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Taming the West: Senate Bill 4 and California's Struggle to Regulate Fracking

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TAMING THE WEST: SENATE BILL 4 AND CALIFORNIA'S STRUGGLE TO REGULATE FRACKING

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I. INTRODUCTION

The United States is sitting on an estimated 862 trillion cubic feet of shale gas and twenty-four billion barrels of shale oil resources.[1] With the vast majority of these resources locked in the ground, drilling on a massive scale is required to harvest them.[2] In California, the Monterey-Santos shale oil play ("Monterey Shale") measures approximately 1,752 square miles in size and contains an undetermined amount of oil. Previous projections indicating an estimated 15.42 billion barrels of oil were revised to 13.74 billion barrels and, in 2014, further downgraded to an estimated 600 million barrels of recoverable oil.[3] The Monterey Shale contains oil shale.[4] Oil shale is sedimentary rock containing kerogen.[5] When heated, kerogen breaks down and releases hydrocarbons.[6] Thus, shale oil can be refined into different substances, including diesel fuel, gasoline, and liquid petroleum gas.[7] Because of the Monterey Shale's potential to produce large amounts of oil, the oil and gas industry, envi-

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[1] U.S. ENERGY INFO. ADMIN., REVIEW OF EMERGING RESOURCES: U.S. SHALE GAS AND SHALE OIL PLAYS 5 (2011), *available at* http://www.eia.gov/analysis/studies/usshalegas/pdf/usshaleplays.pdf.

[2] *Id.* at ix.

[3] Zain Shauk & Naureen Malik, *EIA Cuts Monterey Shale Estimates on Extraction Challenges*, BLOOMBERG NEWS (May 21, 2014, 2:02 PM PDT), http://www.bloomberg.com/news/2014-05-21/eia-cuts-monterey-shale-estimates-on-extraction-challenges-1-.html; *see also* U.S. ENERGY INFO. ADMIN., *supra* note 1, at 73, 75.

[4] U.S. ENERGY INFO. ADMIN., *supra* note 1, at 73, 75.

[5] Encyclopedic Entry, *Oil Shale*, NAT'L GEOGRAPHIC http://education.nationalgeographic.com/education/encyclopedia/oil-shale/?ar_a=1 (last visited Nov. 29, 2014).

[6] *Id.*

[7] *Id.*

ronmentalists, government officials, and community members are locked in a contentious battle of perception. Each of these groups has a competing narrative about the good, bad, or ugly side of fracking.

Tapping the Monterey Shale requires using a controversial well-stimulation technique called hydraulic fracturing ("fracking"). Fracking is the process of injecting highly pressurized water and chemicals into underground rock formations to break apart the rock and allow trapped natural gas and oil to be removed. While there are multiple sides to every issue, some boil the complex debate over the use of fracking down to only two positions: those who want oil and gas resources developed in a safe and responsible way, and those who don't want those resources developed at all.[8]

This oversimplification is dangerous, because it overlooks a multitude of potentially negative impacts that can and do result from the fracking process. Not only do fracking fluids and their byproduct fluids contain highly toxic and carcinogenic chemicals,[9] but wells injecting the used fluids into the earth have also been linked to causing earthquakes.[10]

Despite the risks of earthquakes, air pollution, water pollution, and environmental degradation, the United States is hungry for fossil fuels.[11] We as a country must find new ways of accessing increasingly difficult resources if we want to sustain our current level of consumption of fossil fuels. Accordingly, we must have a difficult conversation about what risks are acceptable and which are too great to be overlooked.

This Comment begins with a history of fracking, the current impact of the practice, and why it has become such a highly contested issue. It will explain how fracking is being done in California and present the current landscape of federal and state regulations. Specifically, California fracking regulations are currently in a state of flux due to the recent enactment of California State Senate Bill 4 ("SB 4"). The Argument section of this Comment posits that SB 4 may have some beneficial effects re-

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[8] *Shale Gas Economics: Extracting from Domestic Oil Reserves*, ENERGY FROM SHALE (2013), http://www.energyfromshale.org/articles/what-shale-gas.

[9] *See* MINORITY STAFF OF H. COMM. ON ENERGY AND COMMERCE, 113TH CONG., CHEMICALS USED IN HYDRAULIC FRACTURING (Comm. Print Apr. 2011), *available at* http://democrats.energycommerce.house.gov/sites/default/files/documents/Hydraulic-Fracturing-Chemicals-2011-4-18.pdf [hereinafter H. COMM. REP.].

[10] Richard Pérez-Peña, *U.S. Maps Pinpoint Earthquakes Linked to Quest for Oil and Gas*, N.Y. TIMES, Apr. 23, 2015, http://www.nytimes.com/2015/04/24/us/us-maps-areas-of-increased-earthquakes-from-human-activity.html?_r=0; *See* Bill Chameides, *Fracking Waste Wells Linked to Ohio Earthquakes*, THE BLOG (Aug. 27, 2013, 3:43 PM EDT; updated Oct. 27, 2013, 5:12 AM EDT), http://www.huffingtonpost.com/bill-chameides/injection-of-fracking-flu_b_3824868.html.

[11] *See What Are the Major Sources and Users of Energy in the United States?*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/energy_in_brief/article/major_energy_sources_and_users.cfm (last updated May 30, 2014).

garding increased environmental protection and regulatory oversight, but there remain weak spots in the current regulations that put human health and the environment at risk. Although not perfect, SB 4 is a sign of progress, and this Comment explains how the new regulations can be further improved to protect the health, welfare, and natural environment of California. Such improvements include limiting trade secret exemptions for fracking liquid, increased notice requirements, adequate funding for state agencies charged with implementing new regulations, and proper procedural oversight of new agency practices. If these improvements are implemented, they will make SB 4 a model for other jurisdictions seeking to adopt similar environmental protections.

SB 4's goals of increased oversight, advanced disclosure, and systematic testing are important and laudable. I do not agree, however, that fracking should continue while the full impacts of the technique are unknown. The most valuable parts of SB 4 have not taken effect yet, and fracking studies have not been completed. Continuing to allow the mass injection of toxic chemicals into the land and seabed of California subjects citizens and the environment to unknown present and future harm. New fracking wells are becoming operational before the model criteria and groundwater-monitoring programs mandated by SB 4 go into effect. Therefore, new fracking projects are beginning operations without increased oversight, advanced disclosures, and systematic testing.

II. BACKGROUND

A. FRACKING EXPLAINED

Fracking involves the injection of fracking fluid under high pressure into underground wells, causing rock formations to crack and release pockets of oil and gas trapped inside.[12] It is an *unconventional* well-stimulation technique because it uses more complex methods than *conventional* wells that require drilling and pumping alone.[13] Fracking fluid contains water, chemicals, and a propping agent ("proppant"), usually sand or ceramic beads.[14] The chemicals dissolve minerals and kill bacte-

[12] MICHAEL KIPARSKY & JAYNI FOLEY HEIN, U.C. BERKELEY SCH. OF LAW, CTR. FOR LAW, ENERGY & THE ENV'T, REGULATION OF HYDRAULIC FRACTURING IN CALIFORNIA: A WASTEWATER AND WATER QUALITY PERSPECTIVE 14 (2013), *available at* http://www.law.berkeley.edu/files/ccelp/Wheeler_HydraulicFracturing_April2013.pdf.

[13] *Id.* at 12.

[14] *Id.*

ria while the proppant holds open the fractures in the shale formation to release gas and oil.[15]

In the past sixty years, fracking has become a routine technique that is frequently used in the completion of oil and gas wells.[16] In the past, fracking wells were usually drilled vertically. However, due to the widespread use and perfection of horizontal drilling, fracking began to see increased utility in natural-gas extraction as well as hard-to-reach oil deposits.[17] Fracking wells today rely on horizontal-to-the-surface drilling, which turns wells sideways after a certain depth, and hydraulic fracturing to loosen rock and shale to release oil and gas.[18] Over the past ten years, this new form of fracking has transformed America's energy industry, because once-hard-to-reach shale gas deposits are now accessible.[19]

Fracking is not part of the "drilling process," because it is done only after the well has been completely drilled.[20] Before drilling takes place, three to five acres of land are cleared and a well pad is built to store equipment and supplies.[21] Once the space is cleared, a drilling rig is set up to hold the drill in place and feed the drill casing underground.[22] After the equipment is set up, a well bore is drilled straight down into the ground until it reaches the rock formation containing oil and gas deposits.[23] At that point the drill may or may not proceed horizontally.[24] For horizontal wells, the drill is angled until parallel to the surface and located within the desired rock formation.[25] Wells may extend to depths greater than 8,000 feet or less than 1,000 feet; horizontal sections of a well may extend several thousands of feet away from the well pad on the surface.[26]

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[15] John Light & Julia Conley, *The Facts on Fracking*, MOYERS & COMPANY (Apr. 19, 2013), http://billmoyers.com/content/the-facts-on-fracking/.

[16] *A Historic Perspective*, FRAC FOCUS, http://fracfocus.org/hydraulic-fracturing-how-it-works/history-hydraulic-fracturing (last visited Nov. 29, 2014).

[17] Marc Lallanilla, *Facts About Fracking* (Jan. 23, 2015), http://www.livescience.com/34464-what-is-fracking.html.

[18] *Id.*

[19] Light & Conley, *supra* note 15.

[20] *Hydraulic Fracturing: The Process*, FRAC FOCUS, http://fracfocus.org/hydraulic-fracturing-how-it-works/hydraulic-fracturing-process (last visited Nov. 29, 2014).

[21] *Oil and Gas Development Using High Volume Hydraulic Fracturing*, WATERSHED COUNCIL, http://www.watershedcouncil.org/learn/hydraulic-fracturing/ (last visited Nov. 29, 2014).

[22] *See id.*

[23] *Id.*

[24] *Id.*

[25] *Id.*

[26] U.S. ENVTL. PROT. AGENCY, OFFICE OF RESEARCH & DEV., HYDRAULIC FRACTURING RESEARCH STUDY 1-2 (2010), *available at* http://www.epa.gov/safewater/uic/pdfs/hfresearchstudyfs.pdf.

When a well bore is drilled to the desired depth and horizontal distance, the drill is removed and a casing made up of multiple layers of steel pipe is inserted into the hole.[27] After the casing is inserted, cement is pumped down the hole to prevent oil, gas, and chemicals from escaping the well and contaminating groundwater and nearby aquifers.[28] After the drilled hole is complete with the casing and cemented into place, fracking can begin.[29]

In the zones where oil and gas are located, the casing is perforated with holes.[30] Once the perforated casing is in the target formation, fracking fluid is pumped underground with such intense pressure that the rock formations crack or fracture.[31] Once the underground rock is cracked and the proppants are pumped into the cracks to hold them open, trapped reservoirs of gas and oil are released and pumped back to the surface, along with vast amounts (hundreds of thousands to millions of gallons) of "flowback" fluid (a mixture of fracking fluid, oil, and gas).[32]

B. Fracking in California

California is home to the Monterey Shale Oil Play.[33] The Monterey Shale contains a large amount of the United States' total estimated shale oil reserves and covers 1,750 square miles.[34] In order to tap the estimated 600 million to 15.4 billion barrels of oil in the Monterey Shale, oil companies will need to drill down to between 6,000 and 15,000 feet.[35] Currently, California well operators using fracking methods report typical volumes of 80,000 to 300,000 gallons of fracking fluid per well.[36] However, the U.S. Environmental Protection Agency ("EPA") projects some shale formations may require 2 to 3 million gallons of water if fracking is used.[37] "Produced water" is wastewater that comes out of the well after it begins producing oil and gas.[38] Produced water contains the extracted oil

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[27] *Oil and Gas Development Using High Volume Hydraulic Fracturing*, *supra* note 21.

