SB 4 WELL STIMULATION TREATMENT REGULATIONS

PUBLIC COMMENT SUMMARY AND RESPONSE

Public Comment Period:
November 15, 2013 through January 14, 2014

Public Comment Hearings:
Sacramento – January 6, 2014
Long Beach – January 6, 2014
Salinas – January 8, 2014
Bakersfield – January 8, 2014
Santa Maria – January 13, 2014

Numeric codes at the beginning of each comment summary can be used to locate the summarized comment in the marked-up version of the written comment submission or transcript of public hearing.

	Ban
1	0127-1, 0111-1, 0087-3, 0097, 0077-1, 0104-1, 0058-2, 0044-1, 0002-1, 0123-23, 0125-1, 0137-1, 0097-1, 0118-1, 0140-1, 0075-1, 0142-1, 0109-1, 0145-1, 0059-1, 0117-2, 0081-1, 0194-1, 0155-1, 0303-1, 0291-1, 0203-1, 0272-2, 0244-1, 0329-1, 0150-2, 0292-2, 0201-1, 0310-1, 0090-4, 0226-1, 0175-1, 0322-1, 0223-1, 0199-1, 0334-1, 0309-1, 4155-1, 4158-1, 4159-1, 4167-4, 4238-1, 4258-1, 4261-1, 4265-12, 4266-1, 4267-1, 4222-1, 4595-1, 0103-17, 4095-1, 4096-1, 4104-1, 4105-1, 4106-2, 4108-1, 0134-1, 4109-3, 4118-1, 4119-1, 4121-1, 4123-1, 4126-3, 4127-4, 4134-1, 4232-1, 4269-1, 4273-1, 4275-1, 0313-1, 4282-2, 0124-5, 0204-1, 0266-1, 0305-1, 0151-1, 0263-1, 0323-1, 0252-1, 0277-1, 0234-1, 0158-1, 0218-1, 0328-1, 0239-1, 0294-5, 0262-1, 0168-1, 0236-1, 0300-1, 0256-1, 0308-1, 0318-1, 0315-1, 0301-1, 0342-1, 0198-1, 0320-1, 0286-1, 0188-1, 0193-1, 0242-1, 0246-1, 0179-1, 0212-1, 0324-1, 0316-1, 0200-1, 0273-1, 0190-1, 0233-1, 0260-1, 0241-1, 0304-1, 0241-1, 0311-1, 0254-1, 0260-2, 0340-1, 0253-1, 0313-1, 4298-1, 4299-1, 4300-2, 4302-2, 4303-1, 4304-2, 4307-1, 4308-1, 4309-2, 4310-1, 4545-1, 4156-4, 4177-15, 4224-3 Ban all fracking and acidization operations from occurring in our State.
2	0025-10, 4210-1, 4220-1, 4103, 4297-1, 4115-1, 4125-1, 4132-1, 4135-1, 4136-1, 4137-1, 4140-1, 4141-2, 4274-1, 4276-1, 4279-4, 4281-1, 4282-2, 4286-7, 0124-1, 0124-2, 4301-1, 0174-5 Because hydraulic fracturing and other forms of well stimulation are inherently risky activities that endanger public health and safety and the environment, no amount of regulation, short of an outright prohibition, can adequately protect the public. The proposed well stimulation regulations put forth by the Division fall far short of protecting the public. They do not prohibit the use of toxic chemicals—they require only that such chemicals be disclosed. They do not prevent water contamination—only that such contamination is monitored and reported. They do nothing to protect the public from harmful air pollution. The regulations actually facilitate an increase in unconventional oil and gas production, thereby adding to the state's greenhouse gas emissions, and threaten to reverse any progress the state makes toward reducing carbon emissions so far.

3	4277-1 For the sake of our children and their future, ban fracking.
4	0219-5, 0264-6 Local bans must be honored and preempted by DOGGR.
5	4153-1, 4231-1 Ban fracking and do the fracture later, if at all.
6	4142-1 We need strong leaders that will ban fracking.
7	4143-1 Because of global warming we should not extract more oil and we should not allow fracking.
8	4167-2 Just because there are rules that would allow fracking to be done legally doesn't mean that it would be right for humans.
9	4174-1 Dropped off signatures of 165 people who are against fracking.
10	4241-12 The regulations made clear once again that the best way to protect California's community, wildlife, and our climate is to prohibit fracking as other states and counties have already done.
11	4305-1 I would like more regulatory guidelines against fracking or to ban this negative operation. This process is subject to earthquakes and contamination to the water and soil.
12	4306-1 Fracking should be banned for exploring unconventional sources of fossil fuels will result in even more excess CO2, increasing global warming. We need WWS renewable energy. Fracking pollutes the water and land, damaging our ecosystems.
13	4441-1, 4445-1, 4447-1, 4473-1, 4474-1, 4497-1, 4498-1, 4511-1, 4514-1, 4532-1, 4534-1, 4548-1, 4575-1, 4576-1, 4578-1, 4430-2, 4440-1, 4445-1, 4506-1, 0174-1, 0230-3, 0326-2, 0276-3, 0090-5 They only safe way forward for California is a ban on fracking, acidization and other dangerous well stimulation processes. Fracking is tied to air and water pollution and releases huge volumes of methane, a dangerously potent greenhouse gas. New fracking and acidization technologies are opening up huge new sources of dirty oil in California's Monterey Shale formation to extraction and combustion. These regulations fall far short of protecting California's air, water, wildlife, climate and communities. The regulations do address the large increase in deadly air pollutants like particulate matter, ozone and air toxics that will accompany a fracking boom. The Central Valley and the Los Angeles Basin, where industry is poised for a massive expansion of drilling, already suffer from the worst air quality in the nation. The regulations attempt to rubber-stamp and fast -track multiple well stimulation jobs with a single approval and without adequately studying the impact of each frack job. The regulations do not clearly provide for full disclosure of all environmental and health risks and public participation prior to the approval of a permit to frack, as required by existing law. The regulations place the burden on nearby residents of fracked wells to request baseline water testing and attempt to improperly and unjustly restrict the right to obtain baseline water testing to property owners and tenants with a written lease. Finally, these regulations will do nothing to reduce the climate impacts of extracting and burning up to 15

	billion barrels of dirty oil. Fracking and other extreme oil and gas extraction techniques disrupt the climate and harm California's efforts to be a leader in reducing greenhouse gas emissions.
14	4571-1 I oppose regulations that would permit fracking in California. The proposed regulations essentially allow the industry to define the terms of the debate. Most reputable climate scientists do not believe that fracking is safe under any circumstances, much less those that permit the industry to do so. Fracking should be banned until scientific study shows it to be environmentally safe, rather than permitted (however regulated) until science proves how badly it's fracked us up.
15	4191-3 Ban fracking until an EIR has been made.
	Moratorium
16	0088-2, 0074-2, 0127-2, 0084-2, 0087-1, 0057-1, 0135-1, 0072-2, 0123-5, 0125-1, 0126-1, 0089-2, 0101-2, 0128-2, 0062-1, 0120-3, 0064-1, 0108-2, 0129-1, 0092-1, 0116-1, 0107-1, 0067-1, 0076-1, 0143-2, 0086-1, 0105-2, 0073-2, 0119-1, 0131-1, 0095-1, 0110-1, 0069-1, 0114-2, 0147-1, 0133-6, 0099-2, 0068-2, 0061-1, 0071-2, 0183-2, 0053-2, 0049-2, 0045-1, 0002-3, 0251-1, 0276-2, 0230-2, 0195-3, 0284-3, 0249-3, 0302-2, 0299-1, 0329-2, 0079-1, 0135-2, 0022-4, 0243-1, 4066-6, 4069-22, 0269-1, 0336-1, 0267-2, 0235-1, 0321-1, 0326-1, 0216-1, 0162-1, 0274-1, 4156-3, 4157-1, 4165-7, 0336-1, 0267-2, 4252-8, 0021-17, 4196-3, 4198-1, 4199-1, 4207-1, 4208-6, 4210-2, 4066-3, 4212-2, 4213-1, 4214-1, 4214-8, 4218-1, 4229-1, 4230-1, 4099-1, 4139-2, 4268-1, 0313-4, 4192-2, 4288-1, 4291-1, 0280-7, 0170-1, 0219-6, 0231-1, 0269-1, 0278-2, 0163-1, 02-1, 0297-1, 0174-1, 0271-2, 0205-1, 0220-1, 0166-1, 0182-1, 0259-1, 0245-1, 0161-1, 0261-1, 0156-1, 0282-1, 0289-1, 0206-1, 0217-1, 0171-1, 0258-1, 0339-1, 0248-1, 0240-1, 0264-7, 0221-1, 0327-1, 4511-3, 4203 There should be a moratorium on all fracking activities until the scientific study mandated by SB4 is completed, all known risks have been identified, the environmental and health impacts are fully understood, until CO2 drops to a scientifically justifiable safe level, the materials and procedures are completely disclosed, monitored and proven to be 100% safe, CA is out of drought and it's reservoirs are filled again.
17	0124-3, 0124-4 Before moving forward, the State must consider climate change, public health issues, chemicals used in fracking: benzene, formaldehyde, silica, hydrochloric acid, hydrofluoric acid, hydrogen fluoride, waste water injection, and earthquakes. Also, the following needs to be considered: The maximum possible magnitude that can reached by quakes induced by fracking or wastewater injection. The maximum distance from which fracking or wastewater injection could induce a quake. Why some frack jobs and wastewater injection wells induce quakes, and others not. How long the risk of a quake persists after a frack job or wastewater injection occurs.
18	4285-1 SB 4 does not forbid moratoriums or bans as an earlier speaker said. It specifically did not address that question. And there was a fax that Senator Pavley sent out later that actually asked and answered that question. And it said SB 4 did not preclude either the state or local governments from instituting either a moratorium or bans.
19	0022-4 Governor Brown should order a moratorium on fracking, aciditation, cyclic steam injection, and water and steam flooding of oil and gas wells.

20	0035-2 The California economy cannot stand any moratoriums on energy production, where it is, whether it is wind because of the condors or whether it is solar because of kit foxes or whether it is whatever the source may be. We have to develop our energy to help our economy recover and grow for the future.
21	4166-1, 4247-6, 4284-1 There should be a moratorium on fracking until we consider the long-term impacts and have more agreement across the populace.
22	0056-2 Culver City supports a ban on hydraulic fracturing until after (1) the Division completes the certification of its EIR and the environmental, public health and safety impacts from well stimulation are fully analyzed; (2) these regulations are revised, finalized and become effective; and (3) the Division has all the necessary means to enforce the regulations.
23	0045-12 A majority of Californians agree that a moratorium on fracking is needed now. A poll by the University of Southern California and the Los Angeles Times showed that 58 percent of California voters want a moratorium on fracking, at least until an independent commission has studied fracking's environmental impacts. The Public Policy Institute of California's statewide study from September, 2013 found that 53 percent of Californians oppose increased use of fracking.
24	0310-2, 0255-1, 0159-1, 0210-1, 0331-1, 0046-01 Not enough is known about the risks of fracking, in general, or in the Monterey shale play which is much different than other U.S. oil shale plays. It is irresponsible to allow fracking operations until the extent of those risks are understood. The potential externalized cost to Californians would likely far outweigh any benefit for the extracted oil that will be sold outside of California. These risks include but are not limited to exacerbation of climate change from the burning of extracted oil and methane leakage associated with extraction; air pollution; irreversible contamination of massive amounts of water used in fracking operations; contamination of precious and irreplaceable ground water, drinking water and aquifers; significant disruption of natural habitats over an extensive area; and induced seismic activity
25	0002-4, 4192-3, 0085-1 Under SB 4 and the emergency regulatory power granted for the interim period by that statute, and the existing power under PRC Section 3106, the Division clearly has the authority to implement the precautionary principle, and put an immediate halt to well stimulation projects.
26	0051, 4237-1 It would appropriate to put a moratorium on oil drilling in areas of prime farmland in the Central Valley. This should last until all studies are completed. There must be some kind of precautionary approach taken to protect the water, air, and land in these areas where farming is so valuable.
27	0091-1 My biggest concern is the potential issuance of a moratorium on hydraulic fracturing in California without full implementation of the normal review process, especially without considering the following: (1) The existing quality and existing and potential use of the groundwater. (2) Groundwater that is not a source of drinking water consistent with the United States Environmental Protection Agency's definition of an Underground Source of Drinking Water as containing less than 10,000 milligrams per liter total dissolved solids in groundwater (40 C.F.R. 144.3), including exempt aquifers pursuant to Section 146.4 of Title 40 of the Code of Federal Regulations. (3) Proximity to human population, public water service wells, and private

	groundwater use, if known. (4) The presence of existing oil and gas production fields, including the distribution, physical attributes, and operational status of oil and gas wells therein. (5) Events, including well stimulation treatments and oil and gas well failures, among others, that have the potential to contaminate groundwater, appropriate monitoring to evaluate whether groundwater contamination can be attributable to a particular event, and any monitoring changes necessary if groundwater contamination is observed, as clearly stated in SB 4.
28	0045-15, 4241-2 There is an urgent need for a moratorium on hydraulic fracturing, acidizing, and other forms of well stimulation in California. The controversial oil and gas extraction method known as hydraulic fracturing ("fracking") has ignited concerns nationwide about the serious risks it poses to public health and our environment. Here in California, a largely unfettered oil industry is poised to exploit the oil-rich Monterey Shale formation, putting communities at risk of surface and groundwater contamination, fresh water depletion, air pollution, greenhouse gas emissions, induced seismicity, land degradation, wildlife habitat fragmentation, and a host of other harmful consequences that accompany a highly industrial process that injects, at high pressures, toxic chemicals and hundreds of thousands to millions of gallons of water into the earth.
29	0045-16 Despite these risks, to date hydraulic fracturing and other risky well stimulation processes, such as acidizing, enjoy dangerous exemptions from critical provisions of our landmark federal environmental laws and have proceeded woefully under-regulated by state law here in California.
30	0045-17 The draft regulations fall short of providing adequate and enforceable safeguards for the risks of well stimulation treatments and the potential increase in drilling and associated activities.
31	0045-19 The statewide study is charged with, among other things, investigating areas with existing and potential oil and gas reserves where well stimulation treatments are likely to spur exploration; evaluating additive and water transportation to and from the well site; studying the mixing and handling of well stimulation treatment fluids; investigating the use and potential for nontoxic additives and the use or reuse of treated or produced water in well stimulation treatment fluids; evaluating the disposal of flowback fluids; understanding the related atmospheric emissions, including greenhouse gases; investigating and reporting on impacts on wildlife; considering potential for seismicity; and undergoing a hazard assessment and risk analysis addressing occupational and environmental exposures to well stimulation treatments, including hydraulic fracturing treatments, hydraulic fracturing treatment-related processes, acid well stimulation treatments, acid well stimulation treatment-related processes, and the corresponding impacts on public health and safety. Each of these findings should inform the regulatory framework governing the drilling, operation, maintenance, and abandonment of well stimulation projects.
32	0045-20 A majority of Californians agree that a moratorium on hydraulic fracturing is needed now. A poll by the University of Southern California and the Los Angeles Times showed that 58 percent of California voters want a moratorium on hydraulic fracturing, at least until an independent commission has studied hydraulic fracturing's environmental impacts. The Public Policy Institute of California's statewide study from September, 2013, found that 53 percent of Californians oppose increased use of hydraulic fracturing. These numbers reflect the same strong support we heard at the recent hearings. Across the state, at hearings on the proposed regulations and the statewide environmental impact report (EIR) required by Senate Bill 4 (SB 4), in geographically and culturally diverse cities including Oakland, Sacramento, Long Beach, Salinas, Bakersfield. Ventura, and Santa Maria, thousands of citizens spoke out in passionate and undeniable support

	of a ban or moratorium on hydraulic fracturing in California.
33	0030-4 This includes undertaking a halt on all well stimulation projects until the statewide EIR mandated by SB4 is completed. An independent and thorough scientific review of the impacts of well stimulation will help develop the most comprehensive and protective regulations to more fully safeguard California's people, environment, and economy, and comply with the Governor's commitment.
34	4070-3 No new well stimulation applications should be accepted until the Department has prepared a list of acceptable chemicals for use in well stimulation. That list *should not* include all chemicals currently used for that purpose in our state because some are highly toxic and safer alternatives exist.
35	0184-2 An immediate moratorium using potable water sources for fracking purposes must be instituted.
36	4253-1 I live directly adjacent to Inglewood Oil Field. There is cancer at a higher rate than other neighborhoods; brain and pancreatic cancer. Issues with ground movement and methane gas in the community. House values are plummeting because of fracking. Fracking doesn't need to be done here. The current regulations don't work and there is no reason to believe that the proposed regulations will work either.
37	4200-1 The oil industry has a history of accidents: 1980, North Sea123 oil workers died. 1999, Bellingham, pipeline rupture and fire, three killed, eight injured. ·2010, San Bruno, ·pipeline explosion and fire Eight fatalities. ·1988, occidental petroleum rig in the North Sea explosion and fire.· 166 workers killed; 64 survivors. 2010, Gulf of Mexico, British Petroleum Deepwater Horizon. · Drilling rig exploded, 11 workers killed. 1998, Anacortes, Equilan Refinery coking plant accident; six fatalities. 2005, British petroleum Texas refinery explosion and fire; 15 workers killed; 180 injured. 2012, Richmond, California, Chevron Refinery fire 15,000 people go to hospital with breathing problems. USEPA identified 62 regulatory violations at the refinery. 2013, in a Quebec a runaway train carrying crude oil derailed and explodes; 47 people killed; buildings destroyed.· December 30th, a week ago today, North Dakota Oil train hits a grain car.· Ten tank cars exploded. We need a moratorium on fracking until we know what is safe.
38	0030-14, 4066-1 Under the emergency regulatory power granted by SB-4, DOGGR has the authority to implement the precautionary principles and immediately halt well stimulations. We strongly urge the agency to use that power until a thorough and a complete scientific review is complete.
39	4311-1, 4313-1, 4319-1, 4353-1, 4359-1, 4363-1, 4364-1, 4369-1, 4377-2, 4378-1, 4384-1, 4390-1, 4394-1, 4430-3, 4432-1, 4445-2, 4504-3, 4531-1, 4560-2, 4140-4, 0174-2 Declare a moratorium on fracking, acidizing and all forms of oil and gas well stimulation/projects. We need a moratorium on fracking to protect our air, water, health and our land.
40	4354-1, 4355-1, 4356-1, 4357-1, 4358-1, 4360-1, 4362-1, 4365-1, 4366-1, 4367-1, 4368-1, 4370-1, 4371-1, 4372-1, 4373-1, 4374-1, 4375-1, 4376-1, 4379-1, 4380-1, 4381-1, 4383-1, 4386-1, 4387-1, 4388-1, 4389-1, 4391-1, 4392-1, 4393-1, 4395-1, 4396-1, 4398-1, 4399-1, 4400-1, 4401-1, 4402-1, 4403-1, 4404-1, 4405-1, 4406-1, 4407-1, 4408-1, 4410-1, 4411-1, 4412-1, 4413-1, 4429-1, 4431-2, 4433-1, 4434-1, 4435-1, 4437-1, 4438-1, 4442-1, 4444-1, 4446-1, 4448-1, 4449-1, 4450-1, 4451-1, 4593-1, 4592-1, 4591-1, 4590-1, 4589-1, 4588-1, 4587-1, 4586-1, 4584-1, 4582-1, 4581-1, 4580-1, 4579-1, 4577-1, 4574-1, 4573-1, 4572-1, 4570-1, 4569-1, 4568-1, 4567-

