are changing, the rising or lowering of these two properties will either increase or lessen the seismicity.

Figure 2, which shows an example of induced seismicity being caused by water injection, is a cross section of the earth showing the location of earthquakes (green dots), as well as the locations of injection wells (thick blue lines) and production wells (thin lines, these wells extract fluid). Note the large number of events associated with the injection wells.

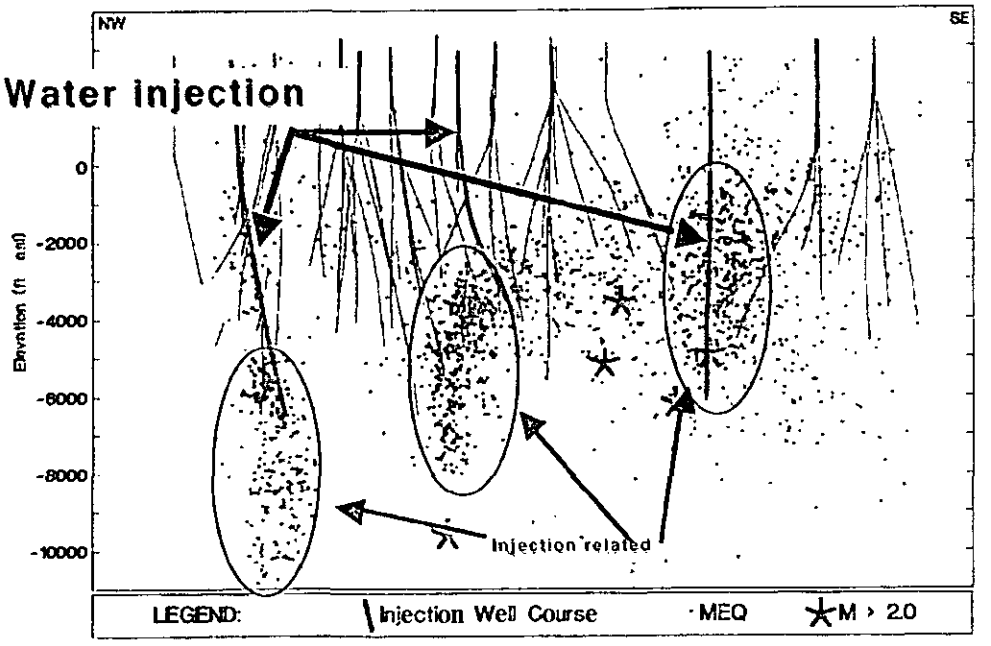

Figure 2. Example of injection related seismicity; note the close correlation between water injection wells and the location of the seismicity.

Other factors thought to be responsible may be thermal changes and/or chemical changes caused by fluid movement and injection. This type of induced seismicity has been noted not only in geothermal reservoirs but in reservoir impoundment (water behind dams), waste injections, oil and gas operations, and undergroimd injection of fluids for waste disposal. Almost all of the significant events (recorded activity and in some cases felt activity) are associated with shear failure. These types of earthquakes can be very small or large, depending on the geologic environment and available forces to cause an earthquake. Mining (creating cavities in the subsurface) also cause shear failure along planes of weakness, but that is usually caused by relieving stress or subsidence.

Another type of induced seismicity is that which is associated with "hydrofracturing." Hydrofracturing is done by injecting fluid into the subsurface to create distinct fractures in order to link existing fractures together. This activity creates additional permeability in the subsurface, which facilitates extraction of in situ fluids (such as oil and gas). Hydrofracturing is distinct from many types of shear-induced seismicity, because hydrofracturing by definition occurs only when the forces applied create a type of fracture called a tensile fracture, or "driven" fracture. Shear failure has been associated with hydrofracturing operations, as the fluid leaks off into existing fractures, but due to the very-high-frequency nature of tensile failure (seismic source at the crack tip exclusively), only the associated shear failure is observed by microseismic monitoring. However, hydofracturing is such a small perturbation, it is rarely, if ever, a hazard when used to enhance permeability in oil and gas or other types of fluid-extraction activities. To our knowledge, hydrofracturing to intentionally create permeability rarely creates unwanted induced seismicity that is large enough to be detected on the surface—even with very sensitive sensors—let alone be a hazard or an annoyance. In fact, the very

small seismic shear events created from the shear failure associated with the hydrofracture process are used to map the location of the induced permeability and as management tools to optimize fluid production. If not for the very small shear events, it would be much more difficult to understand the effect of hydrofracturing, because the seismic energy created from the "main fract" is too low to be detected, even by the most sensitive instruments at the surface of the earth. Figure 3 is an example of how seismicity is used to map these hydrofractures.

Last but not least, another reason that the seismic risk associated with hydrofracture operations is low is that such operations are of relatively low volume and short duration (hours or days at the very most), compared to months and years for the other types of fluid injections described above.