[28] *Id.*

[29] *Id.*

[30] *Id.*

[31] *Hydraulic Fracturing 101*, EARTHWORKS http://www.earthworksaction.org/issues/detail/hydraulic_fracturing_101#.VG6juIdhiS1 (last visited Nov. 29, 2014); *see also Hydraulic Fracturing: The Process*, *supra* note 20.

[32] U.S. Envtl. Prot. Agency, *supra* note 26.

[33] Kiparsky & Hein, *supra* note 12, at 12.

[34] Norimitsu Onishi, *Vast Oil Reserve May Now Be Within Reach, and Battle Heats Up*, N.Y. Times, Feb. 4, 2013, at A9, *available at* http://www.nytimes.com/2013/02/04/us/vast-oil-reserve-may-now-be-within-reach-and-battle-heats-up.html.

[35] Shauk & Malik, *supra* note 3; Onishi, *supra* note 34.

[36] Kiparsky & Hein, *supra* note 12, at 17-19.

[37] U.S. Envtl. Prot. Agency, *supra* note 26.

[38] Kiparsky & Hein, *supra* note 12, at 5.

and gas, as well as toxic chemicals and known carcinogens, such as benzene, lead, and methanol.[39] The most common method for storing and managing the produced water is to pump it back into wells once they are finished producing oil or gas.[40] This means that in California, a reported 90–95% of produced water is re-injected, either for reuse in production or for disposal in Underground Injection Control ("UIC") Class II disposal wells.[41] "Class II injection wells refer to wells used for oil and gas purposes."[42]

Despite the prevalence of fracking[43] and UIC disposal,[44] California's existing notice and disclosure requirements are surprisingly lax.[45] Well operators do not have to disclose the exact ingredients in fracking fluid. They may also claim trade-secret exemptions, and the State has no verification or testing system in place to check the information provided by those that do disclose data on the fracking fluids used. As a result, state agencies lack comprehensive information on the fracking taking place, the chemicals used, and baseline water quality data for the area surrounding the fracking projects.[46] Without a system to gather and analyze this data, underground water sources and aquifers may be contaminated without notice.

C. Federal and State Environmental Regulations

In June 1969, Cleveland's Cuyahoga River became the poster child for the modern American environmental movement after it caught fire and burned for eight days straight.[47] Following this extreme event, the first "Earth Day" took place in April 1970.[48] Shortly thereafter, President Richard Nixon founded the EPA and signed the Clean Air Act ("CAA") and the Clean Water Act ("CWA") into law.[49] Despite these seemingly

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[39] *See e.g.*, H. Comm. Rep., *supra* note 9, at 2-3; *see also* Kiparsky & Hein, *supra* note 12, at 5, 11.

[40] Kiparsky & Hein, *supra* note 12, at 17-19.

[41] *Id.* at 19.

[42] *Id.*

[43] *Division of Oil, Gas & Geothermal Resources Well Finder,* Dept. of Conservation, http://maps.conservation.ca.gov/doggr/index.html#close (last visited Nov. 29, 2014).

[44] Reese Halter, *Fracking Poisons California's Water*, THE BLOG (Oct. 15, 2014, 4:08 PM EDT; updated Dec. 15, 2014, 5:59 AM EST) http://www.huffingtonpost.com/dr-reese-halter/fracking-poisons-californ_b_5986758.html.

[45] Kiparsky & Hein, *supra* note 12, at 22.

[46] *See id.*

[47] Peter Dykstra, *History of Environmental Movement Full of Twists, Turns*, CNN (Dec. 15, 2008, 10:49 AM EST), http://www.cnn.com/2008/TECH/science/12/10/history.environmental.movement/.

[48] *Id.*

[49] *Id.*

large steps, oil and gas interests have been able to exploit loopholes in federal regulation as it pertains to fracking.[50]

Several state and federal agencies regulate various aspects of oil and gas production, including fracking.[51] In California, these agencies include the state and federal EPAs, federal Bureau of Land Management, California Division of Oil, Gas & Geothermal Resources ("DOGGR"), the State Water Resources Control Board ("SWRCB"), and the nine Regional Water Resources Control Boards.[52] DOGGR is charged with implementing the UIC program in California and is subject to federal EPA oversight pursuant to the Safe Drinking Water Act ("SDWA").[53]

With the multiplicity of regulatory agencies, gaps exist between the requirements oil and gas operators must follow to safely construct and maintain their wells and the information they provide to DOGGR about fracking.[54] Due to increased fracking operations, the discrepancy between reported information and regulatory authority is an important issue that recent California legislation seeks to address. Although worldwide oil and gas reserves are becoming increasingly scarce and more difficult to harness, the United States is projected to become a net exporter of fossil fuels due to increasing exploitation of deposits like the Monterey Shale.[55] With the potential influx of money on such a vast scale, the State of California will be unlikely to seriously entertain the idea of a complete and permanent moratorium on fracking. Because fracking in California is likely to become more widespread, legislation like SB 4 will become increasingly valuable as a vehicle for regulatory change, even if that change is lacking in certain aspects.[56]

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[50] *See Federal Law: Loopholes & Exemptions*, ENVTL. DEF. CTR., http://www.edcnet.org/learn/current_cases/fracking/federal_law_loopholes.html (last visited Nov. 29, 2014).

[51] KIPARSKY & HEIN, *supra* note 12, at 23.

[52] *Id.*

[53] *Id.*

[54] *See id.* at 25-28.

[55] U.S. ENERGY INFO. ADMIN., DOE/EIA-0383, ANNUAL ENERGY OUTLOOK 13, 78-79 (2013), *available at* http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf.

[56] Stephen Stock, *California Fracking Law Has Huge Holes, Critics Argue*, NBC BAY AREA (Sept. 13, 2013, 9:51 AM PST), http://www.nbcbayarea.com/news/california/California-Fracking-Law-Has-Huge-Holes-Critics-Argue-223556411.html.

III. ARGUMENT

A. SENATE BILL 4 PARTIALLY ADDRESSES THE SHORTCOMINGS OF FRACKING REGULATIONS ON THE FEDERAL AND STATE LEVEL

1. Current Federal Fracking Regulations Are Weak and Ineffective

The federal government has enacted several important and laudable legislative tools to combat industrial water pollution that poses grave risks to human and environmental health. These tools include the SDWA,[57] the CWA,[58] the Emergency Planning and Community Right to Know Act,[59] the Resource Conservation and Recovery Act,[60] and the Comprehensive Environmental Response, Compensation, and Liability Act.[61] Although appearing to provide regulation and oversight of oil and gas exploration and fracking, many important provisions of these acts have been amended or circumvented by powerful energy lobbies and industry-friendly legislators.[62]

These laws contain exemptions for practices involved in the fracking process. For instance, the CWA allows for "produced water" to be re-injected into the well that it came from.[63] Produced water refers to all of the wastewater that comes out of the well after it begins producing oil and gas.[64] The re-injection of produced water is allowed if doing so will not negatively impact other bodies of water.[65] This sounds positive, but without data and monitoring criteria in place, it is difficult to assess whether or not pollution occurs to other bodies of water. Furthermore, produced water contains the extracted oil and gas, as well as toxic chemicals and known carcinogens, such as benzene, lead, and methanol.[66] These chemicals could contaminate underground water without anyone's knowledge, because there is a dearth of data regarding the amount of chemicals injected and recovered from fracking projects. Well operators can effectively prevent disclosure of the exact chemicals and amounts

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[57] *See* 42 U.S.C.A. § 300f et seq. (Westlaw 2015).

[58] *See* 33 U.S.C.A. § 1251 et seq. (Westlaw 2015).

[59] *See* 42 U.S.C.A. § 11001 et seq. (Westlaw 2015).

[60] *See* 42 U.S.C.A. § 6901 et seq. (Westlaw 2015).

[61] *See* 42 U.S.C.A. § 9601 et seq. (Westlaw 2015).

[62] *Federal Law: Loopholes & Exemptions*, *supra* note 50.

[63] *See* KIPARSKY & HEIN, *supra* note 12, at 25-26.

[64] *Id.* at 5.

[65] *See id.* at25-26.

[66] *See e.g.*, H. COMM. REP., *supra* note 9, at 2-3; *see also* KIPARSKY & HEIN, *supra* note 12, at 5, 11.

being injected into the ground, due to the lack of oversight and minimal reporting requirements.

Additionally, the 2005 Energy Policy Act altered the SDWA to limit the definition of the term "underground injection."[67] Under this revised and narrower definition, fracking fluids, other than diesel, and proppants are excluded from the SDWA.[68] Therefore, unless diesel fuel is included, the EPA does not regulate the underground injection of fracking fluid even though it contains hazardous chemicals that are otherwise regulated under the SDWA absent this loophole.[69] Not only does federal legislation provide numerous loopholes for fracking fluid, but any attempts to tighten them have been hard-pressed to make it out of congressional committees.[70]

Currently and in the recent past, multiple bills in Congress sought to either increase federal regulation of fracking or do away with it in favor of allowing individual states to promulgate their own regulations.[71] Leaving regulation to individual states may create a race to the bottom, in which states loosen regulations in the hopes of gaining a competitive advantage over others. On the other hand, allowing states to experiment with regulatory frameworks may act as a laboratory. Ideally, such experimentation will yield highly adapted and effective regulations that are specifically tailored to the unique challenges of fracking in each state. However, without an effective federal regulatory floor, the danger that states will be tempted by increasing industry profits to resist regulatory oversight still remains. Due to the current state of partisan politics in Washington, D.C., it is unlikely that new legislation strengthening federal regulatory oversight of fracking will pass both houses of Congress

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[67] KIPARSKY & HEIN, *supra* note 12, at 25-26.

[68] 42 U.S.C.A. § 300h(d) (Westlaw 2014); *see* Editorial, *The Halliburton Loophole*, N.Y. TIMES, Nov. 3, 2009, at A28, *available at* http://www.nytimes.com/2009/11/03/opinion/03tue3.html?_r=0 (noting that § 300h(d) was enacted during Dick Cheney's Vice Presidency and is also known as the "Halliburton Loophole" because of the Vice President's close ties with Halliburton, a leading fracking services company).

[69] H. COMM. REP., *supra* note 9, at 2-3.

[70] KIPARSKY & HEIN, *supra* note 12, at 25-26 (describing the death of the FRAC Act in committee in 2011); *see also* S. 1135, 113th Cong. (2013) (introduced in Senate, and referred to committee, June 11, 2013), *available at* http://www.congress.gov/bill/113th-congress/senate-bill/1135%29.