	1, 4566-1, 4565-1, 4563-1, 4453-1, 4454-1, 4456-1, 4458-1, 4459-1, 4461-1, 4462-1, 4463-1, 4464-1, 4465-1, 4467-1, 4469-1, 4470-1, 4471-1, 4472-1, 4475-1, 4478-1, 4479-1, 4482-1, 4483-1, 4484-1, 4485-1, 4486-1, 4487-1, 4488-1, 4489-1, 4490-1, 4491-1, 4492-1, 4493-1, 4494-1, 4495-1, 4500-1, 4502-1, 4507-1, 4509-1, 4512-1, 4513-1, 4516-1, 4561-1, 4559-1, 4557-1, 4556-1, 4555-1, 4554-1, 4552-1, 4551-1, 4550-1, 4547-1, 4546-1, 4544-1, 4540-1, 4538-1, 4537-1, 4536-1, 4455-1, 4457-1, 4466-1, 4480-1, 4501-1, 4505-1, 4510-1, 4518-2, 4530-1, 4533-1, 4535-1, 4539-1, 4541-2, 4542-1, 4549-2, 4558-1, 4562-1, 4517-1, 4496-1, 0194-2 I urge you to implement a statewide moratorium on fracking, acidizing and all forms of oil and gas well stimulation. California needs the strongest possible protections from oil and gas drilling and all forms of well stimulation. The people of California need to know that any increase in oil and gas drilling fits with California's health, water, landscape, climate goals and the safety of future generations. California needs the strongest possible studies and reviews as well as protections from oil and gas drilling and all forms of well stimulation.
41	4430-1, 4440-5, 4445-3, 4447-1, 4576-2, 4575-3, 4473-3, 4498-3, 4508-1, 4511-2, 4514-3, 4532-3, 4548-2, 0195-4, 0326-5, 0276-5, 0174-4 Every day we are learning more about the harm caused and potential for much greater harm from fracking acidization and other well stimulation processes. Climate scientists have called upon the Governor to place a moratorium on fracking in California NOW. Massachusetts has just placed a 10 year moratorium on fracking. It is time that our state follows suit. In addition to the direct results of fracking, there are serious health effects to expanding refineries capabilities to handle this dirty oil. Proposals to do just that and expand rail transport of the dirty oil place even more our population at risk. The regulations do not protect California's water for agriculture and place farmers in direct competition with much wealthier oil companies for our precious natural resource.
42	4452-1 I ask you to implement a statewide moratorium on fracking and all forms of gas and oil well stimulation. The residents of California need to know how this process affects California's health, clean water, climate goals, and geology. In spite of the fact that the recently signed fracking bill, SB4, requires oil and gas companies to get a permit for fracking, make the chemicals they use public, and monitor ground water and air quality, these companies have shown themselves to be very poor stewards of our environment. Until there is very serious oversight of their activities, the usual self-regulating of our energy companies will continue to lead to events like PG&E's failure in San Bruno and the Richmond Chevron failure. The state of New York and cities in Colorado have issued bans or moratoriums on fracking. The evidence of the damage to the atmosphere and water sources is more than anecdotal. There is a U.S Geological Survey study that suggests that fracking may have caused earthquakes in Texas, Oklahoma, and Arkansas. California is a seismically delicate state and until there is definitive research on the subject, there should not be any fracking in California.
43	4519-1, 4520-1, 4521-1, 4522-1, 4523-1, 4524-1, 4525-1, 4526-1, 4527-1, 4528-1, 4529-1 California needs a temporary moratorium on fracking while you fully investigate the science behind fracking for production. The moratorium should include acidization and other dangerous well stimulation processes. The draft regulations on fracking fall far short of protecting California's air, water, wildlife, climate and communities. For example, the regulations: do not address the large increase in deadly air pollutants like particulate matter, ozone and air toxics that will accompany a fracking boom; do not clearly provide for full disclosure of all environmental and health risks to the public prior to the approval of a permit to frack, as required by existing law; place the burden on nearby residents of fracked wells to request baseline water testing. The only sufficient regulation would be a prohibition on fracking and other extreme fossil-fuel extraction techniques for California. Governor Brown, we are looking to you to place a moratorium on fracking now.

44	4460-1 I am concerned about the impact of fracking, acidification and all forms of oil and gas well recovery techniques and stimulation procedures on California's environment. It has taken several million years to allow nature to establish an equilibrium state between what is under the ground and what is at the surface of our world. Can we expect nature to suddenly make an adjustment to compensate for our hurried exploitation? Before you allow anymore fracking etc, please ensure the people of California that any increase in oil and gas production supports the goals associated with California's health, water, air and climate change mandates. California, being the nation's most populous state, needs the strongest possible measures and assurances that all oil and gas drilling and all forms of well-stimulation will be regulated not only in our present day but for the centuries to follow. Perhaps the best approach would be to implement a statewide moratorium on fracking, acidification and all other forms of oil and gas exploration, well stimulation, and production until all these issues are thoroughly understood.
45	4312-1, 4314-1, 4397-1, 4583-2 There should be a moratorium on fracking because of the dangers of future earthquakes, safe drinking water, water degradation and not knowing the chemicals used to extract fossil fuels. It's our right to know that fracking meets California's environmental health standards.
46	4439-1 I request that the proposed regulations be abandoned and instead that the Department impose an immediate moratorium on fracking until the study required by SB 4 has been completed. The regulations sidestep the California Environmental Quality Act, presuppose compliance by the operator without verification and lack sufficient oversight by any regulatory agency. These regulations are inconsistent with SB 4, which provided that nothing in these regulations shall prohibit a local lead agency from conducting its own environmental review. These regulations would allow fracking near environmentally sensitive areas. These regulations fail to formalize the jurisdictions and duties of regulatory agencies, thereby leaving fracking subject to virtually self-regulatory practices by the industry. The scope of the regulations is far too narrow and does not cover all forms of well stimulation. The definition of "protected water" in the regulations is also too narrow and should be expanded to include all current and potential beneficial uses of water. The regulations fail to provide adequate air quality protections. The regulations fail to eliminate injection of dangerous chemicals. California should have the most stringent fracking laws and regulations in the nation. Consequently, consider the regulatory oversight already in place in other states. The dangers of fracking are well known and documented and must be strongly considered in this rule making process. I therefore respectfully request that the proposed regulations be withdrawn/revised and that an immediate moratorium be imposed.
47	4315-5 The potential for earthquakes and the certainty of pollution and increase greenhouse gas production (which includes bringing of methane and burning it off) are strong reasons for prohibiting well stimulation, acidification and other related means of production. In the absence of outright prohibition, we need a moratorium.
48	4316-2 Adopt a moratorium on fracking-not just adopt a short-term money driven idea that will only hurt our children.
49	4317-3, 4477-1, 4499-1 The agency should declare a moratorium first and foremost. There is a crying lack of comprehensive science studying the potential impacts to California's water, air, climate, natural resources, environmental quality, and health goals. The inadequacies of the current and proposed regulatory safeguards demonstrate the clear need for a cautious approach. DOGGR has the authority to implement the precautionary principle and put an immediate halt to well

	stimulation projects. It should use this authority now. We need sound management of our natural resources.
50	4318-1 Moratorium on fracking must be invoked until it can be determined that it is never a good idea.
51	4331-1, 4436-1, 4385-1, 4440-3, 4583-1 Impose a moratorium until more independent study or environmental review has been done on the issue. Fracking defies all logic, especially in the already much fractured state of California. We need strong protections in place before the state determines that fracking should continue.
52	4361-1, 4382-1, 4587-2 Install a moratorium on hydraulic fracturing until the actual health and environmental implications are better understood. In particular potential impacts to drinking water supplies and needing to keep our water clean.
53	4443-1 There should be a statewide moratorium on fracking. Methods of avoiding its adverse impacts have been proven ineffective.
54	4506-2 I hope you are willing to speak up about the loopholes and support DOGGR and Governor Brown in declaring a moratorium.
55	4508-2, 4514-4, 4548-3 Until public safety and health can be guaranteed, a moratorium should be imposed on fracking.
56	4564-1 We feel a moratorium on shale tight oil extraction and hydraulic fracturing is necessary until appropriate independent short-term and long-term health studies have been done, adequate funding available and regulation with input from public health officials is in place to assure long-term protection of public health and the environment. The indirect human and societal costs of chronic illness are not taken into account when considering widely polluting industrial processes such as oil and gas extraction and. in particular, hydraulic fracturing. That CMA endorses efforts to remove trade secret exemptions and other restrictions that do not allow full disclosure of chemicals used in hydraulic fracturing. That CMA encourages government agencies to perform health assessments prior to new hydraulic fracturing development projects. That CMA endorses efforts to implement hydraulic fracking regulations, monitoring, funding and enforcement efforts in order to protect public health, the environment and vital water resources. The CMA supports the ongoing complete implementation without delay of the California Global Warming Solutions Act of 2006, which protects the health of California from climate change. The CMA supports California actions to continue to take leadership in adopting and implementing innovative climate change measures which spur climate policy action ny local, state, national and international jurisdictions. We appreciate that this regulation will require permits for all wells, disclosure of chemicals to DOGGR, notification of residents, independent environmental impact reports, require the state Water Resources Control Board to complete independent scientific studies, and to develop groundwater modeling and groundwater monitoring programs. These also will address storage and handling of well stimulations fluids in compliance with existing laws. We feel these are still not protective of public health and the environment. This proposed set of regulations leaves room for economic interests to supersede the health and safety of California citizens. As stated in your proposal, the Department of Oil, Gas and Geothermal Resources (DOGGR) has the authority to allow or deny permits for oil and gas extraction and regulations will not change that. Who is to have independent oversight of DOGGR? There is clear conflict here with global climate change goals and with agriculture in California that provides most of the produce, nuts,

	and dairy for the nation. Already the oil and gas industry has outbid farmers in California for water use in 2013. Who will make the ultimate decision when the oil industry competes with agricultu.ra1 interests? The interconnectedness of energy, water, and food requires that we work towards a just and sustainable balance that keeps food and Water safe and available above all else. Key health and environmental issues that cannot be mitigated even with strict regulations include: 1) Exacerbation of global warming with the continued increase in the use fossil fuels 2) Delays the adoption of renewable energy resources to combat global warming. 3) Earthquake induction both local and remote due to fracking and high volume wastewater injection wells, 4) Geologic shifts due to rapid removal of underground fluids and materials, 5) Creation of toxic wastewater with radioactivity from well treatments disposal fluids, 6) Loss of fresh water due to oil and gas extraction. Especially in a drought prone and water limited state such as California. 7) Contamination of aquifers - Fracking itself is a threat to aquifers. In addition, the U.S. EPA grants exemptions to energy and mining companies to release toxic material in aquifers across the country jf they are not a major public drinking water source or it is felt they are already contaminated. There have been dozens of exemptions in California already. Is there assurance these do not communicate with groundwater that is ultimately used by humans or animals? The National Ground Water Association has determined that 44 percent of the U.S. population depends on groundwater for its drinking water supply - be it from a public source or private well. 8) Contamination and loss of agricultural land and the attendant food resources required by a growing population, 9) Degradation of ecosystems and habitats, and the attendant loss of biodiversity and ecosystem services. In addition: 1) There are no human health assessments. We request that these be in place prior to further hydraulic fracking. 2) Disclosure of tracking fluids occurs up to 30 days after the well stimulation thus pre-testing of the groundwater would not be adequate as it would not be known what chemicals to test for. We request that disclosure of fracking chemicals be done prior to hydraulic fracking and are made public so that adequate water monitoring studies are performed prior to fracking and can be done by local property owners. 3) Disclosure of chemicals is still not adequate as proprietary information is regulated by federal laws that allow loopholes for disclosure to the public. 4) Wells cannot be completely sealed. 5) No oil or gas severance tax is in place to help pay for the necessary extensive on-site staffing, administration and monitoring of oil and gas extraction. This adds a tax burden to Californians if done in a manner that adequately protects our environment and biodiversity; we ask that an oil severance tax be in place prior to further hydraulic fracking. 6) Overlooks the continued need to emphasize and legislate increased energy conservation, energy efficiency, and renewable energy development. 7) The regulations specifically exempt the inherently dangerous and polluting oil enhancement extraction techniques known as cyclic steam stimulation and steam flooding which is increasingly being used in San Joaquin Valley, as well as Kern County, to extract heavy crude oil, these are considered Class II injection wells and are regulated by the EPA and states separately. However, regulation is typically lax and with less scrutiny. California regulations for steam flooding were relaxed in 2011. We ask that Class 11 injection well regulations be updated and strengthened. 8) Landowner Notification. Although there is prior notification of fracking in an area, there does not appear to be recourse for landowners concerned about potential harm to their health or environment prior to fracking. 9) The limitations to penalties for those who violate the law appear to be financially inconsequential.
57	0326-6 It's time for a moratorium on fracking (and eventually a ban). Other states have acted to protect their citizens. It's time for California to do the same.
	<u>Regulations are inadequate: general</u>

58	4249-1, 0030-15, 0313-2, 4326-1, 4498-2, 4532-2, 4430-4, 0174-3 The current and proposed regulations are far from adequate, and contrary to what the state and industry would like us to believe, they actually are not ·the strongest regulations in the country.
59	4171-2 At regulatory hearings you will hear another side that says it is too strong. ·Usually the side that says it is too strong is industry. We haven't heard any industry say that it is ·too strong, and that is the question. Why? Because if they are the strongest in the nation, then there would probably be a little bit of backlash on the other end, and clearly we haven't heard that today.
60	0088-1, 0074-1, 0135-1, 0084-1, 0103-13, 0072-1, 0043-01, 0089-1, 0101-1, 0128-1, 0144-1, 0075-3, 0092-2, 0143-1, 0105-1, 0073-1, 0114-1, 0099-1, 0068-1, 0071-4, 0071-7, 0053-1, 0025-1, 0002-6, 0203-2, 0249-1, 0302-1, 0292-1, 0329-1, 0103-12, 0047-1, 0030-2, 0267-1, 0157-1, 0229-1, 0267-1, 4210-7, 4102-1, 4290-1, 0085-2, 0219-1, 0295-1, 0167-1, 0225-1, 0271-1, 0220-1, 0154-1, 0260-1, 0238-1, 0160-1, 0260-3, 0264-1 The regulations may not even be enforced, they contain loopholes, they prioritize industry profits, they do not go far enough to protect the environment, members of the community's health and safety, water conservation and sustainability, fish, wildlife, contamination of surface and ground water, aquifer exemptions, well failure rates, the costly storage/removal of toxic wastes, spills, concerns regarding California's drought, the risks of earthquakes or increased seismic activity, the unpredictable, long-term environmental impacts, do not address the amount of carbon emissions coming from the on-site extraction methods used nor the shipping of the oil nor the burning of it, do not address water quality management, and are generally inadequate. Also, attempt to rubber-stamp and fast-track multiple well stimulation jobs with a single approval and without adequately studying the impact of each well stimulation job.
61	4271-1 Fracking is inherently dangerous. Even with the best regulations, the perfect regulations, it's unsafe.
62	0284-2 The regulations are inadequate because they allow companies to keep the volumes and the concentrations of chemicals used in fracking to be kept secret.
63	0135-1 SB 4 and subsequent regulations are inadequate because no sensible measures will be in place till 2016 at the soonest, if then.
64	0030-1 Earthworks urges the Division to go beyond the minimal protections outlined in the bill, and adopt more stringent protections and policies to help safeguard the state's health, environment, and natural resources.
65	0202-2 The regulations are inadequate because they focus only on technical aspects of enhanced extraction wells at the well site and provide no risk mitigation to Ag or vintner industries dependent upon the Salinas River or major water sources in the San Joaquin Valley, and they do not take into account the history of rapid expansion of wells into rural areas in the states east of California during the last 10 years, effectively allowing the oil industry to frack anywhere in agriculture areas, including immediately adjacent to major Ag water sources.
66	4068-1 The Division's proposed regulations to govern hydraulic fracturing for the recovery of oil and natural gas in California fail to adequately protect against damage to life, health, property, and

	natural resources, and therefore the rules are not in accord with standards prescribed by the law of California. The rules must therefore be rewritten or amended to provide such protections.
67	4231-3 This is just the time of uncertainty, and personally the regulations are a complete joke and it's appalling to me that we're supposed to, you know, just sit here and remain calm and believe and trust that, you know, everything will be okay, because personally, these Regulations are just a death sentence, quite frankly, and it doesn't take a scientist or some, you know, expert to see that the signs are everywhere.
68	4192-1 While the legislature through the passage of SB 4 has compelled the State to adopt regulations with some basic minimal guidelines specified, we believe that it is the duty of the Division to go beyond the minimal protections outlined in the bill. California prides itself in going beyond the bare minimum in environmental protection, and we encourage the State to take this opportunity to implement policies that bring a higher level of environmental and health protection than the minimal structure provided in SB 4.
69	4481-2 DOC is responsible for preventing the energy industry from crippling California's health and environment, yet the Department's proposed rules make a mockery of this promise. Californians who have consistently expressed a desire to maintain some semblance of a physically and biologically intact landscape deserve a more balanced policy.
70	4224-2 Regulations don't work. If they did, we wouldn't have the disastrous environmental damage we have.
71	0149-1, 0139-1, 0058-1, 0100-1, 0108-1, 0106-1, 0148-1, 0071-1, 0053-1, 0272-1, 0292-3, 0226-1, 4158-2, 0208-1, 0173-1, 0325-1, 0335-1, 4428-1, 4515-1, 4269-4 Due to all the detrimental impacts to the environment, public health and safety, there is really no way to make fracking safe. No matter the amount of regulation.
	<u>Need for strongest possible regulations for Well Stimulation</u>
72	0135-2, 0066-1, 0136-1, 0068-3, 0071-8, 0002-2, 0247-1, 0228-1, 0045-111, 4105-2, 0270-1, 0278-1 We strongly urge the adoption of the most stringent protections possible, to go beyond the minimum standards of SB 4. While the Legislature, through the passage of SB 4, has compelled the state to adopt regulations with some basic, minimal guidelines specified, state law requires the Division to "prevent, as far as possible, damage to life, health, property, and natural resources." This mandate must be reflected in all state policies related to well stimulation including the Division's proposed regulations.
73	0211-3, 0141-7 The Department must resist the industry push to protect corporate endeavors, balance and report the negative and positive aspects of fracking without the taint of bias, and let factual evidence be the basis for action on fracking. In terms of precautionary principle, considerable uncertainty about the harms of fracking and acidification. Specific terms of the long-term gas fluid migration. The life cycle of the frack. I ·think that you should be -- aside from opposing the immediate moratorium which is within your power that each well needs to be individually evaluated and subject to a strict requirement as possible

	so sequence of every single well.
	Support of Division Creating Regulations
74	4290-8 We support the Division's efforts to update its rules. There are many additional improvements that must be made to California's rules to address the full range of environmental and human health risks associated with well stimulation, including we would add putting sensitive areas off limits to development, appropriate setbacks, well construction, air emissions, and others, and we'll detail those in our letter that we'll file tomorrow.
75	4289-1, 4294-1, 4295-1 I come here today to thank you for your approach that you've taken towards these regulations. On a personal level, I think we're being overregulated today, but I know you've been given the task and I think you're taking the right approach to it. The approach that you're taking, that you make it such that you keep it a balanced approach and that you not allow things to get in the way of those many important things, such as jobs, and a moratorium would be just the wrong thing here.
76	0056-1, 4144-1, 4148-1, 4151-2, 4152-1, 4179-1, 4181-1, 4190-2, 4250-1, 4195-1, 4209-1, 4216-1, 4219-1, 4221-1, 4228-1, 4107-1, 4109-2, 4122-2, 0268-1, 0332-1, 0333-1 We support and encourages the Division newly active role in regulating hydraulic fracturing, we also believes it has a duty to protect local interests, including public health, safety and the environment, from the impacts of hydraulic fracturing and/or its associated activities.
77	4161-1, 4163-1, 4164-1, 4170-1, 4176-1, 4178-1, 0091-2, 0032-1, 0027-1, 0023-5, 0014-1, 0012-1, 0009-1, 0063-1, 0016-1, 4067-1, 4242-1, 4254-1, 4201-1, 4211-1, 4093-1, 4094-1, 4094-1, 4097-1, 4101-1, 4110-1, 4295-3, 0296-1 Our understanding is that with these developed regulations Californians will have the strictest regulations on hydraulic fracturing in the U.S. We believe that these regulations that are necessary to implement SB 4 have been drafted in a very thoughtful manner and that they provide the oversight, transparency, and environmental and safety protections necessary for responsible energy development and the jobs, revenues, and energy security. Our message to DOGGR is that so far you have done a commendable job in balancing the interests and promoting safety and also on drilling activities to take place. We must not insert provisions that would result in a de facto moratorium or ban, which is contrary to the intent of SB 4.
78	0165-1, 0020-1, 0006, 0023-3, 0224-1, 0298-1, 0164-1, 0306-1, 0172-1 Fracking offers California good jobs and revenue. There are 15.9% unemployed Americans of African descent and 10.4% Americans of Hispanic descent that are unemployed. Fracking would offer the unemployed access to good jobs and a middle class future for those who are struggling. Texas and North Dakota have seen significant drops in unemployment and enormous increases in revenue. These regulations should also help oil production resulting from hydraulic fracturing and should provide important tax revenues to pay for vital services like schools, firefighters and law enforcement. Further, developing in-state resources should help us meet our growing energy needs while reducing our dependence on imported oil. Economists at the University of Southern California seem to think development of the Monterey Shale, between 2015 and 2030, may generate as many as 2.8 million new jobs; grow personal income by up to 10 percent and produce up to $24.6 billion in new tax revenues for state and local government services. The Monterey Shale holds over 15 billion barrels of oil which would enhance our energy security, and we can control our own energy future. Development of Monterey Shale deposit, will provide a new domestic fuel supply that will reduce greenhouse gas emissions associated with imported