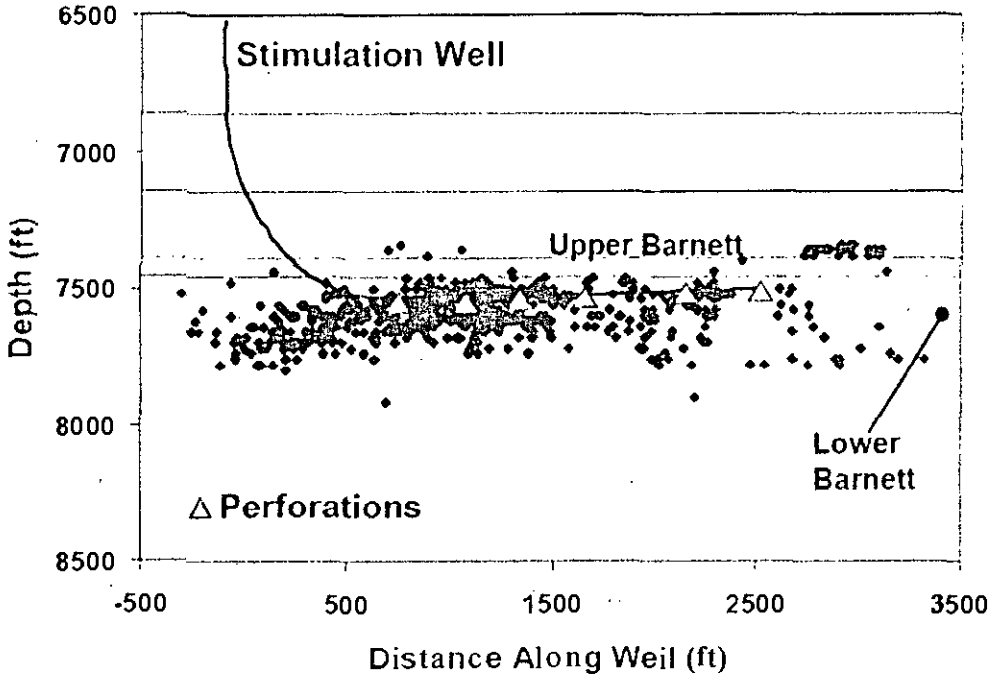

Figure 3. Cross section through a stimulation well showing six different stages of hydrofracture stimulation and the associated seismicity (magnitude -1.0 to -2.5) during the entire hydrofracture (less than 24 hours) Warpinski et al 2005.

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What controls the amount and size of the seismicity?

slip to occur, there must also be an imbalance in the stresses and forces acting within the earth. In other words, if there is not an imbalance in the forces in the subsurface, then there is no net force available to cause slip, i.e., a sudden release of the stored energy. The forces acting to deform the earth (resulting in an excess of energy accumulation) are of course forces that are fundamentally generated by the dynamic nature of the whole earth. In most regions where there are economic geothermal resources, there is usually tectonic activity, such as in the western United States. These areas are more prone to induced seismicity than in more stable areas of the U.S. such as the central U.S. (It must be noted, however, that one of the largest earthquakes ever to occur in the U.S. was the New Madrid series of events in the early 1800s in Missouri, it rang church bells in Boston). It must also be noted that seismic activity is only a hazard if it occurs above a certain level, and is large enough and/or close enough to inhabited areas. At some level, there is seismic activity almost everywhere.

Another factor to consider is that the earth is not a homogeneous medium. Over the millions of years of movement, the surface of the earth has been deformed and broken into many different patterns. In some areas where there has been consistent movement, large fault systems have formed. If the forces are still present, then there is a potential for earthquakes to occur. (The San Andreas Fault system in California is one example.) As pointed out above, however, slip does not have to occur in discrete or sudden jumps. For example, there are many places along the San Andreas Fault where the fault is creeping, rather than jumping in a "stick-slip" type of movement. This partially accounts for the high level of seismicity in some areas of California, and the low level in other areas. Although some people think that there are large earthquakes everywhere in California, records of historical activity since 1900 show that such events are mainly confined to distinct zones. These zones of weakness tend to fail and cause earthquakes much more often than zones away from faults.

One last important feature to note regarding earthquake activity is that the size of the fault (in addition to the forces available) and the strength of the rock determine how large an event may potentially be. It has been shown, that in almost all cases, large earthquakes start at depth (five to ten kilometers). It is only at depth where there can be enough stored energy to provide an adequate amount of force to move the large volumes of earth required to create a large earthquake. This implies that if seismicity is induced at shallow depths (less than 5 kilometers), seismic events might be numerous, but no one event would be large.