[71] Peter Whitfield, *Hydraulic Fracturing Divides U.S. Congress*, N. AM. SHALE BLOG (Sept. 6, 2013), http://www.northamericashaleblog.com/2013/09/06/hydraulic-fracturing-divides-u-s-congress/; *see also Hydraulic Fracturing—Pending Legislation (U.S. Congress)*, BAKERHOSTETLER, http://www.bakerlaw.com/files/Uploads/Documents/Shale/Hydraulic-Fracturing-Pending-Legislation-9-4-2013.pdf (last visited Nov. 29, 2014).

and become law.[72] To combat the lack of federal oversight, drafting and enacting effective legislation at the state level may provide a vehicle for increased environmental and health protections.

2. *California's Previous Regulatory Framework Provided Little Oversight and Less Enforcement*

In California, DOGGR is charged with oversight of oil and gas production and injection projects such as fracking.[73] DOGGR is mandated by existing legislation to carry out the main role of enforcement and regulation of hydraulic fracturing projects in the state.[74] DOGGR's charter requires the agency to maintain two seemingly incongruous and competing interests.[75] First, DOGGR is responsible for maximizing hydrocarbon recovery and allowing operators of oil and gas recovery operations to employ almost any method (like fracking and acidizing) to increase well production.[76] However, DOGGR is also tasked with safeguarding "life, health, property, and natural resources."[77]

The tension between these two competing interests creates a danger of placing profits over environmental protection. Although fracking has been documented in ten California counties, DOGGR acknowledged that it could not keep up with regulating or even keeping track of when or where fracking was occurring or what chemicals were used in the process.[78] DOGGR is the target of critics and various environmental and civilian groups that are concerned the agency is not adequately regulating the reporting of hydraulic fracturing projects.[79] If DOGGR is unaware of underground injection projects, then it cannot oversee the injection of fracturing fluids.

Corporate money is an increasingly suspect presence in politics on the national and state level, and moneyed interests have undue influence

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[72] Karen Tumulty, *Shutdown Crisis Shows Washington Breakdown*, WASH. POST, Sept. 28, 2013, http://www.washingtonpost.com/politics/shutdown-crisis-shows-washington-breakdown/2013/09/28/e62b384e-2855-11e3-bae5-e0807a60a6aa_story.html.

[73] *Oil, Gas & Geothermal—About Us*, CAL. DEP'T OF CONSERVATION, http://www.conservation.ca.gov/dog/Pages/aboutUs.aspx (last visited Nov. 22, 2014).

[74] *See* CAL. PUB. RES. CODE § 3000 et seq. (Westlaw 2015); CAL. CODE REGS. tit. 14, ch. 4 (Westlaw 2015); *see Oil, Gas & Geothermal—About Us*, *supra* note 73.

[75] *Oil, Gas & Geothermal—About Us*, *supra* note 73.

[76] CAL. PUB. RES. CODE § 3106(b) (Westlaw 2015).

[77] *Id.* § 3106(a).

[78] *Fracking in California: Questions and Concerns*, CTR. FOR BIOLOGICAL DIVERSITY, http://www.biologicaldiversity.org/campaigns/california_fracking/faq.html (last visited Nov. 29, 2014).

[79] *See* Leslie Layton, *California To Experiment with Fracking Regulation*, NEW AM. MEDIA (Sept. 18, 2013), http://newamericamedia.org/2013/09/california-to-experiment-with-fracking-regulation.php.

in the development of recent legislation.[80] One of the most vocal opponents of increased regulation in California has been the Western States Petroleum Association ("WSPA"), a trade group that represents BP PLC, ConocoPhillips Co., Exxon Mobil Corp., and Royal Dutch Shell PLC.[81] WSPA engaged in extensive lobbying efforts to gain exemptions from the California Environmental Quality Act ("CEQA") for fracking projects, which, WSPA maintains, does not extend to fracking projects currently in production.[82]

In early 2013, a number of bills were introduced in California that sought to increase fracking regulation and underground injection regulation.[83] Meanwhile, others continued to call for a moratorium on fracking while environmental studies were conducted.[84] SB 4 was the only piece of legislation to survive.[85] As an example of just how difficult it has been to enact new regulations, only one bill aimed at increasing oversight and regulation of Underground Injection Control programs and unconventional drilling techniques, like fracking, was able to make it through both houses of the California Legislature.[86] Eleven other bills that sought to address fracking in California were introduced in the 2012-2013 session, and none of them survived.[87] Despite opposition from oil and gas interests, as well as some environmental groups, Governor Edmund G. Brown

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[80] Matt Bai, *How Much Has Citizens United Changed the Political Game?*, N.Y. TIMES MAG., July 22, 2012, at MM14, *available at* http://www.nytimes.com/2012/07/22/magazine/how-much-has-citizens-united-changed-the-political-game.html?pagewanted=all&_r=0.

[81] *See* Anne C. Mulkern, *Hydraulic Fracturing: Oil Lobbyists Seek CEQA Exemption Ahead of Calif. Frack Bill Vote*, E&E PUB., LLC (Sept. 9, 2013), http://www.eenews.net/stories/1059986892.

[82] *Id.*

[83] *See* A.B. 7, 2013-2014 Leg., Reg. Sess. (Cal. 2013); A.B. 288, 2013-2014 Leg., Reg. Sess. (Cal. 2013); A.B. 649, 2013-2014 Leg., Reg. Sess. (Cal. 2013); A.B. 669, 2013-2014 Leg., Reg. Sess. (Cal. 2013); A.B. 982, 2013-2014 Leg., Reg. Sess. (Cal. 2013); A.B. 1301, 2013-2014 Leg., Reg. Sess. (Cal. 2013); A.B. 1323, 2013-2014 Leg., Reg. Sess. (Cal. 2013); S.B. 4, 2013-2014 Leg., Reg. Sess. (Cal. 2013), 2013 Cal. Stat. Ch. 313; S.B. 395, 2013-2014 Leg., Reg. Sess. (Cal. 2013), *available at* http://leginfo.legislature.ca.gov/faces/billSearchClient.xhtml?session_year=20132014&keyword=%22hydraulic%20fracturing%22&house=Both&author=All.

[84] *See* S.B. 1301, 2013-2014 Leg., Reg. Sess. (Cal. 2013), *available at* http://www.leginfo.ca.gov/pub/13-14/bill/asm/ab_1301-1350/ab_1301_bill_20130321_amended_asm_v98.pdf; S.B. 1323, 2013-2014 Leg., Reg. Sess. (Cal. 2013), *available at* http://www.leginfo.ca.gov/pub/13-14/bill/asm/ab_1301-1350/ab_1323_bill_20130528_amended_asm_v96.pdf; A.B. 649, 2013-2014 Leg., Reg. Sess. (Cal. 2013), *available at* http://www.leginfo.ca.gov/pub/13-14/bill/asm/ab_0601-0650/ab_649_bill_20130508_amended_asm_v97.pdf.

[85] Jeremy B. White, *Single Fracking Bill Remains Before California Legislature*, SACRAMENTO BEE (June 13, 2013, 10:23 AM), http://blogs.sacbee.com/capitolalertlatest/2013/06/single-fracking-bill-remains-before-california-legislature.html.

[86] *Id.*

[87] Rosie Cima, *California Passes Only a Fraction of Its Fracking Bills*, MAPLIGHT (June 5, 2013), http://maplight.org/content/73261.

signed SB 4 on September 20, 2013.[88] It took effect January 1, 2014.[89] In the face of a deep divide between supporters and opponents of SB 4,[90] it is the most influential piece of legislation to address hydraulic fracturing and unconventional well-stimulation techniques in California's history.[91] The mere fact that California passed new fracking legislation is commendable, considering that federal legislative attempts have failed.

Federal regulation is beneficial when there is a need for uniformity or when the federal government has unique expertise.[92] However, current federal regulations are full of loopholes, and the political stalemate prevents meaningful changes from being enacted. Because of this, state regulation is the most effective way to implement new strategies, especially where local values differ. The reason for this may be that local populations feel more responsible and connected to their local governments and issues that affect their communities.[93] This is especially true in California, a state with strong support for the environmental movement. Having gained credibility following the 1969 oil spill off the coast of Santa Barbara, environmental groups remain active in California today.[94]

Several environmental groups made their presence felt during SB 4's evolution.[95] Despite early support for the bill, several environmental groups withdrew their endorsements after industry-friendly amendments were added before the final vote.[96] Still more groups withheld their support for SB 4 out of concern that the oil and gas industry would use the regulations contained therein as political cover to claim that adequate oversight would be taking place.[97] The fact that so many groups came out to voice their opinions is a sign of a strong and healthy debate over fracking regulations in California. It is precisely this competitive and

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[88] Marc Lifsher & Patrick McGreevy, *Brown Signs Bill on Fracking, Upsetting Both Sides of Oil Issue*, L.A. TIMES, Sept. 20, 2013, http://articles.latimes.com/2013/sep/20/local/la-me-brown-bills-fracking-20130921.

[89] *Id.*

[90] Dan Bacher, *Brown Signs Bill Creating "Environmental Platform" To Expand Fracking*, CALITICS (Sept. 25, 2013, 8:08:31 AM), http://www.calitics.com/tag/Western%20States%20Petroleum%20Association/1.

[91] *See* S.B. 4, 2013-2014 Leg. Reg. Sess. (Cal. 2013), 2013 Cal. Stat. Ch. 313, *available at* http://www.leginfo.ca.gov/pub/13-14/bill/sen/sb_0001-0050/sb_4_bill_20130920_chaptered.pdf.

[92] *See* Daniel A. Farber, *Federal Preemption of State Law: The Current State of Play* 11 (U.C. Berkeley Pub. Law Research Paper No. 1740043, 2011), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1740043##.

[93] *Id.*

[94] *See Never Forget: The 1969 Santa Barbara Oil Spill*, SANTA BARBARA VIEW (Jan. 29, 2012), http://www.santabarbaraview.com/date-in-history-santa-barbar-oil-spill3455/.

[95] Kate Sheppard, *Environmental Groups Bail on California Fracking Bill*, HUFFINGTON POST (Sept. 12, 2013, 7:24 PM), http://www.huffingtonpost.com/2013/09/12/environmental-fracking-bill_n_3916763.html.

[96] *Id.*

[97] *Id.*

open debate that shows California's legislative process is alive and well, unlike in Washington, D.C., where political gridlock is the new normal. Thus, while political gridlock in Washington, D.C., prevents meaningful federal fracking legislation from moving forward, state legislation is proving the more effective vehicle for change.