	fuel transported via maritime vessels.
79	0017-1 While we are in general concurrence with the proposal, we suggest the regulation be modified to ensure that local municipalities are informed of all well stimulation projects within their jurisdictions and that groundwater monitoring is considered a required standard procedure.
80	0008-1 The Channelkeeper strongly support the Department of Conservation's (DOC's) efforts to regulate well stimulation activities to protect public health and the environment, though we have concerns with the proposed regulations.
81	4170-2, 4173-2, 4228-2 We must not insert provisions that would result in a moratorium or ban, which is contrary to the intent of SB-4.
82	4110-1 I support this are as follows: Abundant, reliable and affordable energy is a fundamental cornerstone in a healthy economy. Fracking offers California the opportunity to uplift disadvantaged communities by creating good jobs and providing revenue for important services. Federal Energy Information Administration, primarily as a result of natural gas produced by fracking nationwide, energy-emitting carbon dioxide emissions have dropped to their lowest level in 20 years. The US has produce more oil at home than we have in 15 years. Fracking will reduce greenhouse gas emissions associated with imported fuel transported via maritime vessels. A USC study states that development of a regional shale area between 2015 and 2030 could create as many as 2.8 million new jobs in California
83	4112-5, 0185-1 I mostly want to caution that as you move forward in this process, that you do what actually your statutory obligation is and actually implement the spirit as well as the letter of SB 4.· And SB 4 specifically excluded hydraulic fracturing from being either banned or having a moratorium on it.
84	0022-4 I am in favor of robust regulations that are actively enforced.
	Response to Comments 1-84: The Division's primary statutory mandate, Public Resources Code section 3106, is that the Division permit operators "to utilize all methods and practices known to the oil industry for the purpose of increasing the ultimate recovery of underground hydrocarbons," but regulate operations so as to prevent, as far as possible, damage to life, health, property, and natural resources, including underground oil and gas deposits and water suitable for irrigation or domestic purposes. Specifically, Public Resources Code section 3106, subdivision (b), contemplates that the Division will regulate, but allow, "the application of pressure heat or other means for the reduction of viscosity of the hydrocarbons, the supplying of additional motive force, or the creating of enlarged or new channels for the underground movement of hydrocarbons into production wells." In recent years the Legislature has considered several legislative proposals that explicitly banned or placed a moratorium on well stimulation activities in the state. Each of these legislative proposals have failed passage in the Legislature. Senate Bill 4 does not contain any explicit ban or moratorium on well stimulation treatments. Rather it contains explicit direction to the Division to regulate well stimulation treatments. Consistent with this statutory mandate of Public Resources Code 3106 and Senate Bill 4, the Division has established regulations that address

	environmental risks and respond to public concerns, but do not prohibit methods and practices that are proven to increase hydrocarbon recovery. These regulations have been developed to supplement the Division's existing oil and gas regulatory framework to meet the intent and requirements outlined in Senate Bill 4. These regulations also respond to the feedback the Division has received in ten public comments hearings held throughout the state, tens of thousands of public comments submitted in written format, and in scientific and policy papers, which are listed in the Final Statement of Reasons. These regulations include monitoring, evaluation, and testing requirements for before, during, and after well stimulation treatment to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. These regulations also implement the public disclosure, neighbor notification, water testing, and permitting requirements established by Senate Bill 4. The Division believes that these regulations provide an effective framework for a level regulatory scrutiny that is commensurate with the level of public concern with well stimulation treatment operations.
	In Favor of Well Stimulation and Support Regulations
85	4183-1, 0250-1, 0214-1 If we ban fracking in California then we will be getting our energy from out of state or out of the country. From places that could have fewer regulations and more negative impact on the environment. Better that fracking be done here in a regulated way.
86	0033-1, 0039-1, 0035-1, 0001-1, 0024-2, 0031-1, 4173-1, 4172-1, 4182-4, 4185-1, 4188-2, 4189-2,4090-1, 4112-1, 0152-1, 0183-1 We support a balanced approach to the regulation of hydraulic fracturing, a process that has been safely employed in California for decades. The Division has proposed well stimulation regulations that appear to strike that balance.
87	0227-1, 0215-1, 0319-1 I fully support the proposed regulations on well stimulation in California. Hydraulic Fracturing has been safety used for more than 60 years in California with no adverse effects. The proposed regulations provide a balance between the interests of environmentalists and industry. I am a lifelong resident of California. Comments should only be accepted by state residents and not out of state political organization. The facts say fracking is safe when done properly by reputable companies.
88	4073-1, 4186-2 We support and appreciate a clear regulatory environment and a strong and well written regulatory process that provides certainty and transparency. Well stimulations of oil and natural gas producing formations is a well understood and highly studied practice in the industry. The best available science and key government regulatory bodies have deemed hydraulic fracturing safe when all regulations are followed. Negative public perception of the process is generally not supported by the scientific evidence.
89	4184-1, 4188-1 I support fracking. Fracking is safe because of regulations and individual company's standard operating procedures. Companies teach their employees how to do things safely.
90	0010-37 We appreciate how closely the regulations follow SB 4. There are a lot of proven parts in it, and you have done a good job of trying to accumulate all of that into one regulation.

91	4323-2, 4553-1 Hydraulic fracturing can be done safely. California needs to develop our resources responsibly. SB4 accomplished this while protecting California jobs.
92	4348-1 The anti-oil advocates typically tries to scare folks. Ground water contamination by fracking seems to be one of those tactics. What is the truth?
93	4352-1 I am in favor of expanding drilling by fracking or other methods. Such methods must be safe within reason with the realization that no process is fool proof or 100% safe. If economic stimulation is the goal, then move forward with reason.
94	4503-1 We are excited about the employment and related business development opportunities, and the positive affects these investments will have on our County and region. To take a position to delay current well stimulation practices would appear to ignore a proven safe record associated with this technology.
95	4179-1 I support the DOGGR approach. I believe these regulations provide more than adequate oversight. Fracturing has been safely used.
	Response to comments 85-95: Thank you for your comments.
	<u>Acid: General</u>
96	0057-2 Additional regulations are needed to safeguard the public from the chance of accidents with tank trucks carrying hydrofluoric acid.
97	4145-3 With regard to acid; acid that is put in the ground with a pH of one. Acid goes down, and it reacts with minerals in the formations, and most of that byproduct stays down there. But what comes back comes back as a pH of five, six, or seven, which is close to neutral. People don't realize what comes what comes back out is not acid.
	Response to comments 96-97: Thank you for your comments.
	<u>Aquifer / Groundwater</u>
98	0041-11, 0192-1 Fracking must not be allowed very near aquifers as currently occurs. There is a well on the Harth lease in Upper Ojai that produced so much fresh water when it was drilled as an oil well that it is now a water well. I direct you to the Division well record of Hillside 3, API number 111-01561. This well is less than 200 feet from the Harth drill pad, and to quote the Division well record file, "This well was abandoned because it was shut in as a fresh water well." The well was drilled to a depth of 9221 feet, but it permeated such a large aquifer that it is "capable of producing better than 1,000 pounds of fresh water per day." In the Division file for this well there is a letter from

	H.A. Harth, Jr., landowner, which states in part, “The well is producing fresh water free of oil and the water is very useful for agricultural purposes.” In arid Upper Ojai, a well that produces 1,000 pounds of fresh water a day is a huge gusher.” There are multiple fracked wells in the area of this “large aquifer” in an agricultural areas.
99	4300-1, 4518-1 Our water system is not protected adequately to prevent dangerous environmental impacts.
100	4312-4 Our drinking water is at stake.
101	4313-4, 4417-1 Fracking will contaminate or put the groundwater at risk.
102	4313-6 I have seen Gasland I and II, and I do not want my water faucets to flame.
103	4315-2 All processes pollute water and use water one of our scarce resources.
104	4317-2 Protect our groundwater and do not allow fracking. Water monitoring proposal won't protect water adequately. The regulations only require that water be monitored if it is within the 1500 foot radius from the well head and 500 foot radius from the vertical projection of a horizontal well. Dispersion of pollutants can and does reach much further than that-up to a mile in the cases of some pollutants. The regulations set a precedent that will lead to inadequate protection of important water resources. The term "protected water" is defined narrowly, potentially leaving waters with beneficial uses unprotected.
105	4324-1, 4414-1, 4535-2 Water is one of our most precious resources. Clean water is the number one concern. Why oh why would we screw with that?
106	4113-1 Adding study on added risk of aquifer contamination in the presence of earth faults, including geophysical and geochemical simulation for permeability of gas and liquid in the fault zone that interests fracking formation and aquifer above.
107	4325-1 Our drinking water and the quality are negatively affected by fracking.
108	4335-1 Water is for people and agriculture not fracking.
109	4337-2 How can we be sure we will have enough clean water for this?
110	4341-1 Our entire agricultural economy in the Salinas Valley depends upon groundwater. If anything were to destroy its purity our valley would lose its whole economic base.
111	4350-2 I am concerned for the quality of groundwater – a natural resource for everyone, which would be sacrificed for financial benefit of few.

112	4359-2, 4424-1 Protect the water for future generations.
113	4364-2 We do not need to be involved with the process called fracking that uses a lot of clean water that we will need more of soon.
114	4497-2 Proposed regulations do not restrict the use of clean, fresh water for these purposes, yet these waters are too precious to be squandered and removed from the hydrologic cycle.
	Response to comments 98-114: Thank you for your comments. Consistent with the mandate of Public Resources Code section 3160, subdivision (b), the purpose of these regulations is to ensure well integrity and geologic and hydrologic isolation of the hydrocarbon zone during and after well stimulation treatment. In addition, all wells that have well stimulation treatment performed on them are subject to groundwater monitoring requirements under Water Code section 10783. Wells that have well stimulation treatment performed on them must be covered by a regional, area-specific, or well-specific groundwater monitoring plan and the State Water Resources Control Board is currently developing the model groundwater monitoring criteria required under Water Code section 10783.
	Benefits of Fracking
115	4195-2 We feel that this resource has the ability to enhance our energy security by giving us access to 15 billion barrels of oil, as said by the Department of Energy. ·That's enough to replace our import from the Persian Gulf over the next 20 years.· We believe that this also offers us an opportunity to reduce our greenhouse gas emissions by supplying fuel that is produced here in California rather than brought on maritime vessels that produce omissions in the process of transportation. We also are interested in the opportunity to lower our greenhouse gas emissions through the greater use and access to natural gas.
116	0023-1 Fracking is an advanced technique that will extract oil and gas without disrupting large areas of land (such as solar panels and windmills do now and the way drilling occurred in the past) thereby having a smaller footprint than any other source.
117	0027-3, 0023-2 Hydraulic fracturing has been safely used in California oil production for 60 years. With technological advances making it possible to deploy this process in developing the Monterey Shale formation, we may finally have an opportunity to reverse the decline in California oil production, increase the level and stability of supply, increase state employment and economic benefit, and reduce our growing dependence on imports. Fracking will produce high amounts of oil and gas to run power plants, other machinery, meet transportation needs.
118	0178-1 The state should increase fracking by reducing the regulations and restrictions on the safe method of oil extraction. Californians are looking for opportunity and the safe practice of fracking is one shining example of opportunity. Californians are among the most regulated, and restricted citizens in this great nation and it's time our distant, detached and selfish so called leaders take action that favors the majority. The majority that wants to improve their future and that of their children by increasing job opportunities. These organizations that are the minority and pushing

	for restrictions on fracking are short sighted and wrong in their environmental concerns. They have woven a bureaucratic web so entangled they can't even find the fact based truths in the issues they represent. Californians want opportunity and not the hog tying of special interest groups, only to see these jobs benefit a neighboring state. Consider the future of California's families, as we are the ones paying the bills.
119	4330-2 The only people that will benefit from fracking are the big gas companies.
	Response to comments 115-119: Thank you for your comments. These regulations are designed to allow safe and responsible well stimulation treatment while protecting the environment.
	<u>Well Integrity</u>
120	4146-5 Drillers guard against water contamination by isolating water tables from wells with cemented steel well casings. The well casings will fail, the industry claiming 1 percent. Actually, it starts with 6 to 7 percent, and over thirty years moves up to 50 percent of failures.• Most of us live more than thirty years, I think, the last time •I checked.
121	4133-1, 4143-4, 4280-6 Internal oil industry research, Slumberjack, Archer, Oil Services, Southwestern Energy and others have shown that the cement casing that surrounds the well bores in all the wells drilled in the world, oil, natural gas, fail 40 percent after 30 years. The integrity of the casing is essential to prevent any liquid or gaseous hydrocarbons, carcinogenic fracking chemicals or radioactive salts from deep underground formations from migrating up the well bore into aquifer layers or into atmosphere.
122	4243-3 Cement cracking won't stop chemicals like benzene or toluene from contaminating land and water.
123	4197-2 Professor Tony Ingrafia, (phonetic) a structural engineer at Cornell University has taught fracking mechanics since 1977 and is regarded highly as an expert. •In assessing the information from Marcellus shale fracking, he estimates that at least 7 percent of all new wells and other estimates are that 40 to 60 percent of old wells fail, that it leaks fluid and gas from the bore hole due to failure of well casing and cement fill.
124	4189-1 Groundwater pollution has occurred because of poor casing design, not because of fracking. California's regulations are very strict and do a good job to make sure wells are designed to be safe.
125	4193-5 The recording and monitoring of flow rate density and treating pressure in the process of cementing operations, submittal of the resulting report in a timely fashion after completing all fracking procedures will be necessary, and unless and until protections are fully in place to protect Californians, a moratorium is an absolute necessity.

126	0018-3 Unconventional Wells Do Not Pose a Greater Risk of Casing Integrity Issues and Groundwater Impacts than Conventional Wells: Groundwater impacts requiring corrective action occur at less than 0.4% of oil and gas production facilities, and surface water impacts occur at less than 0.03% of these facilities (Connor et al, 2011). For both conventional and unconventional oil and gas wells, well integrity failures, entailing a breach of the well casing and/or the surrounding cement seal, are the principal mechanism by which potential groundwater impacts may occur. However, in two of the principal shale gas development states, Texas and Ohio, well integrity problems of this nature have been observed in only 0.02% to 0.06% of oil and gas production wells (King et al, 2013; Kell, 2012). These statistics tell us that, under current oil and gas operating practices, no well integrity problems occur at 99.94% of oil and gas wells, and no groundwater impacts by *any* mechanism (spill, tank leak, etc.) occur at 99.6% of oil and gas wells, production stations, or pipelines.
127	0018-4 When casing integrity issues have been observed in shale gas wells (i.e., horizontal wells), these problems have occurred in the vertical rather than the horizontal section of the gas well. Consequently, horizontal shale gas wells pose no more risk of impacts than conventional oil and gas wells. Therefore, for both conventional and unconventional wells, concerns with regard to well integrity are being addressed very successfully under existing regulations.
	Response to comments 120-127: Thank you for your comments. Consistent with the mandate of Public Resources Code section 3160, subdivision (b), the purpose of these regulations is to ensure well integrity and geologic and hydrologic isolation of the hydrocarbon zone during and after well stimulation treatment. Among other things, these regulations include requirements for pressure testing and cement evaluation prior to well stimulation treatment, and requirements for well monitoring during and after well stimulation treatment.
	<u>CEQA</u>
128	4165-1 DOGGR's Website lists 191 interim well stimulation notices for the eighteen-day period from December 3- 20, 2013; 191 wells that will be fractured or otherwise stimulated, almost all of which were in Kern County. It appeasers there was no study of the impacts of these wells on air pollution, greenhouse gas emissions, biological resources, environmental justice, or other issues.· In 2013 DOGGR permitted nearly 4,000 new oil field projects without any studies or CEQA documents.
129	4165-5 SB 4 in Section 3160 requires that the activities proposed in well stimulation treatment permit must meet all of the requirements of Division 13, commencing with Section 21000, and must be fully described, analyzed, evaluated, and mitigated. Section 21000 is CEQA; so SB4 clearly requires that CEQA apply to the well stimulation permit.
130	4165-6, 4177-13 Under the public trust principle, DOGGR should serve as a trustee of crucial public resources, water and atmosphere, resources that the public relies on for its very survival and welfare.· By permitting well stimulation without addressing many of its impacts, DOGGR is failing to protect ecosystems and resources vital to current and future generations.