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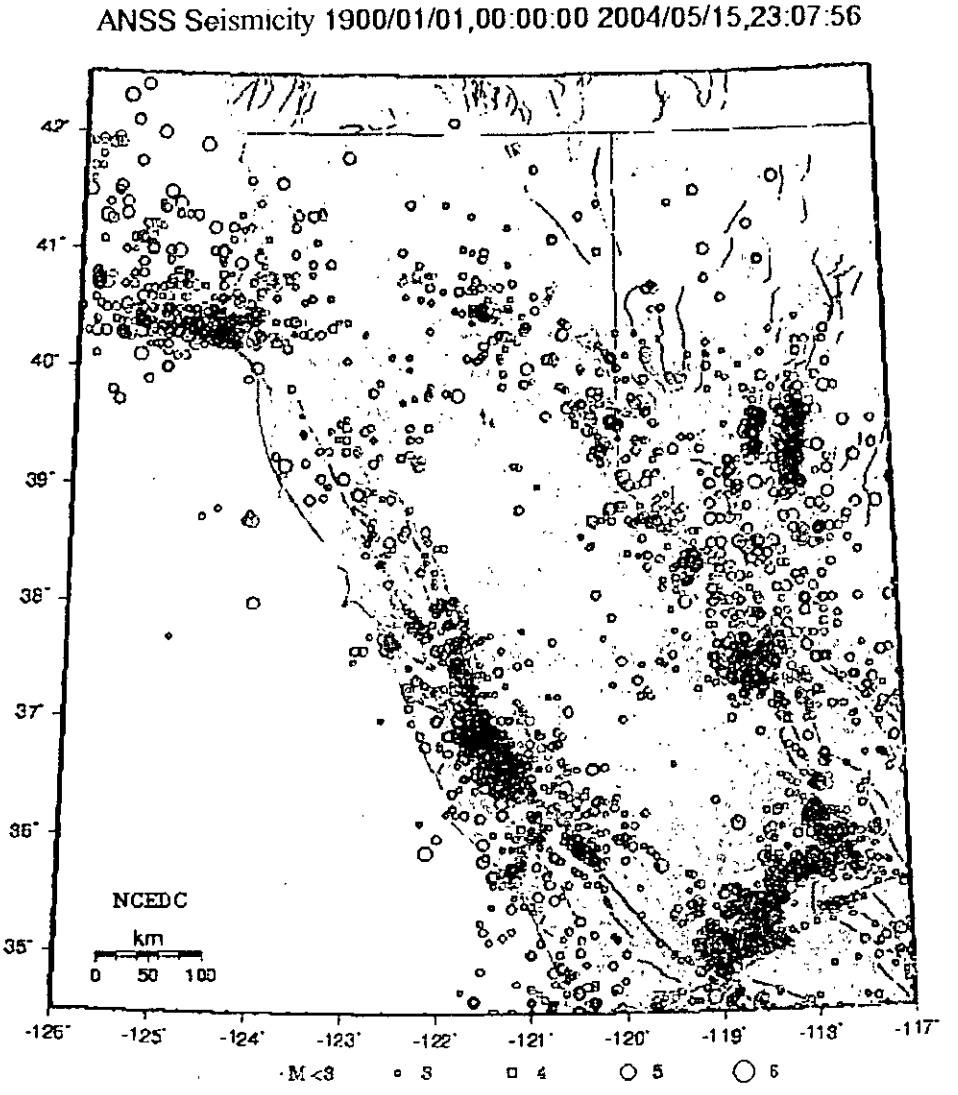
What are the impacts of Induced Seismicity?

To realistically examine the overall impact (benefits as well as risks) of induced seismicity, one must look at both public and private sectors. Access to high quality, state-of-the-art seismic information will be important for both public acceptance and industry response. For example, in the energy industry, benefits will include establishment of a non-industry monitoring and reporting system capable of providing the high quality,



Northern California/Nevada Seismicity (M 3.5 to 5.0) 1900- 2005

Seismicity occurs over many different time scales and spatial scales. Creep on a fault could be considered seismicity just as a much as a sudden loss of cohesion on a fault. Growth faults in the overpressurized zones of the Gulf Coast are an example. As defined here, we will only deal with events that are sudden and cause "earthquakes." If one examines the subsurface of the Earth in enough detail, one can find fractures, joints, and/or faults almost anywhere. A fault is not defined in terms of size (a fault is defined as a displacement across a fracture, joint, or fracture zone). However, most mapped faults range in size from very small (a few meters) to very large (hundreds of kilometers long). The size of an earthquake (or how much energy is released) depends on how much slip occurs on the fault, how much stress there is on the fault before slipping, how fast it fails, and over how large an area the slip occurs. Damaging earthquakes (usually greater than magnitude 5) require fault surfaces to slip over relatively large areas (kilometers). For