B. California State Senate Bill 4 Is a Step in the Right Direction but Lacks Clear Guidelines Needed for Effective Disclosure of Chemicals and Oversight of Drilling Operations

SB 4 amended Sections 326.5, 3213, 3215, and 3401of the California Public Resources Code.[98] It also added Article 3 (commencing with Section 3150) to Chapter 1 of Division 3 of the Public Resources Code and Section 10783 to the Water Code, which relates to oil and gas.[99] As mentioned above, DOGGR regulates fracking and its accompanying processes in California.[100] Specifically, DOGGR is tasked with regulating the drilling, operation, maintenance, and abandonment of oil and gas wells in the state.[101] Before SB 4, oil and gas companies only needed approval from DOGGR's local supervisor or district deputy before beginning to drill.[102] Under the pre-SB 4 framework, the owner or operator of a well was required to keep an accurate log, core record, and history of the well's drilling which would be filed with the district deputy within sixty days of cessation of drilling work, rework, or abandonment of operations.[103] While the previous regulations held any violator guilty of a misdemeanor, the injection of highly toxic chemicals into the ground comes before the cessation of operations and filing of the operations log.[104] Therefore, improper practices could have resulted in misdemeanor charges, but only after the damage had occurred. Past regulations' reactive nature is something SB 4 sought to make more proactive.

To combat a lack of transparency under the old regulations, SB 4 takes some steps to address what used to be a somewhat simple permit-

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[98] S.B. 4, 2013-2014 Leg., Reg. Sess. (Cal. 2013), 2013 Cal. Stat. Ch. 313, *available at* http://www.leginfo.ca.gov/pub/13-14/bill/sen/sb_0001-0050/sb_4_bill_20130920_chaptered.pdf.

[99] *Id.*

[100] Pub. Res. Code § 3106 (Westlaw 2015).

[101] Pub. Res. Code § 3106(b) (Westlaw 2015).

[102] S.B. 4, 2013-2014 Leg., Reg. Sess. (Cal. 2013), 2013 Cal. Stat. Ch. 313, *available at* http://www.leginfo.ca.gov/pub/13-14/bill/sen/sb_0001-0050/sb_4_bill_20130920_chaptered.pdf.

[103] *Id.*

[104] *Id.*

ting process.[105] Under SB 4, DOGGR is prohibited from accepting any permit application that is incomplete, and if it does issue a permit for well stimulation, DOGGR must provide copies of it to several other state entities and make the permit available on their website within five days of issuance.[106] In addition to posting and circulating issued permits, any well stimulation permit issued will expire "one year from the date issued."[107] However, the interim regulations require that DOGGR allow fracking to proceed if the permit requirements are satisfied.[108] Within that year of sanctioned well stimulation, DOGGR must perform random periodic spot-check inspections of the well-stimulation treatments.[109] While these are positive reforms in regard to oversight and inspection, exactly how and to what degree these inspections will be implemented is not been defined. This is especially troubling given that DOGGR admitted that it could not properly regulate fracking operations in California before the heightened oversight was implemented. To prevent DOGGR from being inundated by demands from well operators seeking permits and inspections of new wells, the State must guarantee that DOGGR receives adequate funding for the additional oversight.

DOGGR will need more staff and resources to process permit applications, inspect drilling sites, and review disclosure materials. If DOGGR does not have adequate staff to keep up with the regulatory duties established pursuant to SB 4, then the protections contained in the bill will not be effectively realized and fracking will continue without proper oversight. One way to provide DOGGR with increased resources would be to increase permit fees for fracking operations and provide for a rate that is correlated to the number of drilling sites within the scope of the permit. This would more accurately reflect the potential impact of drilling operations, because the more wells being fracked in a given area, the more inspections must take place, and the more data reviewed.

SB 4 begins by explicitly defining the terms well-stimulation treatment, hydraulic fracturing and hydraulic fracturing fluid.[110] "Well stimulation treatment" is defined as "any treatment of a well designed to enhance oil and gas production or recovery by increasing the permeabil-

[105] *See* Sharon Bernstein, *California Law To Regulate Fracking Signed by Governor*, REUTERS (Sept. 20, 2013, 8:42 PM EDT), http://www.reuters.com/article/2013/09/21/us-usa-california-fracking-idUSBRE98K00C20130921.

[106] CAL. CODE REGS. tit. 14, § 1783 (Westlaw effective July 1, 2015); *see* CAL. CODE REGS. tit. 14, § 1783 (Westlaw effective until July 1, 2014).

[107] CAL. PUB. RES. CODE § 3160 (d)(2)(D)(4) Westlaw 2015).

[108] CAL. CODE REGS. tit. 14, § 1783(b) (Westlaw effective until July 1, 2015).

[109] CAL. PUB. RES. CODE § 3160(*l*) (Westlaw 2015).

[110] *See* Cal. S.B. 4, 2013-2014 Leg., Reg. Sess. (Cal. 2013), 2013 Cal. Stat. Ch. 313, *available at* http://www.leginfo.ca.gov/pub/13-14/bill/sen/sb_0001-0050/sb_4_bill_20130920_chaptered.pdf (codified at CAL. PUB. RES. CODE § 3150 et seq. (Westlaw 2015)).

ity of the [underground rock] formation."[111] "Hydraulic fracturing means a well stimulation treatment that . . . includes the pressurized injection of [fracking fluids] into underground geologic formations" in order to fracture the formation to increase oil and gas production.[112] Fracking fluid is a "well stimulation treatment fluid."[113] Fracking fluid consists of a "base fluid mixed with physical and chemical additives," and "may include acid."[114] While defining terms seems innocuous, it provides state agencies with a starting point to draft new regulations and sets parameters for determining whether those regulations have been violated.

In addition to providing a definitional framework, SB 4 requires the Secretary of the California Natural Resources Agency to conduct an independent scientific study on well-stimulation treatments, including fracking.[115] This is an important step in the process of increasing oversight and accountability of oil and gas production in California, because it mandates changes to the current regulatory landscape.[116] However, due to intense pressure from oil and gas industry lobbyists like WSPA, several industry-friendly amendments were made to SB 4 before the final vote.[117] Most notably, WSPA pushed back the CEQA requirements for fracking operations—successfully preventing any Environmental Impact Reports ("EIRs") from being completed until July 1, 2015.[118] As long as well operators comply with the provisions of SB 4 that have already taken effect, they effectively did not have to comply with CEQA until for another 18 months.[119]

Thus, a year-long moratorium should have been imposed to prevent development of new fracking wells during the study period.[120] This pause in fracking would have allowed the many state agencies named in SB 4 to conduct the extremely important work that they were tasked with. It is difficult enough for two state agencies to coordinate effectively in such a short time period. So when multiple agencies try and coordinate

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[111] CAL. PUB. RES. CODE § 3157(a) (Westlaw 2015).

[112] CAL. PUB. RES. CODE § 3152 (Westlaw 2015).

[113] CAL. PUB. RES. CODE § 3153 (Westlaw 2015).

[114] CAL. PUB. RES. CODE §§ 3151, 3153 (Westlaw 2015).

[115] Cal. S.B. 4, 2013-2014 Leg. Reg. Sess. (Cal. 2013), 2013 Cal. Stat. Ch. 313, *available at* http://www.leginfo.ca.gov/pub/13-14/bill/sen/sb_0001-0050/sb_4_bill_20130920_chaptered.pdf.

[116] *See* Andrew Grinberg, *Taking Stock After SB 4: What's Next for Fracking in California?* CLEAN WATER ACTION, (Sept. 13, 2013), http://blog.cleanwateraction.org/2013/09/13/fix-the-california-fracking-bill-now/.

[117] *See id.*

[118] Mulkern, *supra* note 81.

[119] *Id.*

[120] A moratorium may require amending the California Public Resources Code and Code of Regulations because DOGGR is mandated to encourage the development of oil, gas, and geothermal resources. *See generally* CAL. PUB. RES. CODE § 3000 et seq. (Westlaw 2015); *see also* CAL. CODE REGS. tit. 14, ch. 4 (Westlaw 2015).

their actions while striving for different goals and facing individual pressures, it is advantageous to give them an appropriate amount of time for the needed work. A moratorium on fracking would have given the agencies time to prepare comprehensive studies and safeguards while minimizing the amount of ongoing pollution and environmental impact.

Under SB 4, several state agencies were required to work together to develop specific regulations to govern well-stimulation projects before January 1, 2015.[121] These agencies included DOGGR, the Department of Toxic Substances Control ("DTSC"), the California Air Resources Board ("CARB"), SWRCB, and the Department of Resources Recycling and Recovery.[122] In an effort to bring the localities where fracking may occur into the dialogue, the text of the SB 4 called upon any local air districts and regional water quality control boards that could be impacted to aid the aforementioned entities in the formation of rules and regulations.[123]

That provision brought specific localities experiencing fracking into the conversation about developing the very rules and regulations that heavily influence their public safety and environmental health. While this is a positive addition to existing law, the same deficiencies persist. DOGGR is allowed to issue new fracking permits before the new rules are put in place.[124] And in 2014, while DOGGR circulated proposed regulations, WSPA called for an interpretation of SB 4's language that would exempt operators from CEQA until the statewide review was completed.[125] Seizing on the provision that SB 4 "shall allow" fracking to continue until the statewide EIR is completed, WSPA—with the support of DOGGR—took the position that new fracking operations did not need to comply with the strict reviews mandated by CEQA.[126] Instead, WSPA and DOGGR argued that DOGGR supervisors alone should have the ability to determine whether new permit requirements have been met.[127] This assertion raises the question of enforcement. SB 4 "does not relieve the division or any other agency from complying with any other

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[121] CAL. PUB. RES. CODE §§ 3106(a)-(c), (e) (Westlaw 2015).

[122] *Id.*

[123] *Id.*

[124] CAL. PUB. RES. CODE § 3161(b) (Westlaw 2015) (allowing permitting process to continue as usual until new criteria and studies are completed).

[125] *Id.*; S.B. 4, 2013-2014 Leg., Reg. Sess. § 2 (Cal. 2013) 2013 Stat. Ch. 313; *See* Jayni Foley Hein, *State Releases New Fracking Regulations Amid SB 4 Criticism, Controversy*, BERKELEY BLOG (Nov. 18, 2013), http://blogs.berkeley.edu/2013/11/18/state-releases-new-fracking-regulations-amid-sb-4-criticism-controversy/.

[126] CAL. PUB. RES. CODE § 3161 (Westlaw 2015); S.B. 4, 2013-2014 Leg., Reg. Sess. § 2 (Cal. 2013) 2013 Stat. Ch. 313; Hein, *supra* note 125.

[127] CAL. PUB. RES. CODE § 3161 (Westlaw 2015); S.B. 4, 2013-2014 Leg., Reg. Sess. § 2 (Cal. 2013) 2013 Stat. Ch. 313; Hein, *supra* note 125.

provision of existing laws, regulations, and orders."[128] However, the fact that DOGGR does not believe CEQA applies in certain instances is troubling, because CEQA is the most effective tool for environmental oversight available to California's citizens.[129]

Several environmental groups see the allowance of fracking during the study period as a significant setback.[130] Some believe only a moratorium on fracking will prevent possible pollution and negative public health consequences while new regulations are put into place.[131] Still others believe that fracking should be banned altogether.[132] Many groups have signaled their disappointment with SB 4 and the allowance it provides agencies like DOGGR to create and implement new regulations.[133] Also, late attempts to gain explicit exemptions from CEQA led many groups to pull their support for the bill.[134] As a result of those efforts, the oil and gas lobby was able to gain exemptions from having to comply with CEQA's EIR requirements until January 2015.[135] Couple that with the fact that operators routinely obtain EIRs for entire projects instead of individual drilling sites, and the potential for unknown damage is real.[136] Obtaining EIRs for entire projects overlooks issues and challenges inherent in the construction and operation of individual wells. By conducting blanket EIRs for operations involving many individual fracking wells, operators can cover up the potential impact and damage any one specific well might pose to the surrounding environment or water source below.