131	0084-4, 0099-4, 0030-7 As the variables for each project vary, each permit submission must be applicable to CEQA with a full environmental assessment and adequate public review. SB 4 must allow the applicability of CEQA and the state's ability to halt fracking and acidization!
132	0025-20 The Division's proposed regulations are incongruous with the CEQA requirements and would undermine public participation in the environmental review process for well stimulation by both unnecessarily limiting who receives notification and by failing to provide a process by which the public can comment on proposed projects. The Division should reconsider its public notification provisions to meet the standards laid out in CEQA.
133	0050-4 The regulations leave unclear the level of CEQA review that will be required for well stimulation operations.
134	0050-9 Emergency regulations fail to ensure that fracking projects will be reviewed under CEQA. The Division should ensure that any fracking proposal brought during the next year undergoes full CEQA review.
135	0299-2 A last minute amendment to SB 4 could allow state regulators to ignore the California Environmental Quality Act, which is preposterous. The CEQA was put in place to protect California and its residents, so to allow a new bill to counteract this shows that lawmakers do not truly have the interest of their constituents and the environment at heart.
136	0045-22, 4123-2, 0050-10, 002-7 Since these permits [hydraulic fracturing, acid matrix stimulation] are discretionary, they are subject to CEQA just like any other big, potentially polluting project. The regulations must make clear that full site-specific CEQA review at the project level is required for each individual well—new or old—subject to well stimulation and that this includes underground injection wells where stimulation is employed. Specify that full compliance with CEQA be met through the completion of field-by-field and well-by-well environmental reviews, and affirm the statement in Pub. Res. Code Section 3161(4)(C) that nothing in these provisions "prohibits a local lead agency from conducting its own EIR."
137	0045-24, 0026-2 These regulations themselves have potentially significant environmental impacts and require CEQA review. These regulations are not categorically exempt from CEQA, and they should be subject to full consideration and public disclosure of their impacts as required by law.
138	0108-3, 4237-3, 0290-3, 0283-3 Each individual well needs a separate EIR, or at most a few within a very select area, as the water issues and fault lines and particular geologic formations associated with a well could be so different that what works sort of okay for one may be seriously problematic for another. The risk factors regarding earthquakes need to be considered in each EIR and standards of risk set that are specific to each type of formation no matter how close to a fault ling the well-stimulation is being done.
139	0047-12 Under the current or newly proposed Division rules, there appears to be limited consideration of these effects under the authority of CEQA or otherwise, and no assessment of areas that should be avoided, nor imposition of appropriate mitigation for adverse impacts, at least until completion

	of the scientific study and EIR mandated by SB 4, and subsequent amendment of the Division's regulations to incorporate the results of those processes. We do not think this complies with existing law, nor does it adequately address what might be major changes in California's environment due to development of unconventional oil resources.
140	0047-15 In laying out the regulatory framework for well stimulation treatments, the Division should also explicitly state how environmental review will occur, both programmatically as well as for individual or single project well development. In so doing, it is critical that the Division identify the "lead agency" for purposes of conducting the environmental review of oil and gas drilling and well stimulation treatments, whether this agency is the Division itself or one with local land use authority.
141	0290-6, 0085-4, 0181-2, 0283-6 Regulations adopted by the State of California and the Division must address issues found in CEQA as well as impacts to the state's tidal waters and Outer Continental Shelf.
	Response to comments 128-141: As of the date that these regulations go into effect, Public Resources Code section 3160, subdivision (d), will require discretionary review and permitting of all well stimulation treatments in the state. This site-specific discretionary review of well stimulation treatments will require compliance with the California Environmental Quality Act. In addition, Public Resources Code section 3161, subdivision (a)(3), requires the Division to complete an environmental impact report providing detailed information regarding potential environmental impacts of well stimulation in the state by July 1, 2015.
	<u>Climate Change, Air Pollution</u>
142	0045-106, 0051-6 Air pollution from the oil and natural gas sector is a serious problem of nationwide scope that currently threatens the health of communities across the country. Flaring, venting, leaking and release of contaminants throughout the production, processing, transmission, and distribution systems are significant sources of air pollution from the oil and gas sector. One potentially large source of emissions during the production phase is the flowback period after well stimulation. We have also produced a report, entitled "Leaking Profits," that outlines ten technically proven, commercially available, and profitable methane emission control technologies that together can capture more than 80 percent of the methane currently going to waste. We request that the Division initiate a formal rulemaking process as soon as possible to create new rules to control air emissions from the oil and gas industry.
143	0045-107 Oil and gas exploration and production in the United States has left behind a legacy of pollution and environmental impacts. Among the most commonly cited environmental impacts of oil and gas production are degradation of soils and water caused by releases of hydrocarbons and produced water. Contamination caused by releases of hydrocarbons and produced water can be extremely technologically and financially difficult to remediate, if not impossible. Given the serious and potentially permanent environmental impacts, oil and gas development should be completely prohibited in certain sensitive environments. The Division, in consultation with appropriate agencies, should identify categories of lands where development is prohibited.
144	4165-3 SB 4 requires that DOGGR consult with the state Air Resources Board, local air districts, and

	other agencies before adopting these regulations, the clear point being that the regulations should address air quality and other adverse impacts of fracking. The proposed regulations are deficient, and they are not doing so.
145	0190-2 A regulation is needed that states you can't impact people above a certain level of significance, so the toxic substances are limited and the impacts are minimized.
146	0161-5 Bill McKiven of 350.org that says 555 megatons of new carbon in the atmosphere would increase the global temperature by two degrees Celsius, enough to make life on earth unsustainable, reducing carbon emissions should be a priority for everyone.
147	4107-2 Industry is willing to do more than its fair share, which its doing with AB32, and with the stringent regulations that California already has in place. Industry is willing to do more with these regulations, but since climate change is a global problem, that it should not all fall on us as Californians, and it affects all of us.
148	4255-3 California should implement caps on carbon and other greenhouse gas emissions as on all projects and reject any projects that will prevent California from meeting the 20/20 emissions limit.· The reports have come out that carbon footprint of fracking the Monterey shale will be worse than the Keystone XL project.
149	4241-4, 0190-1, 4126-2 The regulations do not address the large increases in dangerous air pollutants like particulate matter on the ozone and air toxics that will accompany in a fracking boom. The Central Valley and Los Angeles basin where industry is poised for a massive expansion of the oil already suffer from the worse air quality in the nation.· It is unfair to allow industry to continue polluting and threatening the lives of Californians already overburdened environmental justice communities.
150	0087-2, 0029-4, 0046-4, 0025-8, 0045-2, 0045-13, 0050-7, 0050-16, 0071-3, 0310-3, 0310-4, 0255-2, 4158-3, 4241-4, 4256-1**,** 4271-2, 4279-3, 4266-3, 4208-1, 4098-1 The proposed regulations do not address the threat of climate change to Californians and the impact of extracting and burning up to 15 billion barrels of dirty oil. The regulations do not address the large increase in dangerous air pollutants like particulate matter, ozone and air toxics that will accompany a fracking boom.
151	0087-4, 0043-10, 0310-5, 0255-4 Regulations should require operators to monitor relevant air pollutant concentrations in the vicinity of fracking operations before commencement of operations, to establish baseline levels, and during operations. The air pollutants monitored should include but not be limited to methane, ozone, benzene, PM2.5, PM10 and radioactivity. Upper limits on allowed pollutant concentrations should be in compliance with California's air quality standards. Operations should cease if the pollutant concentrations exceed allowable levels.
152	0003-03, 0025-4 Air contamination is also a grave concern for residents living near oil and gas operators that use hydraulic fracturing. Recent disclosure requirements adopted by the South Coast Air Quality Management District ("SCAQMD") in California revealed that operators engaged in unconventional oil and gas extraction in southern California, in just 30 days of reporting, used dozens of chemicals known to be air toxics over hundreds of occasions. The chemicals that are used include many that are known or suspected carcinogens, air toxics, hazardous air pollutants,

	and substances regulated by the Safe Drinking Water Act. An extensive study of the connection between hydraulic fracturing, air pollution, and public health in Garfield County, Colorado, showed the adverse health impacts that result from elevated and prolonged exposure to the harmful chemicals used in hydraulic fracturing.
153	0036-1, 0085-6, 0085-7 The Department should address air quality concerns, including flaring, and methane mitigation in developing well stimulation regulations, instead of a variety of possible regulations developed by local Air Pollution Control Districts/Air Quality Management Districts throughout California.
154	0050-18 The Regulations should explicitly recognize the GHG emissions that fracking will cause, and limit permits to sharply reduce and mitigate the emissions produced by fracking and its related oil and gas development as well as consumption of the fossil fuels they produce.
155	0034-1 California, and America, desperately needs to use the technology of fracking in order to utilize the profound amount of crude oil available to us. Anthropogenic CO2 constitutes only about .04 parts per million annually, which is insignificant on the 25,000 parts per million greenhouse gas concentration.
156	0002-11 Provide air quality protections, including closed-loop gas control systems, monitoring, containment, and restrictions, on volatile organic compounds (VOCs), air toxics, and greenhouse gas emissions.
157	0011-13 Public Resources Code Section 3160(b)(l)(A) calls for the division (the Division) to consult with the State Air Resources Board, among others, to adopt rules and regulations. Did the Air Resources Board request any air quality monitoring to be included in the proposed draft?
158	0108-5 The Division needs to work with other agencies to establish regulations re: the level of methane or VOC's that "should" be allowed and ways of measuring the amounts in each separate location relative (in the case of VOC's) to closeness of residents to the site and to possible exposure due to wind patterns.
159	0036-2 To SJVAPCD's knowledge, the air quality impacts due to well stimulation have not been determined to date. As such, we strongly believe the proposed regulations are premature, or lacking, as they do not fulfill the above requirements concerning air quality impacts.
160	0036-3 Due to this possible increase in well stimulation activities from the Monterey Shale formation, we believe it is critical that the air quality impacts from well stimulation activities, especially from hydraulic fracturing, should be evaluated and quantified to determine if such emissions are significant and should be mitigated.
161	0036-4 SJVAPCD believes that after air emissions from well stimulation activities are quantified, the proposed regulations should be amended to appropriately address air emissions. If emissions from well stimulation activities are determined to be significant, the amendments should either require reporting of those emissions (or parameters identified in the testing program that can be used to quantify emissions) or require appropriate control of such emissions, as appropriate.

162	0036-5 We believe that the development of the proposed regulations be postponed until the air quality impacts are determined and considered by the Department of Conservation, as required by SB4, or that the regulation contain the specific obligation for DOGGR to investigate emissions within a short period of time and revisit the rule based on the results of those investigations.
163	4070-8 The most harmful long term consequence is climate change, which is increased by releases of methane and other greenhouses gasses during well construction and then by greenhouse gas releases from vehicles and stationary combustion sources. Even if natural gas is the primary hydrocarbon produced, it has harmful climate consequences which the state and nation must face.
164	4168-1, 4191-1, 4251-2 Global Community Monitor does citizen-based air monitoring around industrial sites globally. Citizens collected an air sample near a fracking site in Shafter This site is known to have nearly constant flaring going on at all hours, and some have reported there to be acute health effects, like burning eyes, sore throat, things like that when they are nearby this location. The results from our air sample showed the presence of five different chemicals known to be associated with fracking operations, as well as increased levels of methane, also common near fracking sites. The level of chemicals detected at this location is 590 times the reference level set by the direct EPA, associated with an increased risk of cancer for a lifetime exposure. The sample results also detected styrene, chlorobenzene, toluene, and ethanol, as well as methane at a level of 2.7 parts per million, which is higher than normal background levels, indicating that the sample location may be impacted by emissions of methane. Central valley residents are already dealing with the worst air quality in the country. Air pollution from fracking could serve to overburden residents living in the central valley, especially among vulnerable populations like children, pregnant women, seniors, and those with already compromised immune systems.· I think this needs to be taken very, very seriously, the air pollution concerns for residents of the central valley.
165	4147-2 How are the Air Resources Board and the local air pollution control districts going to comment with regards to this proposed regulation? Are they going to have separate regulatory actions that are going to occur following this regulation?
166	0090-2, 1477-14 Bakersfield is consistently on top of EPA's list for air pollution. It's not fair to children that they should have to live with increased air pollution.
167	4165-4 Most of these impacts that occur here in Kern County, not only the oil capital of California but also the smog capital of California. We have some of the worst air pollution in the nation.· Air pollution and greenhouse gas emissions from the oil fields go essentially unmitigated.· As the lead agency, DOGGR should be requiring mitigation for these impacts to public health and other environmental impacts.
168	4175-3, 4180-2 Bakersfield not only has the worst air in the United States, it has the worst air and water outside the world except for China. Fracking will only make the air quality worse.
169	0190-3 Add to regulation: Limits on air pollution associated with project, including acute health impacts.

170	4315-1 Well Stimulation also known as acidization both have dangerous ramifications contributing to CO2 through use of the fuels produced and in the diesel used during the well stimulation process as well as CO2 produced in manufacture and industrial commitment.
171	4316-1 Because of our need to respect our own laws such as AB32- we need to find a way to burn and produce fewer fossil fuels.
172	4326-2 Fracking increases greenhouse gas emissions and will undermine the progress California has made addressing climate change.
173	4342-1 We shouldn't be using fossil fuels anyway due to global climate change.
174	4352-3 California currently has a hostile business climate. Climate change is a myth and a hoax being perpetuated on a grand scale. The reasons for this are to gain economic control through the evasion of property rights, excessive taxation and ultimate exclusion of people from large portions of the state.
175	4481-3 The envisioned splurge into hydraulic fracturing also violates your Administration's goal of reducing global warming pollution. This must be counted against the net value of hydrocarbons when deciding whether their extraction is worthwhile. The California Environmental Policy Act requires that all of these values and demerits be meaningfully weighed in reality, not in an imaginary universe where California is not imminently threatened by global warming's impact on the Colorado River and Sierra Nevada snowmelt, for example. The decision to extract oil and gas does not occur only in a policy vacuum, triggered by industry interest, but in the context of an urgent national need to shift away from carbon-based fuels. Although hydraulic fracturing is held to political acclaim as a surfeit of newly affordable gas, it threatens to yoke America to shale oil and natural gas, denying us a chance for speedy transition away from carbon-based fuels, and for avoiding catastrophic global warming. At a time when intact lands are becoming scarcer and excess carbon dioxide is becoming a liability, the balance of values should be shifting in favor of preservation of the former and discouraging the latter.
176	4256-3 With CO2 levels at 400ppm and climbing and our carbon budget dictating that 80% of reserves remain in the ground there is no justification for fracking to help speed us to two degrees of global warming.
	Response to comments 142-176: On August 25th, the California Air Resources Board held a public workshop and informed stakeholders and the public that it will proceed with the development of an oil and natural gas methane control measure that would include well stimulation. ARB will also continue a well stimulation emissions study and analyze chemical constituent data. Depending on results of this study and analysis it could propose additional controls for well stimulation activities. ARB staff anticipates bringing the methane measure to its board in the spring of 2015.
	<u>Damage / Risks</u>
177	4146-3 The high per well decline rate associated with the shale gas and tight oil wells mean that drillers

	must frack relentlessly in order to maintain their production rates; therefore, environmental risks are multiplied by thousands, tens of thousands, ultimately hundreds of thousands of times over.
178	4265-1 Fracking has been going on for at least ten years on the Los Cerritos Wetlands. Eight years ago there was a fracking incident that had cracked the strata and released not only oil but chemicals into the San Gabriel River. Fracking is bad for people and the environment.
179	0046-03, 0050-2, 4123-3, 4127-1 These risks include but are not limited to exacerbation of climate change from the burning of extracted oil and methane leakage associated with extraction; air pollution; irreversible contamination of massive amounts of water used in fracking operations; contamination of precious and irreplaceable ground water, drinking water and aquifers; significant disruption of natural habitats over an extensive area; and induced seismic activity.
180	0075-9 California fisheries suffer from drought and state and federal water mismanagement, the toxic chemicals used in fracking and acidizing will only further pollute groundwater supplies, rivers and ocean waters. In every state where fracking is taking place, it is contaminating water, creating dangerous air pollution, generating huge quantities of toxic wastewater and industrializing communities. However, oil companies have refused to disclose the chemicals used in fracking operations, since they are considered a "trade secret."
181	0049-1 Nationwide, hydraulic fracturing has developed an extensive record of causing water contamination, air pollution, earthquakes, and property damage. The well documented negative impacts of fracking in other parts of the country indicate the real danger of similar environmental damage occurring in California and serve as a warning sign that should not be ignored by the Department and Division.
182	0047-13, 0047-11 The Nature Conservancy is concerned that if the industry is successful in developing methods to economically extract crude oil from this very extensive formation, especially in areas outside existing oilfields, adverse effects on species, habitats, freshwater, groundwater dependent systems and marine systems could be locally severe and cumulatively widely destructive, and these effects could take hold and proliferate before an adequate analysis and regulatory programs are in place.
183	4066-4 Multinational firms have been drilling off the coast & in the Gulf for decades. There are occasional catastrophic leaks of oil wells even though they've had decades of expertise working with the technology; in contrast, with fracking and acidification we don't have that long history of experience.
184	4067-3 To date, there have been no known major well malfunctions due to hydraulic fracturing. Nevertheless, the potential for an environmental and public health disaster (however slight) through the accidental release of chemically contaminated flowback waters and hydrofluoric acid following a well failure is serious enough to weigh strongly against any less stringent state standards for the fracturing process.
185	4069-25 Hydraulic fracturing (including acidization) turns freshwater into hazardous waste. Elected State officials as well as decision-making bodies of the State are already committed to protecting our

	resources, safeguarding our public health, meeting our carbon emissions reductions targets, and ensuring a stable economy for future generations. Any action they take, or fail to take, which jeopardizes those commitments is a betrayal of the public trust.
186	4301-2 The regulations will identify problems after the fact-once damages occur they will be difficult if not impossible to reverse.
187	4301-3 Urban areas will be impacted by new fracking.
188	4288-7 Don't risk our water and environment for the short-term money promised by the oil companies. Any technology that depends on no accidents is doomed to fail. These regulations don't set any standards at all part provide oversight. At lease require that the chemicals used are non-toxic. Halliburton has a food grade version. At lease as a min requirement. We will get more jobs, larger benefits with no risk if we put solar on every roof.
189	4304-1 Fracking is extremely harmful. It contaminates our water and causes earthquakes.
190	4311-2 The lack of comprehensive science studying the impacts demands a cautious approach.
191	4140-3 There's science and research that proves fracking is dangerous.
192	4322-1 After seeing the pros and cons of fracking, I believe it is detrimental to the wellbeing of humans.
193	4368-2 Why would we think that the use of these risky practices will be different for us? When are we going to learn that we have to think of what is best for the future of our citizens and the environment not what is popular and economically advantageous for the moment!?
194	4369-2 Our state public safety should never be sacrificed for sustainability.
195	4545-3 The damage that will be done by fracking is permanent and will not be controlled or repaired by volumes of regulations. You will be injecting water and chemicals miles into the earth where you will have little if any control over unforeseen consequences. Once the damage is done, your regulations are worthless.
196	4455-2, 4530-2, 4541-1, 4549-1 Protecting Californian's from the byproducts (effects) and long term consequences (be they environmental and or health consequences) these actions.
197	4457-2, 4501-2 The EPA has criticized California's implementation of the UIC program and monitoring of Class II wells. In particular, the report criticizes the Division of Oil and Gas Resources (DOGGR) one size fits all risk assessment for protection of waterways. In a seismically active region such as California, there is increased risk of well-casing failure and the possibility of wastewater transport through faults into aquifers. A growing body of evidence suggests that fluids injected deep into the earth can migrate over time, potentially entering underground sources of drinking water.

	Response to comments 177-197: Thank you for your comments. Consistent with the mandate of Public Resources Code section 3160, subdivision (b), the purpose of these regulations is to ensure well integrity and geologic and hydrologic isolation of the hydrocarbon zone during and after well stimulation treatment. In addition, all wells that have well stimulation treatment performed on them are subject to groundwater monitoring requirements under Water Code section 10783. Wells that have well stimulation treatment performed on them must be covered by a regional, area-specific, or well-specific groundwater monitoring plan and the State Water Resources Control Board is currently developing the model groundwater monitoring criteria required under Water Code section 10783.
	Disclosure
198	0084-9, 0099-9 Although full disclosure of the chemicals used is required, disclosure itself does not limit the impacts that these chemicals may have on the water supply. A list alone does not create transparency; it must be accompanied with adequate assessment of the long term impacts of these chemicals to the water table. This list must include all chemical formulas including those that the industry calls “proprietary”.
199	0280-2 The regulations, as proposed currently, provide loopholes that can be hidden behind to avoid full disclosure to the public. Item 26 of Section 1783.1, "Contents of Application", and dealing with "trade secrets" on page 6. Several other sections of the proposed regulations also allow non-disclosure if "trade secrets" are involved as defined by the oil companies including 1783 on water testing and 1784 on cement evaluations, and 1786 on storage of fluids and fracking wastes. We should not risk the oil companies policing themselves; the state must ensure the oil companies are held to high standards of accountability.
200	0071-5, 0280-1, 0338-1, 0189-1, 0133-3 The regulations do not clearly provide for full disclosure of all environmental and health risks, or for public participation prior to the approval of a permit for well stimulation treatments, as required by existing law. The chemicals used in fracking need to disclose prior to the treatment beginning.
201	4313-2 If the chemicals can’t be listed then they must be toxic.
202	4317-6 Public disclosure is inadequate. All notices to stimulate a well must be incorporated into the current Notice/Permit process for drilling and reworking/ redrilling and be posted immediately to the Division's website on a daily basis in an easy-to-view format. The speed at which the South Coast Air Quality Management District has established online forms, notices, reporting, and databases for their well stimulation regulations demonstrates the capability to act to notify the public quickly.
203	4323-1 SB 4 provides some of the strictest disclosure and reporting requirements in the U.S.
204	4436-2 Companies must disclose the chemicals and materials they use for fracking – including the concentrations. The public has a right to know what is being put in their ground.