Currently, the State Water Resources Control Board is required by the Groundwater Quality Monitoring Act of 2001 to oversee the synchronizing of existing and new program monitoring elements of each groundwater basin in the state.[137] Following the enactment of SB 4, groundwater-monitoring criteria have yet to be established and may not

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[128] CAL. PUB. RES. CODE § 3160(m) (Westlaw 2015); S.B. 4, 2013-2014 Leg., Reg. Sess. § 2 (Cal. 2013) 2013 Stat. Ch. 313; Hein, *supra* note 125.

[129] *See* Hein, *supra* note 125; *But see* CAL. PUB. RES. CODE § 3161(a) (Westlaw 2015).

[130] RL Miller, *A California Fracking Moratorium Post-Mortem*, EARTH ISLAND J. (Sept. 16, 2013), http://www.earthisland.org/journal/index.php/elist/eListRead/a_california_fracking_moratorium_post-mortem/.

[131] *Id.*

[132] *Id.*

[133] Food & Water Watch et al., *Over 100 CA Groups Release Letter Calling SB 4 Insufficient & Press for an Immediate Moratorium on Fracking*, YUBANET (Aug. 28, 2013, 11:32 AM), http://yubanet.com/california/Over-100-CA-Groups-Release-Letter-Calling-SB-4-Insufficient-Press-for-an-Immediate-Moratorium-on-Fracking.php.

[134] Mulkern, *supra* note 81.

[135] CAL. PUB. RES. CODE § 3161(a) (Westlaw 2015); *see* Mulkern, *supra* note 81.

[136] *See id.*

[137] CAL. WATER CODE § 10781 (Westlaw 2015).

become effective before July 1, 2015.[138] The Draft Model Criteria were scheduled for release on April 29, 2015 with public comment to last until May 29, 2015.[139] Under SB 4, these criteria may be implemented on either a well-by-well basis or on a regional scale.[140] Implementing criteria on a regional basis may save money by allowing all the wells in a given region to be subject to the same measures. The alternative, criteria implemented on a well-by-well basis, would account for the distinct characteristics of each well and may be more effective in detecting pollution. Although more labor-intensive, a well-by-well approach is needed when the alternative is rubber-stamp approval for disparate operations that may cause irreversible damage to the ecosystem and groundwater affecting human health.

Furthermore, the formulation and implementation of groundwater-monitoring criteria should be open to a public notice-and-comment period. An open process would allow scientific and environmental authorities within California and the United States to weigh in on the different standards and methods of well monitoring. Employing a notice-and-comment period would best effect the protections SB 4 seeks to introduce, because more information and input from the public would hold state agencies accountable by increasing transparency of the monitoring program. Additionally, the government body making the final determination of groundwater-monitoring criteria must be required to explain its rationale and provide for periodic review and revision of the criteria.

C. Additions to the California Water Code Included in SB 4 Are Helpful Guidelines but Allow for Interpretations That May Ultimately Weaken Oversight of Fracking Operations

SB 4 added Section 10783 to the California Water Code with the Legislature declaring that a paramount concern is protecting the state's groundwater, and particularly sources of drinking water.[141] Under this section, the process for developing model criteria for groundwater moni-

[138] Cal. Water Code § 10781 (Westlaw 2015). *Groundwater Monitoring for Oil and Gas Production Areas and Underground Injection*, Cal. State Water Res. Control Bd., http://www.waterboards.ca.gov/water_issues/programs/groundwater/sb4/index.shtml (last updated Apr. 10, 2015).

[139] *Groundwater Monitoring for Oil and Gas Production Areas and Underground Injection*, Cal. State Water Res. Control Bd., http://www.waterboards.ca.gov/water_issues/programs/groundwater/sb4/index.shtml (last updated Apr. 10, 2015).

[140] Cal. Water Code § 10783 (Westlaw 2015).

[141] Cal. S.B. 4, § 7, 2013-2014 Leg. Reg. Sess. (Cal. 2013), 2013 Cal. Stat. Ch. 313, *available at* http://www.leginfo.ca.gov/pub/13-14/bill/sen/sb_0001-0050/sb_4_bill_20130920_chaptered.pdf (codified as amended at Cal. Water Code § 10783 (Westlaw 2015)).

toring sounds good because it mandates the use or development of spatial sampling scales and prioritizes potential sources of drinking water.[142] It calls on SWRCB, in connection with DOGGR, to consider input from various experts and stakeholders in developing the criteria.[143] The language of the bill makes it seem as if a multitude of varied interests will take part in the crafting of these potentially far-reaching criteria.[144] However, the express language of this section does not define who is an expert or how one becomes an expert.[145] This creates room for interpretation by the SWRCB to determine for itself whom experts are. Their discretion in so doing may become a source of contention and litigation if environmental, citizen, or watchdog groups or individuals feel the designated experts have ulterior motives, lack competence, or are otherwise unqualified. Because the SWRCB is to use the expert recommendations in prioritizing the statewide implementation of the groundwater-monitoring programs,[146] there is the possibility of disagreements and accusations resulting from the prioritization if an expert's qualifications or motives are called into question.

Experts should equally represent the scientific community as well as environmental, citizen, and industry groups. Scientific experts must be credentialed and vetted through peer-review processes, so accurate scientific knowledge and methodology is presented. Environmental experts must be experienced, knowledgeable, and independent from industry concerns. Experts representing community groups must include local and regional representatives, with a focus on environmental justice as well as overall community health, safety, and welfare. Industry experts must be accountable for accurately representing the latest technology and best practices available for fracking in the proposed area. All experts should be independent from each other, to prevent undue influence, financially or otherwise.

In addition to the recommendations from experts, the SWRCB is required to "seek the advice of stakeholders" representing the oil and gas industry, agriculture, environmental justice, and local governments.[147] SB 4's language also leaves room for "others" to offer advice as well.[148] However, the language following this provision appears to limit participation by adding that a stakeholder's "regional representation [be] com-

[142] *See* CAL. WATER CODE § 10783(c), (d), (e) (Westlaw 2015).
[143] WATER § 10783(d).
[144] WATER § 10783(c), (d), (e).
[145] *Id.*
[146] WATER § 10783(d).
[147] WATER § 10783(e).
[148] *Id.*

mensurate with the intensity of oil and gas development in that area."[149] As a result, if oil and gas is not being developed within a person's "area," then he or she may not be able to participate as a stakeholder in development of the groundwater-monitoring criteria and program. The effects of fracking are likely not limited to the immediate geographical area in which drilling is taking place. Therefore, people who face the potential impacts of fracking or would like to participate in the process may be denied the opportunity merely because they do not reside within an area with the sufficient intensity of oil and gas development.

The plain language of "regional representation" belies exactly which regions and stakeholders can participate. With the potential impact of fracking projects on groundwater, it is unclear exactly how regions will be delineated. Potential water contamination may result from unintentional spills, improper storage, improper treatment, illegal dumping, and underground migration of fracking fluid and produced water.[150] Because these contaminates have the ability to travel away from the initial fracking site, they could affect regions that are not adequately represented because they do not have fracking wells. As a result, regional representation of those potentially impacted areas may not coincide with the region in which the actual process of fracking occurs. It will be important to see how the "regional representation" of stakeholders is determined, as an indicator of whether those groups facing fracking's negative impacts are able to have their concerns and opinions heard. This is important because the people affected by fracking may be excluded from the process if they are not considered stakeholders. In sum, excluding from public participation the very people who may be affected will have very real and negative consequences.

Regional representation cannot be strictly limited to the area in which the well pad is located. Representation must be allocated based on the region affected by fracking operations. Such impacts include air pollution, water pollution, noise pollution, blight, and traffic. Downstream communities must be represented because fracking operations may contaminate surface and ground water. Additionally, the fumes from fracking fluid pits and drilling operations may affect residents living downwind from well sites. Accordingly, fracking impacts will spread beyond the limited geographic footprint of a single well pad or group of fracking wells. Therefore, regional representation must be allocated based on the potential impacts that fracking operations will have. Accurate information regarding groundwater, surface water, air patterns, and

[149] *See id.*

[150] KIPARSKY & HEIN, *supra* note 12, at 14-17.

geologic formations must be used to determine which regions and populations will be affected, and then representation can be allocated accordingly.

Whether the SWRCB and DOGGR actually integrate the recommendations of experts and advice from "stakeholders" into the formulation of the model criteria is an open question. As it stands, the model criteria baseline is only required to include those determinations expressly listed in section 10783(f).[151] The required scope and nature of monitoring criteria include the following: a list of constituents to measure and assess water quality; areas to conduct monitoring; the frequency and duration of monitoring; the location, depth, and number of monitoring wells necessary to detect groundwater contamination; data collection and reporting protocols; and public access to collected data.[152] These are all positive steps beyond the previous regulations, because the developments provide additional oversight for preserving groundwater quality.

However, the actual process by which the water quality assessments (sampling done before drilling) will be made is open to interpretation. As a result, whether implementation of the assessment and groundwater-monitoring criteria will meet the standards of those overseeing the process remains to be seen. Lastly, these groundwater-monitoring programs do not have to be implemented until January 1, 2016.[153] Without these monitoring programs in place, the continuation and expansion of fracking in California will place the environment and humans at risk before sufficient criteria are known and pollution can be detected.

With monitoring programs not required to start until January 1, 2016,[154] a well owner or operator may create his or her own "area-specific" groundwater-monitoring program in the absence of a state program.[155] The express use of the term "may" in this subdivision of section 10783 gives well operators and owners the discretion to set up a program. Although this provision allows the owner or operator to develop their program from the criteria listed in section 10783(c),[156] those criteria may not be published until July 1, 2015.[157] Therefore, an owner or operator willing to implement a voluntary monitoring program will not have adequate guidance to institute any program until those criteria become available.

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[151] CAL. WATER CODE § 10783(f) (Westlaw 2015).

[152] *Id.*

[153] *Id.* § 10783(h)(1).

[154] *See id.* § 10783(h).

[155] *See id.* § 10783(h)(2).

[156] *Id.* § 10783(h).

[157] *Id.* § 10783 (c).

Four important steps can be taken to increase oversight and safety through comprehensive groundwater-monitoring criteria. First, SWRCB must publicize the experts chosen to develop the monitoring criteria and disclose how they were selected. If SWRCB does this, members of the public will be able to follow the process and decide whether they agree with it. Second, SWRCB should allow for a public notice-and-comment period when developing and implementing the groundwater-monitoring criteria. The process should resemble the notice-and-comment period that DOGGR implemented when issuing revised fracking regulations throughout 2014. The proposed criteria should be made open to the public for at least a fifteen-day comment period. Third, SWRCB must take the comments submitted into consideration and revise the groundwater-monitoring criteria to reflect the input received. That process should go through at least three rounds of revisions before final groundwater-monitoring criteria are developed. Merely allowing stakeholders to be determined by regional representation based on the amount of fracking taking place does not take into account the fact that fracking pollutants may travel in the air and water. If public participation in this process is limited, people facing the risks of fracking may not be able to have their voices heard.