205	4409-1, 4431-1 Please implement a moratorium on all types of oil and gas well stimulation until a system of open information sharing can be legislated.
206	4444-2, 4510-2 We need to know exactly what the energy companies plan to use in their proprietary chemical recipes.
207	4471-2 The fact that non-disclosure of the contents of what is injected into wells when fracking is allowed because the contents are a trade secret is outrageous. I need and must know what these companies are pumping into the groundwater in my state.
	Response to comments 198-207: One of these regulations is to implement the public disclosure requirements mandated by Public Resources Code section 3160, subdivision (b). The Division will organize the required public disclosures submitted by the operators and make them publicly available in a format that is easily searched and aggregated, to the extent practicable. In addition, the Division is working to develop and implement business processes and information technology to make information about all aspects of well stimulation treatment operations available on its public website in formats that can be easily searched and aggregated.
	<u>Economics</u>
208	0046-2 The potential externalized cost to Californians would likely far outweigh any benefit for the extracted oil that will be sold outside of California.
209	0202-1 The regulations should reduce the risk of devastating economic damage to the agricultural and vintner industries in Monterey County in the case of a leak or spill of toxic injection fluids.
210	4293-4 Fracking is not about the bottom line. It's about production for this country that there's going to help everybody, and there's ways of doing this. There's more food can be produced in -- California can supply the whole world, but it's not being done because of regulations, cutting off water to the Central Valley, killing off the farms down there because of silly fish that don't even exist in this country because they're not even native to it.
211	4295-2 Oil companies supply the need for petroleum in this state; it's not greed and it's not to fatten pockets. Anybody that drives on a highway or even plugs electrical outlet, natural gas is working its way up and beginning to lead its way on one of the biggest resources for energy.
212	4286-3 Agriculture does not have the money to compete with oil companies to buy water during a drought situation. In Colorado they started to run into droughts, and they had agriculture water competing with fracking water. Water went for $22 per acre foot but then frackers outbid agriculture and got the water for $28 per acre foot.

213	4286-1 In California agriculture, it's a huge – in Santa Maria, agriculture brought in $44.7 billion worth to California. That's a three percent increase from last year. The oil industry isn't even second, that's tourism, so we're not talking a huge economic increase here. We're talking agriculture is our prime, prime thing.
214	4279-6 In terms of the economy, because it's the only thing that I can think of why he would even be considering these things, we've got enough wind and solar to power the globe.· It's a matter of political will and it's a matter of making a quicker transition to the technology that we have had for decades.
215	4107-3 On page 10 of the Notice it say that the regulations will not affect the creation or elimination of jobs in the state. I would like to say that having experience being a mineral owner, my family having been mineral owners for many years, we've had occasion to have our wells shut in. ·Just east of here we've had some wells shut in for 20 years when Texaco abandoned them. The reason they abandoned them was the cost of oil was low and the technology wasn't there, and because of quite frankly the regulations in California which keep getting piled on.
216	4119-1 California is the only state that does not charge an extraction fee on public lands. Every other state, if they go onto BLM land or National Forest land, or anyplace else that they do extraction, the states gets money for that.
217	4119-2 How about we charge the fossil fuel industry for the damage that they do to the environment? The state could then use that money to fund more schools, or put it into a green economy. This can be done.
218	4119-3 People that spoke on the oil industry's behalf in Salinas were likely paid to be at the meeting. The people that spoke against fracking, people that live in Monterey County were not paid to be there; some took off work early or showed up after work to speak out against fracking.
219	4123-5 California should focus on greater efficiency and on developing economies and employment that are focused on consuming fewer of our natural resources rather than more.· The paradigm should change in which we look at energy, and use Amory Lovins' model, the founder of Rocky Mountain Institute, where he calls the development of energy megawatts in terms of increasing efficiency, that we get the equivalent of building power plants and building extraction technologies by increasing efficiency, and that can also create jobs.
220	4123-5 Fracking can produce enormous profits in the very boom and bust economy, and this is associated with some people gaining more money than they can reasonably spend, and the "regular" jobs are not stable because, as the gases are depleted, they -- people need to move, so this is not a community-focused operation, this is not the kind of employment I want to see as a citizen.
221	4116-1 It really comes down to short-term economics versus long-term health of our society, so are we really willing to jeopardize our future for 20 years of that development, another boom and bust economy, because if we really are, that's what it boils down to is the money, and some people want to make more money than others.

222	4227-1 California does not tax extraction of oil and gas.· So we will not collect any tax revenue from all this stuff that's going to be taking out of our grounds, but we are going to be stuck with all the bills for all the things that the gentleman before me just said.· We, the taxpayers will be stuck for the healthcare, for the environmental cost of cleanup.· We will be stuck with that, but our State will not collect the revenues.· So there is a true imbalance here, and your Regulations aren't going to address that and pretend that this is going to help our economy.·
223	4226-1 It may well be that by imposing realistic but stringent regulations that that would raise the cost of oil and natural gas from fracking and make fracking less desirable, and that would stimulate the Renewal Energy Industry and that also would create socially-useful jobs.
224	4223-1 Folks have talked about economic advantages of fracking. Those I suspect more are outweighed by the disadvantage of economic problems that will come with global warming. ·
225	4262-3 The only way the Division is going to care about health impacts is if it hits gas companies and their profits. Oil companies should be required to show proof they are protecting water and not degrading water quality or air quality and not increasing seismic activity. Do radon tests. Oil companies should also compensate homeowners for loss of property value when they drill in the neighborhood.
226	4262-1 I live in Long Beach and get a small monthly payment like many residence from one of the oil and gas companies. By the time administrative and other fees are taken out there is very little benefit from the payment. It is the oil companies that are profiting.
227	4260-1 I would like to ask that we have in place laws that protect the greater good of society from the private contracts of individuals who are in this solely for profit.
228	4169-4 Fracking is mostly about profits for oil companies, and we aren't fooled by the idea that we are assuming some kind of patriotic purpose.
229	4594-2 The LA Times reported that Fracking will add $27 billion to California's economy. there was a public health study that came out in 2002 that tells us that the cost of treating asthma, cardiovascular disease and cancers will amount to $55 billion.· So there is no justification economically for supporting oil extraction or fracking that is amenable to reason or logic or morality.
230	0001-2, 0023-4, 0027-2 Reliable affordable energy is essential to the health and growth of California businesses. Californians consume over 18 billion gallons of transportation fuel a year, primarily based on petroleum crude. Well regulated development of in-state resources such as modernization of information has potential to create jobs and generate much more needed revenue.· And importantly, it could reduce our dependence on imported oil and establish a stable energy source for decades to come.

231	4248-3 A paper by David Hughes in Nature reviews some of the economics of fracking and in many cases in many places around the country the production costs often exceed gas prices and in many cases to continue production, they require continued drilling. The Department should review the article.
232	0312-1 Fracking recently played a large role in the development of shale formations across the country. This development played a significant role in pulling our nation's economy out of the recession that started in 2007. The oil and gas industry plays a vital role in the economy of our city, county, state, and country.
233	4171-4 We are asking you is that – put communities first. Put our health first.· Put yourselves first before you put the industry ahead and profits before people.
234	24187-2 Kern Business Journal, Aug/Sep 2013. “California has the 8th largest economy in the world. The Center cited the latest trend on California's $2 trillion economy.” DOC needs to keep California moving forward.
235	0024-1, 4250-2 California continues to struggle to regain economic health. Every study done by in State institutions and national research shows California lagging well behind the national average. Some of the leading states for strong economies are also states with aggressive as well as reasonably regulated energy policies. We must have a reliable, stable and affordable energy source in order to return to prosperity.
236	0050-1 As hydraulic fracturing technologies have advanced in recent years, oil and gas deposits that were once overlooked have become economically more viable since they can be recovered at a lower cost than previously believed.
237	4070-10 The changes that I recommend carry some costs. Oil and gas companies will have to spend some time and money finding alternatives to the most dangerous chemicals and won’t be able to achieve maximum profits. Citizens and the natural habitat will suffer because my proposals will allow continued drilling and well stimulation, which has inevitable costs. These costs are unavoidable once we admit that we live in a world of limits.
238	4161-2, 4242-3 More work has to be done with regards to expanding and diversifying the economic benefits before developing California's mineral resources that continue to exist today, including in Bakersfield and Southern California. ·These resources represent an incredibly large source of wealth and jobs for blue-collar working families, for professionals in engineering and technology, and also a much-needed source of taxes for our cities and towns.
239	4161-3, 4242-4 Our message to policy makers at a local level in Sacramento is that a key component for having a better and more secure future for California, for our country as a whole, is to protect and promote our ability to produce oil and make a viable product here at home with the business that human resources available in California.

240	4158-7 I would like to talk a little bit about the dangers of the economy of continued reliance on oil.· The economists publishes that reserves – the trend of assisting global reserves of crude represents degrees Fahrenheit increase in the global temperature. In 2010 in Cancun global leaders and politicians agree that 2 percent or 2 degrees Fahrenheit is all that we can afford to add to the climate without it being catastrophic.· And then, of course, they recommend a .6 degree Fahrenheit increase; so this means that it represents nearly two-thirds of the oil reserves that will not yield any return on investments.· This, of course, is a bubble, much like the housing market, but will they be experiencing the year we had with a potential questioned market.
241	0033-2, 4219-2 The oil industry operates in the highest unemployment areas in the State; from Redding through almost Los Angeles, and we know what it's like to have unemployment and high employment rate, not the double digits, not the type you see on the coast. · Fracking may offer a way to increase those economic benefits associated with California.
241	4270-1 The regulations seemingly were prepared at the boardroom of Occidental Petroleum or Vantage Petroleum or Exxon Mobil, who are – the industry of these companies are from Texas, and Texas has developed its wealth from petroleum.
242	4302-3 Fossil fuels should be taxed to level the playing field for sustainable energy which at this time would be solar and wind.
243	0001-2 Regulations governing oil production in California will greatly impact all sectors of our economy statewide. Over-reaching regulations which curtail or stop oil production here will make our business climate even worse and downgrade the quality of life for all Californians. The draft regulations balance strict oversight and transparency in oil production to protect the environment, while allowing for responsible development of essential energy supplies.
244	4313-10 Tax the rich make the switch.
245	4444-3, 4510-3 We need to be sure that the process is taxed in such a way that strict regulations can be implemented and careful monitoring of all fracking activities can be paid for by fees paid by the companies.
246	4499-2 It's possible to power our economy entirely with clean energy.
247	4515-2 Our economy depends on good soil and good water to sustain agricultural as well as basic human and animal life.
	Response to comments 208-247: The imposition of assessments to support the Division's administrative costs and requirements for bonding to cover compliance costs are addressed in statute and are outside the scope of this rulemaking. Compensation for damage to private property is outside of the Division's regulatory purview.

	The Division does not anticipate that these regulations will increase or decrease the extent to which well stimulation treatment is employed in oil and gas production in the state. These regulations do not create an incentive to conduct will to conduct well stimulation treatment, nor are they intended to curtail its use. Rather, these regulations are intended to ensure that, when well stimulation treatment is done, it is done within a regulatory scheme that ensures proper engineering review, monitoring, and public disclosure before, during, and after treatment. The Division's primary statutory mandate, Public Resources Code section 3106, is that the Division permit operators "to utilize all methods and practices known to the oil industry for the purpose of increasing the ultimate recovery of underground hydrocarbons," but regulate operations so as to prevent, as far as possible, damage to life, health, property, and natural resources, including underground oil and gas deposits and water suitable for irrigation or domestic purposes. Specifically, Public Resources Code section 3106, subdivision (b), contemplates that the Division will regulate, but allow, "the application of pressure heat or other means for the reduction of viscosity of the hydrocarbons, the supplying of additional motive force, or the creating of enlarged or new channels for the underground movement of hydrocarbons into production wells." In recent years the Legislature has considered several legislative proposals that explicitly banned or placed a moratorium on well stimulation activities in the state. Each of these legislative proposals have failed passage in the Legislature. Senate Bill 4 does not contain any explicit ban or moratorium on well stimulation treatments. Rather it contains explicit direction to the Division to regulate well stimulation treatments. Consistent with this statutory mandate of Public Resources Code 3106 and Senate Bill 4, the Division has established regulations that address environmental risks and respond to public concerns, but do not prohibit methods and practices that are proven to increase hydrocarbon recovery. These regulations have been developed to supplement the Division's existing oil and gas regulatory framework to meet the intent and requirements outlined in Senate Bill 4. These regulations also respond to the feedback the Division has received in ten public comments hearings held throughout the state, tens of thousands of public comments submitted in written format, and in scientific and policy papers, which are listed in the Final Statement of Reasons. These regulations include monitoring, evaluation, and testing requirements for before, during, and after well stimulation treatment to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. These regulations also implement the public disclosure, neighbor notification, water testing, and permitting requirements established by Senate Bill 4. The Division believes that these regulations provide an effective framework for a level regulatory scrutiny that is commensurate with the level of public concern with well stimulation treatment operations.
	Enforcement, Inspection and Penalties
248	0037-10 Who is responsible for clean-up and restoring the land and water supply? Restoration of lands that have been mined and/or drilled is rarely done properly, if at all. Such restoration needs to be mandated in the proposed regulations.
249	4241-13 Given the Division's past history of inadequately regulating the oil and gas industry there is little reason to think that the Division will do a good job on regulating fracking and keeping people safe. In the past the Division has been sued by environmental groups and called out by USEPA for not doing its job.

250	4180-1 Fracking has been happening since 1947; there weren't many regulations back then and what there were, were not enforced. If these rules are put in place then they will need to be enforced.
251	0103-1, 4158-6 The inspection and enforcement portion of the regulations is inadequate.
252	0103-14, 0051-11, 0264-5 There needs to be mention of who is inspecting the operators' inspectors, and who will be enforcing the regulations.
253	0112-3, 0102-3, 0115-3, 0070-3, 0051-10, 0129-2 Fines should be appropriate and large enough to actually provide a disincentive to breaking rules and regulations
254	0112-4, 0102-4, 0115-4, 0070-4 There needs to be an additional pathway to revoke a permit. Permits should not be guarantees but a lease to Frack, revocable at any time.
255	0041-1 Please review DOGGR well records for Well No. 36 in this link: ftp://ftp.consrv.ca.gov/pub/oil/WellRecord/111/11101020/11101020_DATA_09-27-2007.pdf. These are examples of the dangers in an industry that relies on self-testing, self-monitoring and self-reporting, as confirmed by top DOGGR officials, Tim Kustic and Jason Marshall, at a Sacramento legislative hearing in February 2012.
256	0041-2, 4235-1 There is no way for DOGGR, as it is currently staffed and organized, to oversee do many wells and so many operations. There is already a great number of violations that can be documented that are occurring back in the hills, behind locked gates, as I can attest. One oil company that I am able to name for DOGGR officials has an unpermitted tank in Upper Ojai, has done unpermitted grading in an active oil seep; and has been bringing online more than 10 idled wells with zero permits from DOGGR or the county of Ventura. This operator and one can only assume others, who are "self-regulated," continue to violate the regulations currently in place. What guarantees does the public have that errant operators such as this one can be trusted to transport and use toxic fracking chemicals on his wells in a responsible manner?
257	4175-1 Perhaps Governor Brown thinks he is actually doing us a favor with these increased regulations, but oil and gas companies have, overall, an extremely poor record of compliance with any kind of regulation.
258	4120-3, 4128-3 We have to establish these areas of responsibility before we -- as a part of issuing the permit process because, traditionally, the -- the oil industries and the coal industries have always shoved the responsibility for cleanups of their messes into local communities or force local communities to sue them to try to reclaim the cost of cleanup, and nowhere in this document does it say that if they fail to follow the document's requirements they have full responsibility for the damages that have occurred.
259	4262-4 The regulations should include a section that requires an oil company to pay penalties if the public can show proof of health damage from oil company activities.

260	4260-2 We need to know the DNA of the chemicals that are used. One way for a company to protect itself from a lawsuit is to subcontract. So those chemicals in Arkansas that were dumped into that lake which was criminal, can be sued for their complete value. Exxon Mobile can't, the subcontractor can.· So I'd also like to see in place the responsibility, at least, 70 to 85 percent of the responsibility of some subcontractor behavior and damage to be held by the initial contractor, being the major oil company.· That will eventually get the most profit.
261	4259-1 The regulations need specific penalties for those who fail to adequately protect the environment.
262	4259-3 It should be made criminally wrong to devastate the environment.
263	4233-1 What regulation you have for them to report on what they're doing, one, it's not going to stop this from happening.· Two, if you don't have a third-party monitor out there, as we did, you won't hear about most of this.· The industry doesn't even believe that any of the paper regulations are going to be enforced.·
264	0043-8, 4231-4 No discussion of clean-up or remediation obligations of the well operator or of any penalty structure for contamination of water resulting from well stimulation treatment activities or from well failure.
265	0112-5, 0102-5, 0115-5, 0070-5 There needs to be a pathway to revoke a State business license to Frack, for repeat offenders.
266	0011-16 Public Resources Code Section 3236.5 states that any person who violated this section of the code is subject to fines. This section should be referenced within the proposed regulations.
267	4147-5 With regards to the enforcement, there are some fairly hefty penalties that are assessed within the SB-4 legislation, and I would like to see some clarification as to how that enforcement will be accomplished within the initial statement of reasons, especially with regard to notifications in that or the inability of an inspectorate get to a site.· Will that stop the operation from occurring?· Or if the operation occurred when the inspector is not there, does that result in a notice of violation on various petition options available to the operator?
	Response to comments 248-267: Thank you for your comments. The Division has several statutory enforcement authorities that are effective for obtaining compliance. Among these enforcement authorities is Public Resources Code section 3236.5, which provides for civil penalties of up to $25,000 per violation per day. Under SB 4, Public Resources Code section 3236.5 was amended to specify a minimum civil penalty of $10,000 for each violation of relating to well stimulation treatment. It is not necessary for Division staff to be onsite for operations to occur. The regulations require advance notice to the Division when key operations are occurring and the Division will witness as many operations as possible. The Division can take enforcement action on a violation even if Division staff was not onsite when the violation occurred.

	The Legislature approved the Division's Budget Change Proposal for additional staff to implement the requirements of SB 4. If the Division determines that still more staff are needed to implement the program, then another Budget Change Proposal will be submitted.
	Environment
268	4301-4, 4307-2, 4309-1 Please consider the negative environmental impacts from expansion of usage of fracking in communities such as extreme pollution of water, air, earthquakes and food supplies.
269	4126-4 Fracking will only contribute more pollutants into our already environmental crises.
270	4302-1 Fracking is expensive with too high risk to environment.
271	4312-3, 4440-4, 4476-1 It is crucial that we do not frack this beautiful area and definitely not drill hundreds of miles into our soil and release super toxic fluids into the ground or water where our food is grown.
272	4313-7 The public lands should be used by and for only the people and never private business.
273	4320-2 We don't know enough about how fracking affects the environment based on all of the different variables (soil, depth, rock type, etc.). We need more study.
274	4343-1 What is the risk mitigation program for environmental protection of water (surface and drinking), soil and grounds (gases and toxics)?
275	4349-2 Fracking in a hammer to the ecology of our planet earth.
276	4359-3 Care for our environment by avoiding such degradation.
277	4447-2 There is no mention of protection of agriculture water in SB-4.
	Response to comments 268-277: These regulations have been developed to supplement the Division's existing oil and gas regulatory framework to meet the intent and requirements outlined in Senate Bill 4. These regulations also respond to the feedback the Division has received in ten public comments hearings held throughout the state, tens of thousands of public comments submitted in written format, and in scientific and policy papers, which are listed in the Final Statement of Reasons. These regulations include monitoring, evaluation, and testing requirements for before, during, and after well stimulation treatment to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. These regulations also implement the public disclosure, neighbor notification, water testing, and permitting requirements established by Senate Bill 4. The Division believes that these regulations provide an effective

	framework for a level regulatory scrutiny that is commensurate with the level of public concern with well stimulation treatment operations. In addition, Section 3161 (b)(4)(A) and (B) of the Public Resources Code requires the Division to prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) in order to provide the public with detailed information regarding any potential environmental and public health impacts associated with well stimulation treatments in California. Statute requires that the EIR be completed by July 1, 2015.
	Environmental Justice
278	4267-2, 4129-1 There was no information available in Spanish and it does not appear that the Department has reached out to the Spanish speaking or other minority communities to give them information on fracking and the regulations.
279	0025-40, 0003-23 The Division's proposed regulations do not indicate that the agency even considered the potentially devastating impact on communities that are largely people of color, low-income households, or communities that already face disproportionately high levels of pollution. The regulations must be amended to incorporate such concerns in order to address environmental justice and basic norms of fairness.
280	0025-41 The Division must conduct a cumulative impacts analysis that identifies existing sources of pollution and addresses the specific needs of predominantly low income communities and communities of color already facing high level burdens from those sources. This form of study and analysis must be included as part of an independent review of the full range of real and potential impacts of fracking, and other related forms of well stimulation and treatment activities, *prior to* issuing any new permits. The Division must prohibit any drilling, acidization, or other form of well stimulation or treatment from taking place in communities that have either been identified as environmental justice communities by the criteria set forth in the Office of Environmental Health and Hazards' Environmental Health Screening Tool, or other forms of socioeconomic, race and cumulative health impacts assessment methods.
281	4175-5, 4160-1 In Bakersfield the translation system did not allow the public to hear in Spanish what other speakers were saying. As a result some Spanish speakers did not participate or speak as much as they would have if the system had been better.
282	4214-9 I keep hearing is this sort of juxtaposition between environment, human health, and jobs.· Be assured that it will be poor and working-class people, particularly poor and working-class people of color, who will be hit with the ·brunt of the problems related to fracking.· It is always poor and working-class people who are hit with these.· And so I think it's really sad that some people and organizations who stand to make tremendous amounts of money if this activity is allowed to go forward virtually unregulated to play the one group of people off against another, and I really, really hope that DOGGR, the Department of Conservation, does not allow itself to be used in such a cynical manner.
283	4157-3 I am concerned by the fact that most of the fracking will be taking place in the communities that are already overburdened by multiple sources of pollution. As a resident of a town that is already

	subject to heavy pesticide use, diesel truck emissions, contaminated water, and we are home to the largest toxic waste landfill in the western United States, we should not be subject to the additional injustice of fracking, yet it is already taking place around my little town.
284	4157-5 California Government Code 11135 requires that this hearing have proper translation, which it does not. That means that the people that are going to be directly affected by the repercussions of fracking can't even participate in this public process. That is despicable and a civil rights violation.
285	4162-1 Our community members are here with a very important message, we strongly encourage you to listen to them. It is really hard for them to drive 3-400 miles up north to talk to some of these top executives who never feel the pain that these folks are feeling out here in the valley.
	Response to comments 278-285: In an effort to outreach to non-English-speaking communities and provide them with the opportunity to provide comments on the proposed regulations, the Division provided Spanish-English translation services at the first public comment hearing held in Bakersfield on January 8, 2015. The Division expanded the number of venues with Spanish-English translation services to all five public comments hearings held after the release of the first revised text of proposed regulations (Santa Maria on July 15, 2014; Long Beach on July 17, 2014; Sacramento on July 21, 2014; Salinas on July 23, 2014; and Bakersfield on July 23, 2014). In addition, the proposed regulations require operators to hire an independent entity or person to provide notification to every tenant and owner of neighboring property within a specified distance from the wellhead and horizontal projection of a well that will have a well stimulation treatment performed on it. This neighbor notification must be provided utilizing a bilingual (English/Spanish) template form developed by the Division. Lastly, with respect to environmental justice communities, the Environmental Impact Report required by SB 4 will analyze the potential impacts of well stimulation activities on these communities. Statute requires that the EIR be completed by July 1, 2015.
	Exporting Oil or Natural Gas
286	4278-3, 4213-3, 0084-11, 0099-11 Producing oil and gas in California will not stop oil imports. We will continue to buy oil from the world markets. The regulations should prohibit the export of oil or LNG from fracking.
	Response to comment 286: The state does not have the legal authority to prohibit the exportation of oil or liquefied natural gas out of the state or out of the country. Such legal authority resides with the federal government.
	Flowback/ Produced Water
287	0013-4 Fracking a single horizontal well can require 1 million to 9 million gallons of fracking water mixture containing chemicals, sand and proppants, but it is primarily composed of water under high-pressure. Various studies show that much of the water used remains underground, but about ten

	percent resurfaces within 30 days, amounting to between 300,000 to 800,000 gallons of *flowback* wastewater per each well drilled. Other estimates of flowback wastewater are higher, but flowback always decreases markedly within the first year in a shale well and along with the oil, both almost completely stops within three years.
288	0013-5 Not to be confused with flowback water, *produced water* is high-salt, briny formation water eluted during the full productive life of an oil or gas well. Depending on the geologic formation, water produced from a well can continue for years at a daily flow rate of 30 to 500 gallons per day. L*ong-term* produced shale wastewater recovery can be 30% to 100% of the original injected volume of fracking fluid, potentially millions of gallons per well.
	Response to Comments 287-288: In Section 1783.1 of the proposed regulations, the application for a well stimulation permit shall include a water management plan that will provide an estimate of the amount of water to be used in the treatment, an estimate of water to be recycled following the well stimulation treatment, a description of how and where the water from the well stimulation treatment will be recycled, including a description of any treatment or reclamation activities to be conducted prior to recycling or reuse; and the anticipated source of water to be used in the treatment. The application will also include the anticipated disposal method that will be used for the recovered water in the flowback fluid from the treatment that is not produced water. And in Section 1788 of the proposed regulations, an operator will be required to disclose after a well stimulation treatment the source, volume, and specific composition and disposition of all water associated with the well stimulation treatment.
	<u>Financial Accountability</u>
289	0087-7, 0046-7, 0310-8, 0255-7, 0085-11, 0287-5, 0084-10, 0147-2, 0099-10 The regulations focus on monitoring and disclosure but impose no accountability holding operators financially responsible for any damage and harm caused by fracking operations over the lifetime of wells. Regulations should require operators to be bonded and insured against potential damage and harm caused by well stimulation treatments and underground injection operations for the lifetime of well operations.
290	0196-1 A restoration fund should be created to restore sites that are degraded or contaminated by extraction interests unable or unwilling to clean up or restore the area affected.
291	0150-1, 0103-2, 0085-11, 0085-15 The regulations do not have instruments of responsibility in the proposed legislation. Should and ultimately when our aquifers and ground water resources are polluted by these oil and gas companies, who care only for their profits, occur either by accident, negligence, or an act of God, there is nothing in the regulations that hold these companies legally and financially responsible for the cleanup and restoration of the environment that they have destroyed.
292	0187-3 The operator must assume full liability for any leakage of materials resulting from failure of the well casings. No time limit shall be placed on this liability.
	Response to comments 289-292: <u>Well abandonment, site remediation, and financial responsibility are addressed in other existing</u>

	statutes and regulations and are outside the scope of this rulemaking.
	General Standard Issues
293	4303-2 You are allowing the oil companies to damage our water, our air and can cause increased earthquakes.
294	4313-9, 4422-1, 4426-1, 4427-1, 4572-2 Clean land and water are a right of all peoples. It is your job to protect it and us and future generations and from any long term effects.
295	0326-4 The proposed regulations are a start but contain many loopholes.
296	4329-2 No data exist on the fracking compounds.
297	0276-4 Fracking in California will have devastating impacts on public health, our water, our property, our agricultural industry and our climate.
298	4297-1 This is a highly toxic allowance, and should be revise to zero.
299	4140-2 The concrete encasement of the fracturing wells has a high fail rate close to 32%. This fact overwhelms any and all claims of safety.
300	4127-6 Main concerns about fracking are water and the amount of fresh water used. Most of the resulting waste water is unusable and left in the ground. Each time a well is fracked 80-300 tons of chemicals are injected and left in the environment. Chemicals left underground would harm water dependent animals such as fish and frogs. Fracking waste water is stored in open storage pits and constantly misled into air creating a poisonous fog and eventual acid rain. A hydraulic fracturing accident contaminating freshwater sources could contaminate produce and livestock. This would reduce jobs in agriculture and severely affect our local economy. More earthquakes happen after fracking then before fracking. California is very sensitive to earthquakes and fracking could make them unnaturally strong. Those living near hydraulic fracturing wells will be in constant exposure to chemicals known to cause cancer, respiratory problems, skin rashes, digestive disorders and neurological problems. Since industry is not required to reveal chemicals used, doctors face challenges treating those exposed.
301	4245-3 What is the rate of leakage from the wells that are functioning at the present what 2 of the wells output is leaked.
302	4330-1, 4339-1 I am against fracking in California. Do not pollute our land, food and water supply. We have too many water problems already not to mention our earthquake vulnerability.

303	4334-1 What rules and regulations will determine what happens with the by-products of the fracking process and what office or agency will regulate the by-products?
304	4336-3 Fracking causes terrible smells. Check out Price Canyon in San Luis Obispo.
305	4337-1 How will we hold the company accountable?
306	4338-1 Please read my letter to the President of the United States of America.
307	4345-1 What areas will be covered to possibly be drilled at? What types of drilling will be decided for bay area?
308	4177-14 Study the impacts. Research before greenlighting.
309	4346-1 How many public comment hearings will be held?
310	4347-1 Where in California can someone frack/drill sideways without hitting fault lines or aquifers?
311	4352-4 California is currently 125 billion in debt and needs jobs.
312	4377-1, 4415-1 Fracking poses substantial health risks to plants, animals and people. It is a disaster for all living things. Fracking is a profound violation of our constitutional human right to clean air and water. Future generations will look back on this catastrophe and ask us, "How could you do nothing as our land was thus destroyed?"
313	4154-1 We cannot live without air and water. Fracking pollutes air and water. Fracking condemns us all to die.
314	4395-2 Through conservation measures of all kinds we could easily cut our oil and gas use in half, without sacrificing our lifestyle. The other 50% can come from renewable and other conserving measures.
315	4409-2 Our health and clean water are sacred goals.
316	4414-2, 4416-1, 4418-1, 4419-1, 4420-1, 4423-1, 4451-3 California rules should comply with the Federal Clean Air and Water Act. California finds itself exposed to the pollution of the oil and gas industry and their ability to cause widespread environmental damage without having any significant regulatory oversight.

317	0181-1 Please make fracking regulations follow clean water and clean air rules.
318	4421-1 Push for a much stronger limit to hexavalent chromium in our water supply than the 1088b proposed standard.
319	4425-1 Consider air quality and water purity.
320	4428-2 Fracking contaminates our rivers and waterways, killing wildlife, fish and birds. It creates explosions which destroy the environment and can even kill people.
321	4436-4 It is extremely irresponsible to frack without knowing the dangers or how to mitigate them. People support this industry for its jobs and income but the oil and gas companies do not pay taxes. Any clean-up and health costs are on the back of the taxpayers.
322	4436-7 We should also repeal the exemptions for fracking contained in the Safe Drinking Water Act of 2005.
323	4153-4 Let us let our grandchildren decide what to do with fracked oil after it has been thoroughly established.
324	4447-2, 4514-2, 0326-3 Fracking threatens the air, food and water we drink, the communities we love and the climate on which we all depend.
325	4575-2 The regulations attempt to fast track multiple well stimulation jobs with a single approval and without adequately studying the impact of each frack job.
326	4444-4, 4510-4 We are not interested in allowing out of state companies to rape and pillage our state, leaving devastation in their wake.
327	4451-2 California and Californians need legislation to protect it and us from the likely air and water pollution that fracking would produce, in the current unregulated environment.
328	4466-2 For it is only in a frack free California, that our goals as a people and a state, for better health, and a clean natural world, are the oldest and only guarantee for a truly productive society and a state that thrives, ahead of all others.
329	4519-2 I am deeply alarmed and concerned about the use of fracking when there is so little transparency from the industry. Please do the right thing for the people and the state not just the oil companies and their stakeholders.
330	4541-3, 4549-3 These procedures and the companies implementing them have a proven track record in other

	jurisdictions of being entirely irresponsible with respect to the environment and the publics' health and well-being. This should not be permitted in California.
331	4543-1 The environmental and health risks or fracking (hydraulic fracturing) and other extraction techniques (such as acidization) are huge. These dangerous practices are already going on in Monterey County. This hearing is about regulations on fracking, BUT these ...Regulations will not: protect those living and working near fracked wells from highly dangerous air pollutants that increase risks of cancer and respiratory illness. Regulations will not: protect the aquifer from contamination by the toxic brew of fracking chemicals injected deep underground at high pressure. Regulations will not: protect our limited water resources from the demands of fracking (500,000- 3 million gallons per frack job), which turns freshwater into hazardous waste which can never be safely returned to the environment. Regulations will not: protect our water and air ... if enforced, the regulations will only provide information that contamination has occurred. Regulations will not: reduce the risk of increased earthquakes caused by fracking. The Monterey Shale runs through major fault lines but the regulations only provide for a seismic study. Regulations will not: protect our planet from the increased use of fossil fuels - in opposition to California's existing climate protection policies.
332	4517-2 I hope you can direct your efforts towards holding companies accountable for all types of actions which endanger our clean air, water, environment and health.
333	4515-3 No technology which uses so many known toxins should be used in this state.
334	4481-1 I urge you to prohibit the use of hydraulic fracturing within the State of California.
	Response to Comments 293-334: These regulations have been developed to supplement the Division's existing oil and gas regulatory framework to meet the intent and requirements outlined in Senate Bill 4. These regulations also respond to the feedback the Division has received in ten public comments hearings held throughout the state, tens of thousands of public comments submitted in written format, and in scientific and policy papers, which are listed in the Final Statement of Reasons. These regulations include monitoring, evaluation, and testing requirements for before, during, and after well stimulation treatment to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. These regulations also implement the public disclosure, neighbor notification, water testing, and permitting requirements established by Senate Bill 4. The Division believes that these regulations provide an effective framework for a level regulatory scrutiny that is commensurate with the level of public concern with well stimulation treatment operations. The potential impacts on the environment and public health will be considered in the Environmental Impact report and independent scientific study required by SB 4. Section 3161 (b)(4)(A) and (B) of the Public Resources Code requires the Division to prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) in order to provide the public with detailed information regarding any potential environmental and public health impacts associated with well stimulation treatments in California. Statute requires that the EIR be completed by July 1, 2015. SB 4 also amended the Public Resources Code to add Section 3160 (a), which requires the

	Secretary of the Natural Resources Agency to cause to be conducted and completed, an independent scientific study on well stimulation treatments, including, but not limited to, hydraulic fracturing and acid well stimulation treatments. The independent scientific study is to evaluate the hazards and risks and potential hazards and risks that well stimulation treatments pose to natural resources and public, occupational, and environmental health and safety. This study will be completed on or before July 1, 2015.
	Geothermal Hydraulic Fracturing
335	0093-1, 0093-2 The well stimulation regulations need to address Enhanced Geothermal Systems (EGS), known as geothermal fracking or hydro-shearing.
	Response to Comment 335: Senate Bill 4 specifically applies to well stimulation treatment on oil and gas wells. It does not apply to geothermal projects.
	Governor Brown
336	4279-1, 0176-1 Governor Brown's regulations are a dangerous handout to the oil industry, and if adopted will green light a massive expansion of fracking and other unconventional well stimulation and underground injection projects for oil and gas in California. So, Governor Brown's legacy as a climate leader is on the line. The climate -- a real climate leader wouldn't allow fracking to take place in California, but would stand up to big oil and ban this toxic practice.
337	4270-4 We're not going to rest until we get -- we either reelect all of our representatives who signed SB 4 or we get a new governor in place. I want to make you sure you know that.
338	4129-2 I wanted you guys to remind Jerry Brown that when he was governor before, he was a very earth conscious guy.· I remember that he developed a department called Appropriate Technology, and the whole idea of Appropriate Technology was to develop technology so that there would be no need to pollute the earth.· I think he's forgotten that. I would like you to let him know and remind him that he's a Democrat and he's supposed to represent us.
339	4206-2 We're asking the Governor to call that timeout until thorough studies are done, probably longer than the year study mandated by SB4.
340	4251-3 If the Governor is serious about being -- about concern about climate change, he should work to not have fracking happening in California.
341	0045-14 Governor Brown, you have a strong clean energy record and you have the authority to make sure that Californians' safety and public health come first. You can issue an executive order directing DOGGR to carry out its statutory duty to prevent oil and gas operations from harming human health, property, and natural resources. Continued fracking leaves the health of Californians and our precious natural resources unprotected.

342	0135-3 Governor Brown and the majority of the state senate have mistaken this manufactured narrative for data – accepting industry funded studies at face value without bothering to seek out corroborative, independent research. The 15 billion barrels are very hypothetical and the billions in tax revenue even more so. The rush to drill the Monterey shale is really a mark of how desperate the state legislature and Governor Brown are for an economic quick fix. In their desperation, they've lost objectivity – and SB 4 reflects this nonobjective and desperate mood.
343	0030-3 Governor Jerry Brown has stated that California will have the most Stringent regulations in the nation. We urge the Division to comply With the Governor's statements, and implement the Precautionary principle when it comes to well stimulation.
344	0211-2 We are governed by an older, tired gentleman; a man who is surrounded by those seeking favors for special interests and supported in his administration by advisors well-versed in corporate advancement. While being somewhat isolated from everyday Californians, the Governor daily faces subtle, but unrelenting pressure to deliver for these interests and he responds with self-defined pragmatism.
	Response to Comments 336-344: It is the Division that has been tasked with developing and finalizing regulations for well stimulation treatments in the state.
	<u>Public Health</u>
345	4283-2 Oil field workers are the people that are most likely to be exposed to fracking chemicals. I've worked on fracking operations in many states and I'm not aware of any friends or any data that says we're less healthy than any other segment of the population.
346	4288-3 Even with safe oil production now, there are many small leaks that are never reported, that there are environmental impacts that don't make the news, and it really takes something big for people to even pay attention. What we're going to see as we expand and go forward with fracking is that we'll be left with unexpected consequences and results that we didn't expect today that we were sure we'd protect ourselves against, and we won't have anywhere to turn.
347	4130-1, 4138-2 And we're willing to gag our medical community from revealing what kind of epidemics and contagions could be breaking out from these fracking compounds. My understanding of the law is that if a doctor suspects that a fracking compound could be responsible for some kind of trauma in a patient, they're able to breach the confidentiality to find out what is happening to their patient but they're completely gagged from telling anyone else about it. ·It's between the oil company, regulatory agencies, that doctor and that patient, and no one else can be told about it.
348	4091-1, 4191-2, 0085-10, 0002-17 People working in the oil fields are concerned about their health and the impacts fracking is having on it. How will workers be protected? Require operators to prepare Injury Illness Prevention Programs prior to well stimulation to protect workers' health and safety. Consider bringing Cal/OSHA on the site and requiring some training of the people that are using these organic compounds.