D. SB 4's Current Trade-Secret Protections Must Be Amended To Ensure That Accurate Information About The Chemicals Used in Fracking Are Made Available to Those Affected by Oil and Gas Operations

Fracking fluids are composed of any number of toxic chemicals that could pose a severe risk to human health and the environment.[158] Between 2005 and 2009, 750 separate chemicals and other components were used in more than 2,500 fracturing products used by oil and gas companies.[159] Frequently, oil companies purchase fracturing products from suppliers who retain proprietary information of the product's chemical composition.[160] It is not uncommon for the proprietary information to have trade-secret protection, meaning that the composition of proprietary fracking fluids does not have to be disclosed. As a result of recognized trade-secret protection, developing an accurate analysis of injected chemicals is difficult.[161] A further difficulty is that suppliers do not have

[158] H. Comm. Rep., *supra* note 9, at 5.
[159] *Id.*
[160] *Id.*
[161] *See id.*

to disclose fracking fluid composition before injecting it into the ground.[162] Nevertheless, the supplier is required to disclose the composition of fracking fluid to DOGGR within thirty days following the end of well stimulation, even if it believes the information is a trade secret.[163]

However, if the supplier does claim trade-secret protection regarding fracking fluid composition or a constituent thereof, upon validation of the claim, the supplier need only provide substitute information (a list of chemicals) for public disclosure.[164] In general, SB 4 provides that a supplier may not refuse to disclose this information to DOGGR.[165] This is a move in the right direction; however, the bill provides that the disclosure to DOGGR does not have to be made until thirty days *after* underground injection has ceased in some cases.[166] Additionally, required disclosure may take even longer when an operator or supplier claims trade-secret protection.[167] Also worrisome is that the operator or supplier may obtain a court protective order to prevent disclosure. For instance, a supplier may seek a declaratory judgment that the information is protected, or a preliminary injunction prohibiting public disclosure.[168]

All of these protections for toxic chemicals under the umbrella of trade secrets allow the injection of unknown quantities of harmful and potentially carcinogenic fracking fluids. After they are injected into the ground, it is unknown what amount of the chemicals will return to the surface in the form of produced water. Therefore, it is only after exposure to these chemicals that people are made aware of the risk to which they were exposed.

New regulations should require disclosure in the well's permit of the chemical composition of fracking fluid as well as the amount of each chemical used. This information should be provided to the agencies overseeing fracking operations before any project is allowed to proceed. Requiring this information before well stimulation begins would cure the reactive nature of pre-SB 4 regulations. Additionally, all residents and individuals who are persistently near a fracking project should be made aware of their potential exposure to the exact chemicals in the fracking fluid and the potential negative health effects associated with exposure.

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[162] *See* CAL. PUB. RES. CODE § 3160(j)(4)(A) (Westlaw 2015). Relevant laws governing trade secrets include CAL. EVID. CODE § 1060 (Westlaw 2015) and CAL. GOV'T CODE §§ 6250, 6251, and 6254(ad)(5)(A) (Westlaw 2015).

[163] CAL. PUB. RES. CODE § 3160(j)(4)(A) (Westlaw 2015).

[164] *Id.* § 3160(j)(4)(A), (C) (declaring that substitute information must be a list of the chemical constituents of the additive including Chemical Abstract Service identification numbers).

[165] *Id.* § 3160(j)(4)(D).

[166] *See id.* § 3160(j)(4)(A).

[167] *See id.* § 3160(j)(6)–(9)(B).

[168] *Id.* § 3160(j)(7).

The new regulations should also require medical professionals to detail the potential risks and exposure rates of the chemicals included in fracking fluid. This information should be shared with the SWRCB and DOGGR so that the oversight officials are aware of the exact consequences for people exposed to the chemicals listed in the disclosure permit.

In addition to disclosure of the chemical composition and makeup of fracking fluid, there must be a process to determine when chemicals have migrated from one distinct fracking site to other geographic regions. Although not applicable as a preventive method, the concept of injecting tracer chemicals ("tracers") specific to each operator or well site seems conceptually sound as a tool for accountability and self-policing among well operators.[169] Tracers are novel in the field of fracking and may be useful in the proposed groundwater-monitoring criteria and programs outlined above. If operators and suppliers begin hiding behind the veil of trade secrets, then the mandatory inclusion of a tracer chemical specific to an underground injection site or operator may provide an alternative method for adequate policing and monitoring of possible ground water contamination and chemical migration.[170]

The use of enhanced groundwater-monitoring criteria and employing tracer chemicals may prove to be important tools in protecting the public and environment from fracking-related pollution. Because SB 4 allows for the injection of carcinogenic chemicals into the ground, the ability to detect their underground migration is of great importance. Therefore, the SWRCB should require a transparent and public process that allows concerned parties to participate and propose solutions to the challenge of detecting these hazardous chemicals.

IV. California State Senate Bill 4 Developments

A. Interim Regulations

On January 1, 2014, DOGGR released interim regulations governing oil and gas well stimulation until permanent regulations become effective (currently set for July 1, 2015).[171] Developed as part of an emergency rulemaking process, the interim regulations were intended to provide a transition after SB 4 took effect on January 1, 2014, and before

[169] *See* Kiparsky & Hein, *supra* note 12, at 35-36.

[170] *Id.*

[171] Cal. Code Regs. tit. 14, §§ 1761, 1780 et seq. (effective until July 1, 2015) (Westlaw 2015).

the permanent regulations take effect on July 1, 2015.[172] These interim regulations seek to elaborate on the language of SB 4 and implement some of the changes the bill makes to the previous regulatory framework.[173] Notably, the regulations expressly provide that well-stimulation regulations do not apply to underground injection projects and vice versa.[174] By separating the two types of projects, specifically tailored regulations may provide better environmental safeguards.

Some of the new regulatory requirements are positive steps toward disclosing pertinent information related to well-stimulation and fracking projects.[175] Generally, the regulations now explicitly state that the structural integrity of wells and wellbores must be properly maintained and pressure-tested prior to stimulation.[176] Additionally, the regulations call for adequate maintenance and testing of all surface equipment.[177] While these requirements may seem like common sense, it is important to note that logical regulations, such as these, were previously absent from California oil and gas regulation. Although progressive, these interim regulations are but generalities and do not determine the exact process by which maintenance and testing must be carried out.

A better structure is to have regional and statewide regulations that work in tandem with one another. Statewide regulations should provide a substantive floor below which regional regulations may not fall. Because each region of California faces distinct challenges geographically and otherwise, the implementation of specific regional regulations will protect the people and environment more effectively than statewide regulations. The State should harness its resources to determine the standards for baseline testing and monitoring criteria, and then each regional water district should determine how to oversee drilling operations within its geographic area. This will only work if regional plans are at least as stringent as those on the state level.

Other noteworthy improvements renew written-notice requirements.[178] Whereas before the effective date of these regulations, there was no requirement of written notice, now there is a relatively robust

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[172] *Id.*; *See* CAL. CODE REGS. tit. 14, § 1780 (effective July 1, 2015) (Westlaw 2015).

[173] CAL. CODE REGS. tit. 14, §§ 1761, 1780 (effective until July 1, 2015) (Westlaw 2015); CAL. CODE REGS. tit. 14, § 1780 (effective July 1, 2015) (Westlaw 2015).

[174] CAL. CODE REGS. tit. 14, § 1761 (effective until July 1, 2015) (Westlaw 2015).

[175] *See* CAL. CODE REGS. tit. 14, § 1782 et seq. (effective until July 1, 2015); *See also* CAL. CODE REGS. tit. 14, § 1782 et seq. (effective July 1, 2015) (Westlaw 2015).

[176] CAL. CODE REGS. tit. 14, § 1782 (effective until July 1, 2015) (Westlaw 2015); *see also* CAL. CODE REGS. tit. 14, § 1782 (effective July 1, 2015) (Westlaw 2015).

[177] CAL. CODE REGS. tit. 14, § 1782 (effective until July 1, 2015) (Westlaw 2015); *see also* CAL. CODE REGS. tit. 14, § 1782 (effective July 1, 2015) (Westlaw 2015).

[178] CAL. CODE REGS. tit. 14, § 1783 (effective until July 1, 2015) (Westlaw 2015); *see also* CAL. CODE REGS. tit. 14, § 1783 (effective July 1, 2015) (Westlaw 2015).

system in place.[179] Before well stimulation may commence, DOGGR must receive and approve an Interim Well Stimulation Treatment Notice filled out by the project operator.[180] However, if an operators provides the required information and certificates, DOGGR "must allow, and will allow, well stimulation to proceed."[181] The regulations do not specify whether DOGGR has the ability to stop a well-stimulation project if the operator has not supplied the required information. The language quoted above supports the inference that DOGGR must allow a project to proceed if the technical informational requirements are met. An operator is required to notify DOGGR at least seventy-two hours before starting well stimulation.[182] So even if DOGGR cannot stop a project from moving forward, its staff will at least be able to oversee the project.

Despite the seeming inevitability of well-stimulation projects proceeding as before, the information required by the Interim Well Stimulation Treatment Notice may provide useful insight into the exact amounts and toxicity of the chemicals used.[183] The notice must include identifying information such as the well's coordinates and the type of stimulation treatment planned, including depth, direction, and duration.[184] This is by far the most detailed information that well operators have ever been required to provide to DOGGR. Therefore, in the coming months and years, scientists and researchers will have a growing body of data to study in assessing the impact of fracking in California.

The interim regulations require project operators to provide notice to neighboring landowners and residents thirty days prior to beginning well stimulation.[185] However, the notice requirement only applies to landowners within 1,500 feet of the wellhead or 500 feet of the horizontal path of the wellbore.[186] This is not a great distance and may not provide adequate notice to people who live outside the notice zone but who may still be affected by migrating pollution. Although the notice must be accompanied by information about how to request water sampling and testing, this option is once again limited to the spatial proximity described above, and only to surface water "suitable for drinking or irrigation purposes."[187] Anybody living outside of that zone is not entitled to

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[179] *See* CAL. CODE REGS. tit. 14, § 1783 (effective until July 1, 2015) (Westlaw 2015); *see also* CAL. CODE REGS. tit. 14, § 1783 (effective July 1, 2015) (Westlaw 2015).

[180] CAL. CODE REGS. tit. 14, § 1783 (effective until July 1, 2015) (Westlaw 2015).

[181] *Id.* § 1783(b).

[182] *Id.* § 1783(c).

[183] *Id.* § 1783.1.

[184] *Id.*

[185] *Id.* § 1783.2.

[186] CAL. CODE REGS. tit. 14, § 1783.2 (effective until July 1, 2015) (Westlaw 2015).

[187] *Id.*

water testing paid for by the well operator.[188] Even those landowners lucky enough to receive notice only have a twenty-day window immediately following receipt of notification to request water testing.[189]

To counteract these limitations, the permanent regulations should contain additional notice requirements for individuals and property owners located next to surface and groundwater bodies affected by fracking operations. Geologic surveys should be conducted to determine if the fracking operation could impact surface or groundwater bodies. Individuals located near or dependent upon those water sources that could be impacted by fracking should also receive notice before operations begin. Because water pollution from fracking can travel away from the actual well site, notice requirements should be connected to the affected water bodies as well as the fracking well location.