349	0103-20, 4127-2, 0041-8 What is really going to happen if somebody is exposed to chemicals? How they're going to be given the information as to what chemicals have been involved to provide to a treating doctor or hospital? These are very important things that need to be included. Trade secret claims cannot be allowed. The state must know all components and composition of any frack job that any hospital, physician or EMT may access readily when a health problem is presented and such chemicals are suspected.
350	0103-11 The regulations are not clear regarding how a medical authority would be notified, who does the notification, and what is the timeframe, in the case of an emergency?
351	4066-2 Without very specific clear regulations, there are currently wellhead sites within a very close proximity to residential homes, and that is frightening.
352	0085-14 Who will be responsible for studying health effects of well stimulation, including long term studies of workers, people exposed because they live nearby a well stimulation area, animals and plants?
353	0085-8 What will be done to protect people, including workers, and animals from the noise and smell of fracking?
354	4594-1 In 2006, January and February, there was liberation of carbon monoxide and hydrogen sulfate into our community that lead to the voluntary evacuation of my -- my street and the street next. · My neighbors experienced asthmatic attacks, headaches, nausea and dizziness that they could not stand, so they had to leave their whole communities and go elsewhere for a couple of days. As remember of the Citizens Coalition for a Safe Community, we also did the online study back in 2009 that showed that the communities within a 3-mile perimeter of the Inglewood oil fields also experienced a higher instances of cancer, that includes leukemia, lymphoma, breast cancer, prostate, and asthmatic attacks, cardiovascular disease, higher rates of hypertension, higher than the national prevalence rate of 27 percent, ours was 37 percent. So we are all involved in our receiving end of a whole host of public health issues that the oil company is not contributing in any way, shape or form.
355	4255-1, 4262-2 I'm a school nurse [in LA]. So many of the kids at school have asthma. There is an oil well within a few feet of a public park and library. People that use the park can smell the fumes from the rig. Oil activity has no place in a community where people live, work and play.
356	4176-2 Lots of industries in Kern County have environmental impacts; farming, solar, oil. Yet people are picking on the oil industry and want to shut it down. Seems if you shut one industry or company down then you should shut them all down.
357	4185-2 Many commenters here have asserted that they wanted a technology that could be proven perfectly safe before it can ever be used. If you want to follow that methodology, you might as well close up every industry in the state and declare a domestic death because flipping burgers can provide a hazard.· Hiking can provide a hazard. Anything can be -- can have unintended

	consequences and hazards.
358	0003-1, 0025-2, 0045-9 Hydraulic fracturing, acidization, and other forms of well stimulation covered under SB 4 pose a number of serious risks to human health and safety as well as the environment. For example, a study of gas production in Colorado yielded 632 chemicals used in 944 different products. Of these chemicals, 75 percent have been shown to cause harm to the skin, eyes, and other sensory organs; 37 percent could affect the endocrine system; and 25 percent could cause cancer and mutations. A recent study showed that large portions of water near hydraulically fractured wells in Colorado showed contamination by endocrine disrupting chemicals.
359	These chemicals endanger public health and safety through their potential to contaminate groundwater and surface water. A report by the USEPA found that hydraulic fracturing chemicals were responsible for groundwater contamination in Pavilion, Wyoming. Spills, leaks, and illicit dumping also put surface waters at risk. A spill of hydraulic fracturing fluid in Kentucky caused a massive fish die-off, including an endangered species, in the contaminated creek.
360	0025-45, 4279-5 The proposed regulations are themselves woefully inadequate and do little to lessen the severity and range of harms that hydraulic fracturing will pose to Californians.
361	0021-7 The draft regulations are a step forward but additional revisions are needed to address a wider range of human health and environmental health risks. Regulations should complement other agencies' work and ensure robust accountability.
362	0030-13 The Regulations must also protect workers on rigs, well pads, and other infrastructure, every day. Studies have shown that a large percentage of work related accidents disproportionately affect minorities and non---English speakers. In order to protect worker's health and safety, operators must be required to present and manage an active Injury Illness Prevention Program during all well stimulation activities. The program must be available in all necessary languages so none—English speaking workers may have access to its benefits.
363	4070-2 Some very dangerous chemicals have been used for well stimulation, including benzene, ethyl benzene, xylenes and X-CIDEsR, which are mixtures of chemicals that include crystalline silica, classified as carcinogenic by The International Agency for Research on Cancer.
364	4071-1 Accordingly, WOEMA is concerned that well stimulation activities can expose workers and bystanders to unsafe airborne concentrations of crystalline silica, and additionally is concerned that such activities not adversely impact groundwater and surface water quality, with additional attendant health risks to the public. WOEMA supports the process which includes a third party independent study to identify risks, and peer review by independent scientific experts.
365	4151-1 I can assure you that the oil and gas industry has some of the strictest policies and procedures regarding safe work practices that our employees need to comply with on a daily basis. · It is because of the focus and attention to detail that this industry gives to the employees and the workers that are out there each and every day.
366	4160-2 I do not want any more contamination and for you to be killing us little by little.

367	4177-4, 4177-10, 4194-1 This fluid that is containing hazardous chemicals that can cause birth defects and cancer and all kinds of just awful things, kinds of things that have already been ·mentioned like endocrine disruption. We don't want that.
368	4298-3 Fracking threatens life.
369	4317-1 Fracking fluids have dangerous chemicals that pose a public health threat.
370	0287-2 No substance listed as a potential carcinogen by the State of California, the US EPA, or the US FDA may be used in whole or part as a stimulation treatment. As currently unlisted chemicals are recognized to be carcinogenic their use must be discontinued. Acid Treatments may only be used when the local rocks can be expected to neutralize the acids within a short period of time and within a short distance of the production zone. "Proprietary Stimulation" ingredients may not be secret or concealed from the public. The public must be informed as to the nature of chemicals and ingredients being transported on pubic highways, the risks involved, and actions to take to protect themselves in the event of a spill or release.
	Response to Comments 345-370: In an effort to minimize public health risks, the proposed regulations require pressure testing and cement evaluation requirements, as well as require operators to perform a well stimulation treatment area analysis to demonstrate that there is no potential conduit for fluid to migrate out of the hydrocarbon zone where the well stimulation treatment will occur. There are also requirements for the storage and handling of well stimulation treatment fluids and wastes. Operators are required to identify the chemical constituents of the well stimulation treatment fluids used before and after treatment. In addition, Section 3161 (b)(4)(A) and (B) of the Public Resources Code requires the Division to prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) in order to provide the public with detailed information regarding any potential environmental and public health impacts associated with well stimulation treatments in California. Statute requires that the EIR be completed by July 1, 2015. Lastly, SB 4 amended the Public Resources Code to add Section 3160 (a), which requires the Secretary of the Natural Resources Agency to cause to be conducted and completed, an independent scientific study on well stimulation treatments, including, but not limited to, hydraulic fracturing and acid well stimulation treatments. The independent scientific study is to evaluate the hazards and risks and potential hazards and risks that well stimulation treatments pose to natural resources and public, occupational, and environmental health and safety. This study will be completed on or before July 1, 2015.
	<u>Injection Wells</u>
371	0002-12 Because of potential increased volumes of wastewater due to unconventional drilling methods, the Division should examine the current methods of produced water and flowback disposal, and strengthen all related regulatory programs to ensure protection of surface and groundwater resources and reduce the risk of induced seismicity.

372	0123-24 Before starting the process to regulate well stimulation, revise "current regulations and procedures" concerning the safe operation of CA's Class II UIC Program wells based on USEPA's recommendations.
373	0123-26 The UIC regulations need to be strengthened.
374	4273-7 UIC is not the same as hydraulic fracturing, and that is an important point.
375	4121-4 In SB 4 well stimulation treatment regulations, waste water injection wells are not addressed. From my research, it looks like a lot of the older wells, like the one in my area, used to be a regular oil and gas well, but it was plugged and then it was later re-drilled, or whatever, to be an injection well.
376	0108-4 There needs to be regulations specific to injection wells and wastewater re-injected into them. My belief is that well-casing being made of cement that can only hold over a specific, short period of time means that those wastewater chemicals will be in the water system in 50 years at a minimum so wastewater into injections wells should not be allowed.
	Response to comments 371-376: The Division regulates underground injection projects under its Underground Injection Control (UIC) Program. Injection operations regulated under the UIC Program include waterflood, steamflood, cyclic steam, water disposal, gas storage, and other enhanced oil recovery projects. The requirements of the Division's UIC Program are found in the Public Resources Code, the federal Safe Drinking Water Act (SDWA), and in state and federal regulation. The Division's UIC regulations are found in Section 1724.6 through 1724.10 and Sections 1748 through 1748.3. The Division's UIC program is monitored and audited by the U.S. Environmental Protection Agency because in 1982 the Division entered into a primacy agreement with the U.S. EPA for regulation of class II injection wells under the SDWA. The Division is engaged in an ongoing process of evaluating its UIC regulations and identifying needed updates.
	<u>Interim Regulations</u>
377	4280-1 I'm here to speak primarily today on the interim regulations SB 4, Chapter 4, subchapter 2, environmental protection, does not address the regulation of the contaminated fracking fluid within the underground injection projects. These fracking fluids, these oil drilling fluids are of primary concern to the people here and to the citizens of California. We certainly don't want that getting into the aquifer.
378	0293-1 Please scratch those oil amendments to interim regulations and show the oil companies they need to contribute rather than detract from monitoring for complications of fracking, i.e. earthquake production and groundwater contamination.
379	0207-2 What is the basis for the 7% acid concentration threshold used to determine whether an Interim WSTN is required?

380	0226-2 The interim regulations should be transparent and available to the public online.
381	4280-1 Why don't the interim regulations address enhanced oil extraction near inhabited dwellings?
	Response to Comments 377-381: These proposed regulations do not in any way impact the interim regulations that are currently in effect. The interim regulations will be in effect until July 1, 2015. The proposed regulations in a finalized format will be in effect from July 1, 2015 onward.
	<u>Jobs</u>
382	0134-2 Fracking promises jobs however I don't think that should come at the price of wholesale exploitation of shale deposits and through technology that I am not convinced is safe and good for communities and for the State
383	4109-4 Fracking can turn California back into the Golden State, with 2.8 million jobs, and increase of ten percent in income and bringing prosperity back to all.
384	4176-3, 4179-5, 4204-1 I work for Chevron and I need my job. If fracking is banned and the then people will loosed jobs; people won't have money to spend so more people will loosed jobs. It's like a never ending spiral of destruction because our economy is based on energy production.
385	4186-1, 4187-1 I'm a third generation oil worker. The industry is safe and my family's health is good. The industry has provided my family with a good living.
386	4162-2 It is important to make our country independent of oil from foreign countries, countries that want to kill us. So we know that there are challenges, but there are also great opportunities. · North Dakota is probably a really good example of where you have got almost 1percent unemployment.· I know that in the central valley -- Bakersfield, Fresno, and some of these smaller communities -- the unemployment rate right now is 30,·40 percent, and so we have got to get folks to work.·
387	4156-2 I have heard the concerns about the oil industry and about the job creation and sustaining the jobs that they already have, but we have to have consideration of all the jobs of the farm workers, which are thousands of them, especially here in Kern County. I do understand that one of the main purposes is the generation of these jobs.
388	4167-1, 4213-2 When we talk about jobs, how many jobs can produce the oil industry using fracking, and how many jobs will be killed in agriculture?
	Response to Comments 382-388:

	SB 4 does not direct these proposed regulations be formulated to promote or optimize job creation in the oil and gas sector of the California economy.
	Local Government Issues
399	0084-7, 0099-7 The regulation does not include adequate methodology for notifying local governments of applications. As currently written there is no method for local government to review the application or contest the findings of the approved permit.
400	0011-3, Regulations adopted by the State of California and the Division must preserve local land use authority over traditional land use matters including, but not limited to, the following: Use of water, Source of water, Wastewater disposal methods, Traffic, Aesthetics, and Biological impacts
401	4069-4 State and local agencies need to be made aware of what chemicals will be used in well stimulation long before stimulation occurs so that emergency responders and healthcare workers will have adequate time to train and prepare for the possibility of contamination. Sites where these chemicals are being used or stored need to be clearly marked, as do any transport vehicles containing these chemicals.
402	4237-6 Local jurisdiction should have the right to have their own moratorium bans to prevent fracking from occurring if they deem it appropriate.
	Response to Comments 399-402: The proposed regulations require all well stimulation treatment operations be conducted in compliance with all applicable requirements of the Regional Water Board, the Department of Toxic Substances Control, the Air Resources Board, the Air Quality Management District or Air Pollution Control District, the Certified Unified Program Agency, and any other local agencies with jurisdiction over the location of the well stimulation activities. These regulations do not purport to limit local land use authority.
	Public Comment Process
403	0141-5, 4240-3 The hearing should have been in Culver City or Los Angeles rather than Long Beach; closer to home and easier for people to get to.
404	4240-2 Why isn't' there a Q&A session in Long Beach like there was in Oakland?
405	4240-4, 4241-1, 4245-1, 4267-3 The location of the meeting in Long Beach did not have free parking and was not accessible by public transit, making it very difficult for some people to get to the meeting and preventing others from attending.
406	4245-2, 4273-3 I would urge for you to have more hearings, more locally located and accessible to the public in general.

407	4264-1 For the Long Beach hearing some people felt there should be more Department and Division representatives and the hearing.
408	0219-3, 0264-3 The regulations will be issued prior to the closing of public comments, thus casting doubt on the value to DOGGR of the invited public comments.
	Response to Comments 403-408: The Division held two rounds of public comments hearings. One in January 2014, and another in July 2014. Each round included five public comments hearings in five distinct locations in the state. Those locations were Bakersfield, Santa Maria, Long Beach, Salinas and Sacramento. The selection of those locations were based on proximity to communities near oil and gas operations.
	Methane
409	0029-2, 0003-8, 0045-8, 4154-1, 4155-2 Fracking is tied to air and water pollution, and it releases huge volumes of methane, a dangerously potent greenhouse gas.
410	0078-1 The regulations should require the collection and submission of data specific to fugitive methane emissions and the carbon content of extracted fuels.
411	0087-8, 0046-8 Regulations should require operators to monitor methane gas leakage from fracking operations over the lifetime of well operation and downstream processing of recovered oil and gas including transport, storage, processing and ultimate distribution.
412	0087-9, 0046-9, 0310-9, 0255-8 Regulations should require that methane leakage associated with each fracking operation, including downstream processing, be kept below 1.5%, the threshold at which natural gas can be considered “cleaner burning” than coal.
413	0078-2, 0050-17 Mitigation and minimization to acceptable levels of methane fugitive emissions should be required for well permits and as a condition of ongoing operations.
414	0025-9 Recent studies of methane leakage rates suggest that the climate impact of oil and gas drilling is actually much higher and more severe than previously estimated.
415	0184-3 Methane: The MOST potent of greenhouse gases --it needs to be captured during the fracking process, so this capture system needs to be put in place as part of standard practice of the fracking process concerned with the environmental impacts it could have.
416	4175-2, 4252-7, 4205-24 The GHG emissions from methane that leaks from a fracking operation make fracking a bad option.

417	0222-1 Methane flaring should be prohibited or restricted.
418	4497-3, 4256-4 Methane releases are not addressed in draft regulations.
	Response to Comments 409-418: On August 25th, the California Air Resources Board held a public workshop and informed stakeholders and the public that it will proceed with the development of an oil and natural gas methane control measure that would include well stimulation. ARB will also continue a well stimulation emissions study and analyze chemical constituent data. Depending on results of this study and analysis it could propose additional controls for well stimulation activities. ARB staff anticipates bringing the methane measure to its board in the spring of 2015.
	Monterey Shale
419	4133-2 The Monterey formation is not like the Bakken or the Marcellus formations in the Midwest and in the east coast. The strata in California is broken up into many different fragmented layers. You're not going to get the same kind of production here in California from the Monterey Shale as -- you can compare it to the kind of production we're getting from these other fracking activities across the country. Geologists from Canada estimate, optimistically, 40 percent of the kind of estimates that are out there now, so we're talking about dumping all these chemicals into our aquifers for very little monetary return today.
420	0215-1 Development of the Monterey Shale could create as many as 2.8 million jobs. What a wonderful opportunity this will be for the unemployed and under employed people. It would also generate up to $24.6 billion in new tax revenues.
421	0237-1 The Monterey Shale resource is something California cannot ignore. The proposed DOGGR regulations supporting development is a good start for a new domestic fuel supply that will reduce greenhouse gas emissions associated with imported fuel transported via maritime vessels.
422	4112-2 People should understand that the Monterey Shale is hundreds of miles from here, and 97 percent of hydraulic fracturing that happens in California happens in Kern County, away from population centers where there's no potable water.
423	0029-3 New fracking and acidization technologies are also opening up huge new sources of dirty oil in California's Monterey Shale formation to extraction and combustion.
424	0133-7 A full report on the contents and quality of the Monterey Shale formation should be public information.
425	4312-2 The Monterey Shale is underneath a very sensitive ecosystem that not only provides the massive amount of growing lands but also the wildlife corridors.

426	4297-3 I am adamantly against drilling of Monterey shale.
	Response to Comments 419-426: SB 4 does not direct these proposed regulations be formulated to promote or optimize any estimated projections for oil and gas production in the Monterey Formation.
	<u>Offshore Fracking</u>
427	4283-4, 0085-4 With regard to offshore drilling. There are restrictions in place and areas that are off limits for oil drilling, or consequences for negligence?
428	4232-9 In SF they created a marine sanctuary to ban fracking. We should do that in San Diego to ban off shore fracking.
429	0045-4 Recently, offshore fracking has been identified in both state and federal waters, and unfortunately, some chemicals were discharged directly into the ocean.
430	0251-4**,** 0075-11, 4104-2, 4123-4, 4290-5, 0085-13 Offshore well stimulation needs to be included in the regulations.
431	0045-25, 4290-6 The proposed draft rules should make express their applicability to and take into account regulatory requirements specific to hydraulic fracturing, acidizing, and other well stimulation in the offshore environment. The proposed draft rules must be revised to expressly reflect the fact that they are applicable to the offshore environment, and they must take into account any necessary considerations particular to conducting well stimulation projects in the marine environment.
432	0045-26, 4290-7 We would ask that any well stimulation projects in the marine environment take special consideration of the impacts to wildlife and sensitive habitat, including important habitat for threatened and endangered species. In particular, we would ask that direct discharge into the ocean of hydraulic fracturing fluid, flowback fluid, drilling muds, produced water, or other well-stimulation related wastewaters be forbidden—just as open sump pits are outlawed in the terrestrial context.
433	0045-27 The draft proposed regulations should also take into consideration, among other distinctions, increased vessel traffic and ship-strike mortality of whales, the potential for induced seismicity, air toxic emissions, and well casing specifications when regulating well stimulation in the offshore environment.
434	0045-28 Because hydraulic fracturing is an inherently dangerous practice that has not yet been the subject of a comprehensive statewide study or environmental review, and the marine environment is a particularly fragile ecosystem, we would also ask that you impose an immediate moratorium on hydraulic fracturing in the offshore environment until the risks are fully studied and safeguards are put in place to guard against them.
435	4315-6

	We also need monitoring or halting of offshore well stimulation.
	Response to Comments 427-435: These proposed regulations would be applied to well stimulation treatments within state waters (within three nautical miles from the coastline) but cannot be applied to well stimulations treatments in federal waters. These regulations have been developed to supplement the Division's existing oil and gas regulatory framework to meet the intent and requirements outlined in Senate Bill 4. These regulations also respond to the feedback the Division has received in ten public comments hearings held throughout the state, tens of thousands of public comments submitted in written format, and in scientific and policy papers, which are listed in the Final Statement of Reasons. These regulations include monitoring, evaluation, and testing requirements for before, during, and after well stimulation treatment to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. These regulations also implement the public disclosure, neighbor notification, water testing, and permitting requirements established by Senate Bill 4. The Division believes that these regulations provide an effective framework for a level regulatory scrutiny that is commensurate with the level of public concern with well stimulation treatment operations. The impacts to marine wildlife and environment will be considered in the Environmental Impact report and independent scientific study required by SB 4. Section 3161 (b)(4)(A) and (B) of the Public Resources Code requires the Division to prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) in order to provide the public with detailed information regarding any potential environmental and public health impacts associated with well stimulation treatments in California. Statute requires that the EIR be completed by July 1, 2015. SB 4 also amended the Public Resources Code to add Section 3160 (a), which requires the Secretary of the Natural Resources Agency to cause to be conducted and completed, an independent scientific study on well stimulation treatments, including, but not limited to, hydraulic fracturing and acid well stimulation treatments. The independent scientific study is to evaluate the hazards and risks and potential hazards and risks that well stimulation treatments pose to natural resources and public, occupational, and environmental health and safety. This study will be completed on or before July 1, 2015.
	<u>Radioactive Materials</u>
436	4109-1, 0085-9. 0103-10, 0123-6, 0123-7, 0123-14, 0013-1 The regulations do not addresses the special handling of radioactive waste fluid; the more troubling fact is that the 60-day reporting window falls seriously short of addressing the situation within hours after the situation occurs, after the incident occurs, when radioactive contamination can impact the health of workers, residents living in close proximity and adjacent land and water impacts. The regulations do not address naturally occurring radioactive materials, radioactive wastewater from subterranean shale brine, does not address the proper handling of radioactive shale waste material, and does not address the disposal of radioactive shale wastewater.
437	4066-1 There is a large quantity of fracking that done in the same geological depth where radioactive materials can be found. Injecting into the earth large quantities of water and toxins in that same area could easily open us for the possibility of radioactive things that we don't really want in the environment.