Despite these limitations, the interim regulations outlining groundwater sampling, testing, and monitoring provide a seemingly comprehensive framework upon which an effective program may be established.[190] As stated before, the potential data collected from the implementation of these programs will no doubt provide an informative look into the complex effects fracking and other well-stimulation projects have on underground water supplies in California.

B. DOGGR Releases Revised Text of Proposed Regulations

On June 27, 2014, the California Secretary of State filed a re-adoption request for the interim well-stimulation-treatment regulations contained in SB 4.[191] Because the interim regulations implemented on January 1, 2014, were first adopted through an emergency rulemaking process, they required re-adoption to remain in effect until the permanent regulations take effect.[192] The request for re-adoption was filed by the Department of Conservation with the Office of Administrative Law on June 20, 2014.[193] That request included some changes to the interim well-stimulation-treatment regulations.[194] Notably, the re-adopted regu-

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[188] *See id.*

[189] *Id.* § 1783.2(a)(4); Cal. Code Regs. tit. 14, § 1783.3(b)(4)(a) (effective July 1, 2015) (Westlaw 2015).

[190] *See* Cal. Code Regs. tit. 14, § 1780 et seq. (Westlaw 2015).

[191] *Readopted SB 4 Interim Well Stimulation Regulations Now in Effect*, Cal. Dep't of Conservation, http://www.conservation.ca.gov/dog/Pages/Index.aspx (last visited Nov. 30, 2014).

[192] *See id.*

[193] *SB 4 Well Stimulation Treatment Regulations*, Cal. Dep't of Conservation, http://www.conservation.ca.gov/index/Pages/prpsregs.aspx (last visited Apr. 10, 2015).

[194] Cal. Dep't of Conservation, Div. of Oil, Gas & Geothermal Res., SB 4 Interim Well Stimulation Treatment Regulations, Final Text of Readopted Emergency Regulations, *availa-*

lations include a revised version of the Interim Well Stimulation Treatment Notice.

The new version of the notice requires operators to include the proposed coordinates of the well, the true vertical depth of the total depth, and the wellbore path.[195] This provides more technical information tracing the proposed location of the wellbore and where the intended fracking will take place. Additionally, the words "water well" have been replaced with "water" in reference to testing that operators are required to make available to property owners.[196] This small change has a large impact. Now, well operators must provide information to property owners of water testing instead of water-well testing only. By substituting the term "water," the new requirement seems to enlarge the scope of testing services that must be made available to those property owners who qualify for notice. This greatly increases the opportunity for oversight and accountability and is a welcome change for those questioning the strength of the interim regulations.

Another notable change was made to the provision requiring public disclosures. Under the re-adopted interim regulations, operators must now disclose to DOGGR all of the required information therein as it pertains to "all well stimulation treatments."[197] The relevant provision formerly required only the disclosure of information as it related to fracking. That limitation worked to exclude acidizing and other well-stimulation techniques that carried inherent risks of contamination and pollution. This change in terminology provides a broader net that DOGGR may cast in order to gather the most detailed information of well-stimulation techniques to date. However, it remains to be seen whether the disclosure requirements will provide adequate protection against fracking's negative environmental effects.

Finally, on June 20, 2014, Governor Brown signed a trailer bill into law.[198] The bill pushed the deadline for DOGGR to adopt the final version of well-stimulation-treatment regulations back from January 1,

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ble at http://www.conservation.ca.gov/index/Documents/FInal%20Text%20of%20Readopted%20SB%204%20Interim%20WST%20Regulations%20with%20Revised%20IWSTN%20Form.pdf.

[195] CAL. DEP'T OF CONSERVATION, DIV. OF OIL, GAS & GEOTHERMAL RES., SB 4 Interim Well Stimulation Treatment Notice 1, *available at* http://www.conservation.ca.gov/index/Documents/Revised%20IWSTN%20Form%20(v7-14)%20with%20changes%20indicated.pdf.

[196] *Id.* at 2; *see* CAL. PUB. RES. CODE § 3160(d)(6) (Westlaw 2015).

[197] CAL. CODE REGS. tit. 14, § 1788(b) (effective until July 1, 2015) (Westlaw 2015).

[198] S.B. 861, 2013-2014 Leg. Reg. Sess. (Cal. 2014), 2014 Cal. Stat. Ch. 35, *available at* http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB861&search_keywords=.

2015, to July 1, 2015.[199] That delay allows the release of final regulations to coincide with SWRCB's deadline to finalize its groundwater-monitoring program.[200] Moving the deadline gives the two agencies additional time to collaborate and ensure that the regulations and the groundwater-monitoring program have an effective and immediate impact following implementation. After waiting so long for proper regulations to arrive, another six months will not create too much delay, as long as the time is used properly. It is a tough trade-off to make, because the interim regulations provide much-needed oversight and reporting requirements that are sorely lacking in the currently booming fracking industry.

Importantly, the bill also removed the ability of the DOGGR supervisor to waive environmental review based on prior environmental reviews.[201] Referred to as a "magic wand," that previous ability gave the supervisor wide latitude in deciding when drilling permits would be granted and whether environmental reviews authorized under CEQA would be allowed.[202] Now, the trailer bill makes it clear that local governments and other California agencies will be able to engage in their own environmental reviews and impose mitigation measures if deemed necessary.[203]

C. The Language of Permanent Fracking Regulations Set to Take Effect July 1, 2015, Has Been Revised and Strengthened

DOGGR has added very important sections to the permanent regulations slated to take effect on July 1, 2015.[204] Notably, DOGGR has

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[199] Cal. Pub. Res. Code § 3161 (Westlaw 2015); *see* Lauren Sommer, *California's New Fracking Regulations Delayed Half a Year*, KQED SCIENCE (July 11, 2014), http://blogs.kqed.org/science/2014/07/11/californias-new-fracking-regulations-delayed-half-a-year/.

[200] Cal. Pub. Res. Code § 3161 (Westlaw 2015); *see* Lauren Sommer, *California's New Fracking Regulations Delayed Half a Year*, KQED SCIENCE (July 11, 2014), http://blogs.kqed.org/science/2014/07/11/californias-new-fracking-regulations-delayed-half-a-year/.

[201] Cal. Pub. Res. Code § 3161 (Westlaw 2015); *see* Lauren Sommer, *California's New Fracking Regulations Delayed Half a Year*, KQED SCIENCE (July 11, 2014), http://blogs.kqed.org/science/2014/07/11/californias-new-fracking-regulations-delayed-half-a-year/.

[202] *See* Cal. Pub. Res. Code § 3161 (Westlaw 2015); *see also* Lauren Sommer, *California's New Fracking Regulations Delayed Half a Year*, KQED SCIENCE (July 11, 2014), http://blogs.kqed.org/science/2014/07/11/californias-new-fracking-regulations-delayed-half-a-year/.

[203] *See* Cal. Pub. Res. Code § 3161 (Westlaw 2015); *see also* Lauren Sommer, *California's New Fracking Regulations Delayed Half a Year*, KQED SCIENCE (July 11, 2014), http://blogs.kqed.org/science/2014/07/11/californias-new-fracking-regulations-delayed-half-a-year/.

[204] Mike Mills, *Department of Conservation Issues Revised, Proposed Well Stimulation Treatment Regulations*, Cal. Envtl. L. Blog (June 17, 2014), http://www.californiaenvironmentallawblog.com/oil-and-gas/department-of-conservation-issues-revised-proposed-well-stimulation-treatment-regulations/.

eliminated the exemption for acid matrix solutions containing acid concentrations of 7% or less.[205] Now the regulations call for a calculation of the "Acid Volume Threshold" for the operation.[206] The result of the calculation and additional information must be submitted to DOGGR within sixty days of completing the well-stimulation treatment unless they have been submitted and approved by DOGGR as part of an aggregation plan.[207] Aggregation plans are subject to approval by DOGGR and may be proposed by the operator by submitting information about repeated operations that involve emplacing acid into the well but do not clearly meet the definition of well-stimulation treatment.[208] So, the regulations call for a different "threshold" of acid and merely require the same reporting requirements as before. As mentioned above, reporting the amount of acid injected into the ground after the fact is just like telling a person what caliber of gun you shot them with: it doesn't change the fact that you shot them.

Section 1782(a)(9) provides a new catchall provision set to go into effect July 1, 2015. It provides that all well-stimulation operations must comply with the Regional Water Board ("RWB"), DTSC, CARB, Air Quality Management District or Air Pollution Control District, Certified Unified Program Agency and any other local agencies with jurisdiction over the location of the well-stimulation activities.[209] This may seem like a general provision, but it could prove useful in the future for citizen or local government oversight of fracking operations. Localities may use this provision to enforce zoning laws or public health authority over well-stimulation projects within their jurisdiction, thus providing an added layer of protection and enforcement.

In stark contrast to the interim regulations, described above, that mandate DOGGR to allow fracking to occur if the proper reporting requirements are met, section 1782(c) now requires the operator to terminate the well-stimulation project if any of the requirements of section 1782(a) are not met.[210] However, that provision is limited by the words as "soon as it is safe to do so."[211] Therefore, it is probable that operators would not shut down their operations and argue that doing so would be unsafe. It is likely the operators will argue that they do not have knowledge of section 1782(a) violations, and the regulations lack any specific

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[205] *Id.*

[206] CAL. CODE REGS. tit. 14, § 1761(a)(1)(B)(3) (effective July 1, 2015) (Westlaw 2015).

[207] CAL. CODE REGS. tit. 14, § 1777.4(a) (Westlaw 2015).

[208] *Id.* § 1777.4(d).

[209] CAL. CODE REGS. tit. 14, § 1782(a)(9) (effective July 1, 2015) (Westlaw 2015).

[210] *Id.* § 1782(c).

[211] *Id.*

mention of the punishment to be levied against an operator if it refuses to cease operations.

Beneficial revisions have been made that require inter-agency communication and sharing of relevant information and permit applications.[212] Now, DOGGR must relay a copy of the seventy-two-hour notice from an operator to the RWB, DTSC, CARB, and local air district.[213] However DOGGR must have a written agreement with the receiving agency in place specifying the protocol for communications before information will be shared.[214] Facilitating communication and the sharing of information between agencies is a good development. However, the benefits will not be realized unless the agencies develop and implement the communication protocols required by the regulations.[215] Accordingly, it remains to be seen whether the agencies will make an agreement to share information and what results that collaboration will yield.

Section 1783.2 directs every operator to hire an independent third party to determine who is entitled to notification of drilling operations around the project site.[216] This includes the surface property owners and tenants on legally recognized parcels of land within the prescribed zone of operations outlined above. Although taking away the notification duty from well operators may increase transparency, section 1783.2(b) expressly states that "[n]eighbor notification is not required if the independent third party determines that there are no surface property owners or tenants" "within the 1500-foot radius of the wellhead receiving well stimulation treatment, or within 500 feet of the surface representation of the horizontal path of the subsurface parts of the well."[217] Furthermore, subsection (c) expressly allows well-stimulation operations to begin seventy-two hours after the third party determines neighbor notification is not necessary.[218] On the other hand, if the third party determines that neighbor notifications are required, well stimulation cannot begin "until 30 calendar days after all required notices are provided."[219] This discrepancy may invite falsification of neighbor-notification determinations by the "independent" third parties because the potential financial gains could outweigh the consequences of the third party's violations of the notification requirements.

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[212] CAL. CODE REGS. tit. 14, §1783(c), (d) (effective July 1, 2015) (Westlaw 2015).

[213] *Id.*

[214] *Id.*

[215] *See id.*

[216] *Id.* §1783.2.

[217] *Id.* §1783.2 (a)(1), (b).

[218] CAL. CODE REGS. tit. 14, §1783.3(c) (effective July 1, 2015) (Westlaw 2015).

[219] *Id.*

Another important aspect of the regulations set to take effect on July 1, 2015, is the availability of water testing. Section 1783.3 lays out the exact process by which a surface property owner may request water quality testing through the well operator or through the Designated Contractor for Water Sampling.[220] As mentioned above, this process is only available to surface property owners and tenants within the zone outlined in the regulations and does not provide an option for a person other than a property owner or tenant to have water quality testing performed.

However, a protective provision allows the surface property owner to request that the operator conduct water sampling within twenty calendar days of the notice date.[221] If the property owner makes the appropriate request and "moves expeditiously" to help "make necessary accommodations" enabling sampling, then fracking or other well-stimulation treatments cannot begin until baseline water sampling is completed.[222] On the other hand, if the property owner chooses to personally contract with the "Designated Contractor for Water Sampling,"[223] then the property owner has the responsibility to schedule baseline measurements before the operator begins fracking.[224] Regardless of whether the property owner contracts for water samples to be taken or elects for the operator to do so, the operator must pay for "all reasonable costs" of water quality testing under section 1783.3.[225] Whoever takes responsibility for conducting water quality sampling must also notify the RWB "at least two working days" prior to collecting the sample so that its staff may witness sampling.[226]

Two additional sections that strengthen the revised regulations govern the monitoring of seismic activity as well as storage and handling of fracking fluid and waste.[227] As a result of increased awareness about seismic activity linked to well-stimulation sites, this revision provides much-needed data and information regarding just what correlation there is between fracking operations and seismic activity.[228] Regulating waste containment and disposal is another welcome addition to the revised reg-

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[220] CAL. CODE REGS. tit. 14, §1783.3 (effective July 1, 2015) (Westlaw 2015).

[221] *Id.* §1783.3(b)(4)(A).

[222] *Id.*

[223] "Designated Contractor for Water Sampling" means an independent third-party person or entity designated by the State Water Board to sample water well and surface water in accordance with Section 3160(d)(7) of the California Public Resources Code. CAL. CODE REGS. tit. 14, § 1781(i) (effective July 1, 2015) (Westlaw 2015).

[224] CAL. CODE REGS. tit. 14, §1783.3(b)(4)(B) (effective July 1, 2015) (Westlaw 2015).

[225] *Id.* §1783.3(b)(5).

[226] *Id.* §1783.3(b)(7).

[227] *Id.* §§1785.1, 1786.

[228] *See* CAL. CODE REGS. tit. 14, §1785.1 (effective July 1, 2015) (Westlaw 2015).

ulations.[229] Under the new framework, well operators that generate waste as defined in the California Health and Safety Code must employ a spill contingency plan and comply with waste disposal and reporting requirements listed in the California Code of Regulations.[230]

Some of the most important revisions set to take effect on July 1, 2015, are the more stringent reporting requirements regarding the chemical composition of base fluid used in fracking.[231] The regulations specifically call for public disclosure of metals including benzene, toluene, ethyl benzene, and xylenes.[232] The regulations spell out additional chemicals and elements by name with sufficient specificity so regulators can determine whether reporting requirements are met. Most encouraging, well operators must provide the "[s]pecific disposition of water recovered from the well following the well stimulation treatment, including method and location of disposal and, if the recovered water is injected into an injection well, identification of the operator, field, and project number of the injection project."[233] One added line opens the door for the use of tracers in identifying water pollution and contamination.[234] Now it appears that actual data will be compiled on what is injected into the ground, what is recovered, and where it was disposed of.

Under the additional language, a well operator is required to monitor each well to identify "any indication of well breach," and if the monitoring indicates a breach "may have occurred," the operator must "perform diagnostic testing to determine whether a breach has occurred."[235] DOGGR must be notified if diagnostic testing is triggered, and the operator must complete the testing within a reasonably practicable time.[236] These requirements greatly increase the potential for catching dangerous well breaches in time to mitigate irreversible damages. While seeming strong and forceful on the page, it remains to be seen whether the well operators and DOGGR enforce these regulations with the priority and respect they deserve.

Despite increased protections, well operators may continue to seek exemptions from disclosure requirements by claiming trade secrets.[237]

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[229] *Id.* §1786.

[230] *Id.*; *see* CAL. HEALTH & SAFETY CODE § 25124 (Westlaw 2015) (defining "waste" as any solid, liquid, semisolid, or contained gaseous discarded material not excluded by the Code or regulation).

[231] CAL. CODE REGS. tit. 14, §1788 (effective July 1, 2015) (Westlaw 2015).

[232] *Id.* §1788(a)(12).

[233] *Id.* §1788(a)(12)(C).

[234] *Id.* §1788(a)(12)(E).

[235] CAL. CODE REGS. tit. 14, §1787(a) (Westlaw 2015).

[236] *Id.*

[237] CAL. CODE REGS. tit. 14, §1788 (effective July 1, 2015) (Westlaw 2015).

This handicaps all of the reporting requirements the regulations purport to enact. Sections 1788(c) and (d) still allow operators to avoid disclosing information about fracking that is not considered public record either because the operator does not disclose it or claims it is a trade secret.[238] By making disclosure the operator's responsibility, the regulations are effectively guaranteeing that operators will seek to delay in making such information available. Also, by allowing claims of trade secrets to obscure the chemical composition of fracking fluid from public scrutiny, DOGGR is continuing to allow the very pollution and damage that SB 4 was enacted to prevent.

V. CONCLUSION

There are numerous risks inherent in fracking, and as with any other energy recovery and production process, some harm is inevitable.[239] Because of this, exploitation of California's prospective oil and gas reserves demands close attention when fracking is employed. That is why the second proposed text of SB 4's permanent regulations set to take effect on July 1, 2015, must be implemented properly. To make sure that SB 4's groundbreaking potential is not wasted, the following steps should be taken.

First, DOGGR, SWRCB, CARB, and the other California agencies responsible for implementing the new regulations must receive additional funding to effectively carry out their new tasks. Without proper funding these agencies will not be able to adequately handle the increased oversight, expanded permit review, water testing, water monitoring, and data gathering demanded by the new regulations. There is no use in having regulations on the books when people on the ground do not have the resources to put them into practice. Therefore, making sure California's regulatory agencies are adequately funded must be required if SB 4 and its resulting regulations are to have a chance of succeeding. Funding must be allocated from existing sources to guarantee that it will be in place when the permanent regulations become effective on July 1, 2015. However, by increasing oil and gas permitting fees, and financial penalties for violators and polluters, the increased cost of effective oversight will be supplemented over time.

Second, stakeholders and experts involved in creating groundwater-monitoring criteria must be selected through an open and transparent pro-

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[238] *Id.* §1788(c), (d).

[239] *See* John Kemp, *Fracking Fears Expose Confusion About Risk*, REUTERS (Aug. 27, 2013, 12:35 PM EDT), http://www.reuters.com/article/2013/08/27/kemp-fracking-us-idUSL6N0GS33L20130827.

cess. Stakeholders must be representative of the communities impacted by fracking operations. Thus, stakeholders should not be limited to those communities in the immediate geographic footprint of drilling locations; instead, stakeholders must be allowed to come from downstream and downwind communities that face any potential impacts from fracking. Community groups must include local and regional communities in a similar representational structure as the one advocated for stakeholders. Government representatives should include local, regional, and state interests. Industry stakeholders must be held to a standard of good faith and fair dealing at the very least and charged with executing best available practices in the ideal scenario.

Experts involved in creating groundwater-monitoring criteria must be independent from one another and be representative of scientific, governmental, community, and industry groups. Any connection between experts from different groups must be disclosed to the public to avoid impropriety or the appearance of impropriety. These experts will provide a venue and vehicle for public comment before the criteria are finalized in a similar manner to the promulgation of new fracking regulations. The new criteria should be publicized for at least two notice-and-comment periods lasting a minimum of fifteen days before final adoption. To be considered an expert these individuals must be credentialed from reputable institutions and have experience in areas such as water use, environmental protection, government service, or the oil and gas industry. Once certified as experts, these individuals should use the latest scientific data.

Third, notice requirements should be amended to include a process for determining and notifying people with interests both downstream and downwind from proposed fracking sites. The 1,500-foot radial limit for notifications contained in the permanent regulations does not provide adequate notice to people outside that limited range. Because fracking may cause groundwater and surface-water contamination, as well as air and noise pollution, the notice requirements should be expanded to include people beyond the strict geographic footprint of the fracking operation to those who are actually impacted. Geologic experts and data must be used to determine the potential reach and impact of individual fracking wells so notice can be given to those people potentially affected.

Fourth, oil and gas producers must disclose the chemical composition and amount of fracking fluid before operations begin. Furthermore, trade-secret protections for fracking fluid should not provide a safe harbor for oil and gas producers. The public has a right to know what is being injected into the ground. The public must have access to information disclosing the kinds and amounts of chemicals used in fracking as well as the amount and composition of produced water returned to the

surface. Without accurate reporting of this information there will be little recourse for individuals challenging fracking impacts, because producers and operators will claim trade-secret protection and resist disclosure as they currently do.

Fifth, tracer chemicals must be adopted as a required industry practice for all well operators engaged in fracking. Requiring the inclusion of tracers in fracking fluid will quickly connect any adverse environmental impact to the responsible well operator. This allows for remedial and protective measures to be taken against migrating contaminants. Finding the source of contamination or pollution is essential to addressing and reducing negative impacts. Requiring tracers will greatly simplify this process.

Finally, the public must actively observe both the implementation of permanent regulations and the groundwater-monitoring criteria. The public must keep a watchful eye on agencies, officials, and operators. As with any new regulatory framework, there will be oversights and missteps. Citizen involvement is crucial to preventing and rectifying these problems. Accordingly, it is imperative for the public to hold those agencies, officials, and operators accountable for their actions.

The enactment of SB 4 provides an important step in the evolution of fracking regulation in California, because it has proposed new studies and rules that have been hotly contested.[240] While the mandated environmental studies and groundwater-monitoring criteria may take years to compile and implement, ordinary citizens must not forget about the long-term goals of the legislation: increased oversight, environmental protections, operator reporting requirements, and public disclosures. It is only through continued vigilance and demands for transparency that we as citizens can shape the impact SB 4 has on our health and environment.

[240] *See* Stock, *supra* note 56.