438	0043-05 Why are radioactive makers included in the regulations?
439	0123-3 Concerns regarding the need to test for deadly radon gas in common carrier natural gas pipelines carrying natural gas severed from the Division District 6.
440	0123-8, 0013-2 The only radioactive material mentioned as ever extruding from the shale well are the radioactive "tracers injected into the well as part of the well stimulation treatment." Injected tracers, however, are short-lived, mildly radioactive isotopes that are designed to test a well's initial oil productivity. In contrast, long-lived radioactive heavy metals, such as isotopes of radium, uranium and thorium, are found in shale brine-derived wastewater, being prime constituents of deep subterranean Naturally-Occurring Radioactive Materials or NORM. shale drilling wastewater has been found to contain radioactivity levels up to 3,600 times safe drinking water levels and 300 times allowable industrial effluent levels, according to the EPA. Of great health and safety concern, horizontal or directional high volume hydraulic fracturing and acidization techniques, aggressive by design, would tend to liberate shale NORM that is eluted at the well-head along with the crude oil that must be disposed of.
441	0123-10 Information/concerns regarding the amount of radioactive materials (specifically radium) found in long-term produced shale wastewater from hydraulically fractured horizontal wells. Also a discussion regarding the difference between flowback fluid and produced fluid.
442	0123-11 There is a resolution (approved on 11/13/2013) calling on the Division to mandate the standardized monitoring of NORM radiation derived from shale drilling. The resolution also calls for the Division to require disposal of sufficiently radioactive shale-derived wastewater in a regulated low-level radioactive waste disposal facility. State-level regulation based on this Party resolution would cover shale-drilling wastewater that is outside the scope of SB4, specifically wastewater that is not the "recovered well stimulation fluids" referred to in SB4.
443	0123-12 There is a 1996 study during the Administration of Governor Pete Wilson, which states: "NORM is not a serious problem in California oil- and gas-producing operations -- confirming findings in the 1987 study" and that the Divisions designation of shale oil drilling radioactivity as officially insignificant being based on that study. This study should be considered obsolete because the study was derived using data from vertical-only wells drilled into pooled petroleum resources typically much more shallow than deeper, dense shale rock strata.
444	0123-14, 0123-13 As opposed to mitigating shale contamination, if the wastewater is recycled to save water and to remove solids, the filters, and the pipes and tank scale would, correspondingly, accumulate significant radioactivity and then these solid waste items would need to be disposed of properly and safely.
445	0123-15 SB4's oversight specifically pertains to the detection, handling, treatment, storage, transport and disposal of shale drilling wastewater and solid waste with high concentrations of NORM.
446	0123-17 Radioactivity levels in shale well produced wastewater be assessed at the well-head and correlated with gamma ray spectroscopy from the original well logs made while drilling.

447	0123-18 Oil and gas drilling waste having significantly elevated levels of radioactivity above accepted levels of concern, be disposed of and transported in the appropriate manner, if measured above levels deemed safe during the Wilson Era study, while both consistent with and not exempt from general industrial radioactive levels set by California and Federal guidelines.
448	0123-19 Significantly radioactive drilling-process wastewater be deemed unfit for Class 2 injection wells traditionally used for wastewater with insignificant radiation levels and that the most appropriate and robust storage or injection well must be required for its safe long-term disposal.
449	0123-20 Significantly radioactive solid oil and gas drilling waste also be disposed of in special radioactivity-capable facilities.
450	0013-3 For the record, SB 4 entirely neglects to mention either the terms “NORM” or “shale”, in regard to the Required Public Disclosures section and it only refers to “recovered well stimulation fluids.” Section 1788 of SB 4 mentions tracers used in well stimulation fluids, stating that “within 60 days after the cessation of a well stimulation treatment, the operator shall publicly disclose all of the following information [about]”: “Any radiological components or tracers injected into the well as part of the well stimulation treatment, a description of the recovery method, if any, for those components or tracers, the recovery rate, and specific disposal information for recovered components or tracers; The radioactivity of the recovered well stimulation fluids;”
451	0013-6 The EPA allows a maximum radioactivity of 5 picocuries of radium per liter of drinking water. Produced water has been found to contain radium levels as high as 9,000 picocuries per liter, with pipe and tank scale sometimes over 100,000 picocuries per liter, according to the EPA.
452	0013-7 These concerns have received an ear within the California Democratic Party, who recently approved a resolution calling on the Division to mandate the standardized monitoring of NORM radiation derived from shale drilling. The resolution also calls for the Division to require disposal of sufficiently radioactive shale-derived wastewater in a regulated low-level radioactive waste disposal facility. State-level regulation based on this Party resolution (approved on 11/13/2013) would cover shale-drilling wastewater that is outside the scope of SB4, specifically wastewater that is *no*t the “recovered well stimulation fluids” referred to in SB4.
453	0013-8 The Division’s designation of shale oil drilling radioactivity as officially insignificant is based upon a 1996 study during the Administration of Governor Pete Wilson, which states: “NORM is not a serious problem in California oil- and gas-producing operations -- confirming findings in the 1987 study.” Considering that directional or horizontal *shale* oil and gas drilling only began in earnest in the United States by 2007 - in North Dakota’s Bakken and Pennsylvania’s Marcellus shales respectively - it is a potential catastrophic risk that the radioactivity levels of California shale drilling wastewater are still officially deemed insignificant. This obsolete Wilson era study was, notably, derived using data from vertical-only wells drilled into pooled petroleum resources typically much more shallow than deeper, dense shale rock strata. Based on this outdated study, the Division, however, deemed essentially *all* sources of oil drilling wastes to be, a priori, not a

	potential radioactive hazard, both in current practice and forever.
454	0013-9 Elevated levels of NORM in shale is not an unknown entity for oil prospectors, as modern petroleum drilling methods employ drill-head gamma ray spectrometers to monitor the different radiation levels using the "measurement-while-drilling" (MWD) technique for assessing radioactive Potassium, Uranium and Thorium. Isotopes of these elements are naturally elevated in shale, the source rock for petroleum. MWD is especially designed in order to help distinguish petroleum-bearing *marine black shale*, containing NORM, from non-oil-bearing sandstone/carbonate rock layers.
455	0013-10 Reinforcing radioactivity concerns in shale oil drilling, California's Miocene-era Monterey Shale was determined by the U.S. Geological Survey, during the Cold War, to have amongst the highest concentrations of uranium compared to other Western U.S. shale formations. Moreover, some locations in counties overlying the Monterey Formation have recorded elevated levels of radon, a radioactive gas found in shale formed from the decay of Uranium and Thorium.
456	0013-11 Once tightly-held shale NORM is concentrated or exposed by human activities, such as contemporary oil or gas drilling methods using slick fracking fluids, plus HCl and HF acidization, high-pressure steam and wastewater recycling, it then becomes classified as Technologically-Enhanced NORM or TENORM. The State of Ohio currently disposes of approximately 10 *billion* gallons of shale gas wastewater per year, so the suddenly increasing amounts of material being handled are huge and are entirely being disposed of as if it were non-hazardous material for a mere $1.50 to $3,00 per barrel, on site. EPA and peer-reviewed university research, EPA internal memos, academic scientists and increasing numbers of news reports from Pennsylvania, Ohio and North Dakota indicate that the casual, profoundly under-regulated disposal of shale drilling waste is a highly imprudent public policy.
457	0013-12 it is a serious oversight, with potentially catastrophic environmental consequences, the failure of SB4 to mention appropriate shale drilling wastewater disposal, that contain concentrations of NORM measuring above the lower limit of the levels of significant concern. SB4's oversight specifically pertains to the: 1) detection, 2) handling, 3) treatment, 4) storage, 5) transport and 6) disposal of shale drilling wastewater and solid waste with high concentrations of NORM.
458	0013-13 One important state-level goal should be to immediately make obsolete the Wilson Administration era oil drilling wastewater study and undertake a new study to investigate current levels of wastewater radioactivity from horizontal or directional shale wells. The overarching set of goals set out in this critique, short of an absolute moratorium on all shale oil and gas drilling, would be to cure and correct the six interrelated oversights of SB4 that are listed above.
459	0013-14 Oil and gas drilling waste having significantly elevated levels of radioactivity above accepted levels of concern, be disposed of and transported in the appropriate manner, if measured above levels deemed safe during the Wilson Era study, while both consistent with and not exempt from general industrial radioactive levels set by California and Federal guidelines.
460	0013-15 Significantly radioactive drilling-process wastewater be deemed unfit for Class 2 injection wells traditionally used for wastewater with insignificant radiation levels and that the most appropriate and robust storage or injection well must be required for its safe long-term disposal; That

	significantly radioactive solid oil and gas drilling waste also be disposed of in special radioactivity-capable facilities;
461	0013-17 Prospectors who are drilling horizontally into deep layers of black shale rock searching for tightly embedded oil or gas use drill-head Geiger counters to measure radioactivity, that is naturally occurring and not insignificant, when drilling one, two or more miles below ground. Black shale radioactivity is due to the presence of uranium, radium, thorium and other heavy metals that are highly concentrated within the thicker, asphalt-like fraction of this petroleum-bearing rock.
462	0013-18 As a resultant example of this lack of oversight in shale drilling, a public sewage treatment plant in Pennsylvania directly upstream from drinking-water intake facilities accepted wastewater containing radioactivity levels exceeding 2,122 times the drinking water standard (and 175 times federal industrial discharge limits). In 2009, drilling company Ultra Resources sent more than 155,000 gallons of this wastewater to nine rural towns, for dust suppression. The water came from two gas wells in Tioga County Pennsylvania and contained radium at almost 700 times the levels allowed in drinking water.
463	4066-3 Some fracking is done at the same depth that RADIOACTIVE MATERIALS are found. Sending a toxic combination of chemicals into these areas at high pressure could easily release these radioactive materials, which is a frightening.
464	4315-3 Radioactive rocks and other material normally far under the earth's surface are brought up as are other toxic though natural materials.
	Responses to Comments 436-464: Section 1786 of the proposed regulations requires an operator who generates a waste, as defined in Health and Safety Code section 25124 and California Code of Regulations, title 22, section 66261.2, in the course of conducting well stimulation activities, including but not limited to well stimulation treatment fluid, additives, produced water from a well, solids separated from well stimulation treatment fluid, remediation wastes, or any other wastes generated from the processing, treatment or management of these wastes, shall determine if the waste is a hazardous waste by sampling and testing the waste according to the methods set forth in California Code of Regulations, title 22, division 4.5, chapter 11, article 3 (section 66261.20 et seq.), or according to an equivalent method approved by the Department of Toxic Substances Control pursuant to California Code of Regulations, title 22, section 66260.21, except where the operator has determined that the waste is excluded from regulation under California Code of Regulations, title 22, section 66261.4 or Health and Safety Code section 25143.2. Notwithstanding any other section in this article, wastes that are determined by the operator to be hazardous wastes shall be managed in compliance with all hazardous waste management requirements of the Department of Toxic Substances Control.
	<u>Renewable Energy Sources</u>
465	4287-2, 001-41 Alternative energy, there is no such thing. Every source of alternative energy relies on fossil fuels to produce. Without fossil fuels, our health care industry would not have made the advances that we enjoy today. Without fossil fuels however, how do we produce the amount of food that we currently produce and how do we get it to the market. For those against well stimulation, as I like

	to call it, what are you for? What is your solution to our energy demand?
466	0010-42 There was a lot of statements today about renewables. As a -- someone who's in the natural gas business, we actually like renewables because the more renewables you put on the grid, the more natural gas power plants the state has to build to offset wind and solar when the wind doesn't blow and the sun doesn't shine. We actually end up selling more product, not less, and that's good for my members. We actually use wind -- we actually use solar, sorry, in our fields in Kern County, we have several projects to do that, and use it for enhancing steam generation to get the oil out of the ground.
467	4293-3 There is no such thing as renewable energy. We've heard this from both sides. You can't drive your car on windmills, you can't drive it on solar yet. Praise God one day we will be able to drive with solar energy. Solar -- they've got electric motorcycles and so on now that exists. Progress has gone a long way.
468	0161-4, 4116-2, 4283-4, 4288-6, 0213-1 We need solar and wind power, not fracking.
469	4185-3 Currently there is insufficient production capacity from renewable energy sources. If we want to continue out lifestyle and have energy then we need oil and gas.
470	4190-3 Electric vehicle batteries and nuclear power can have the potential to cause more environmental damage than fracking. Fracking in benign.
471	0045-21 California has been at the forefront of environmental protection in many areas, but on hydraulic fracturing the state is still behind. The combination of advanced drilling and well stimulation techniques has made it possible to produce oil and gas from unconventional formations that were previously inaccessible. Policies that open up California to expanded fossil fuel investments – in contrast to clean energy – take us in the wrong direction on climate change by locking us into decades of carbon-intensive resources.
472	4066-5 We should also use the natural gas & oil that will be discovered to TRANSITION to renewable energy sources. It is my understanding that there aren't incentives or commitments to move forward toward energy systems derived from renewable sources. I won't pretend to know whether solar, wind, geothermal, bio-diesel, ethanol or new &/or undiscovered resources are the best way to grow the American energy sector; however, the natural gas & petroleum in question ought not to be our final destination. It needs to be part of a more long-term and comprehensive solution.
473	4153-2, 4212-1, 4106-1, 4119-2, 4123-7, 0325-2 If we continue to drill all this oil, it will stand in the way of developing alternative energy.· And alternative energy is a source of more jobs than oil is; so let's not bring out all of this oil and stop the development of alternative energy and price it out of the market. We need to invest in other forms of energy.
474	4155-3, 4215-1, 4095-4, 4095-4, 4127-5 State officials need to look for better -- better clean, safe alternatives for economic growth without rubber stamping toxic experimental projects like fracking that only add to dirtier air and puts at risk our clean drinking water.

475	4119-3 If you look at the fact that the renewable energy industry is creating jobs like 20% faster than any other industry right now, let's talk about supporting our own local economies.
476	4313-8 We are entering a new era of energy and we need to think of seven generations in the future. Not the bottom line of the quarterly reports. Some things must be for the common good of all people. Clean alternative energy is one.
477	4339-2, 4496-3 Invest in sustainable, clean energy.
478	4352-2 California needs energy and industrial development. Lower energy costs are a prime mover for attracting manufacturing.
479	4436-5 We can create jobs with solar and wind energy and conservation strategies-not in an industry that poses danger and contamination to our environment.
480	4473-2 Focus efforts on climate change. We need to stop contributing to climate change. Surely the ongoing drought in California is proof that we need renewable not more oil and natural gas.
481	4545-4 Put the money and governmental support into researching alternatives to fossil fuels and mandating energy conservation.
482	4585-1 To keep the planet from heating up we need to use renewable and leave the fossil fuel in the ground if we are moral, thinking human beings.
483	4432-3 We have abundant untapped solar energy sources in our state. We need to explore renewable energy sources.
484	4433-2 In this day and age of safe, renewable and more reliable green energy sources, why sacrifice California's health and natural beauty for such short-sighted gains? We should be investing more time and tax dollars in the future of energy, not allowing its petroleum-based dirty past to linger on.
	Response to Comments 465-484: These proposed regulations in no manner directly impact the availability of alternative or renewable fuels.
	<u>SB 4 Requirements: EIR, Water Testing, etc</u>
485	0011-6 SB 4 calls for the State Water Board to develop groundwater monitoring model criteria and an independent scientific study on well stimulation treatments. That information is not yet available.

	Without having all information presented at one time affects our ability to understand the potential impacts and provide substantial comments.
486	4094-2 The platform provided by Senate Bill 4 provides a safe, legal and responsible development of petroleum resources, such as the Monterey Shale, that are accessible through hydraulic fracturing and other well stimulation treatments.
487	4193-1 SB4, while it may have been well-intentioned, is not pinnacle to which the Department's regulations should aspire, but rather represents a minimal first step that suggests reasonable directions that the Division should build upon as it strives to develop a responsible regulatory context for a dangerous set of procedures.
488	0003-9, 0025-11, 0050-8, 0050-19, 0002-5, 4066-4 SB 4 directs the Secretary of the Natural Resources Agency to conduct and complete, by January I, 2015, an independent scientific study on well stimulation treatments which is to consider impacts on the environment. This is the same date as the deadline for the Division's regulations to be in place. Consequently, if the study is not completed well in advance of the January I, 2015 deadline, it leaves the Division with inadequate time to review the study's findings and incorporate those into its regulations. Any regulations that are prematurely adopted would thus be arbitrary and capricious. The only appropriate action that the Division may take until the agency has a chance to review the results of the study is to adopt regulations that prohibit hydraulic fracturing and other forms of well stimulation.
489	0003-10, 0043-02, 0025-12, 0045-18, 0030-6, 4240-1, 4208-2, 0219-2, 0264-2 SB 4 requires the Division to certify an environmental impact report (EIR) pursuant to the California Environmental Quality Act (CEQA) by July I, 2015. CEQA mandates that, for activities likely to have a significant impact on the environment, an EIR must be completed *before* the activity is allowed to occur. Because the Division may have to adopt regulations before the CEQA-mandated EIR is complete, the Division must adopt a prohibition at least until the EIR is complete and after the Division and the public have had a full opportunity to review the results of the EIR. Allowing hydraulic fracturing and other well stimulation to occur prior to adoption of a complete and adequate EIR would be arbitrary and capricious and counter to CEQA's basic protections.
490	0219-4, 0264-4 EIR must address GHG emissions from fracking, including methane leaks, and a justification by industry regarding Industry low estimate of methane emissions; the carbon foot print of natural gas must also include the tremendous quantities of fossil fuels used to extract it; and how drinking water will be protected.
491	0004-8 Given there are many criteria and requirements stipulated in SB 4, including the EIR, Groundwater Testing and Monitoring criteria and protocol s, consultations and coordination with applicable agencies; Chevron urges the Department to provide a schedule of all of these Well Stimulation required activities; including a schedule for the public comment process.
492	0012-2 The County understands that these draft regulations are the subject of a concurrent EIR under preparation by the Division which will fully evaluate the potential impacts of implementing the proposed regulations, will identify alternatives, and will identify mitigation measures to reduce impacts to the extent feasible.

493	0012-3 As the County stated in our comment letter the Division in response to the EIR Notice of Preparation, a stable project description is necessary to adequately evaluate the potential impacts of the proposed regulations, identify appropriate mitigation measures, and possible alternatives. As such, a stable version of the proposed regulations should be included in the EIR.
494	0022-2 WSPA sent a woman to present their suggestions for the EIR's scope. WSPA's view is that existing wells should not be considered by the EIR because, she said, it would make it difficult to complete the review by the June, 2015 deadline. A suspicious person might take that as a thinly veiled threat that WSPA members might not cooperate with the EIR study.
495	0022-3 SB4 provides a thin veneer of regulation to an industrial practice with the demonstrated potential to threaten the water supply in a state with already overstretched and declining water resources. SB4 will *only* be meaningful if it results in strong regulation and DOGGR is prepared to enforce the rules!
496	0123-16 One important state-level goal should be to immediately make obsolete the Wilson Administration era oil drilling wastewater study and undertake a new study to investigate current levels of wastewater radioactivity from horizontal or directional shale wells.
497	0133-4 The independent study must have full transparency including choices of contractors and all their affiliations with energy companies or research groups. Full transparency on possible conflicts of interest must be published for public review.
498	0133-5 The SB 4 EIR should follow CEQA and NEPA guidelines including public comment periods.
499	0041-13 The EIR required by SB 4 will reveal many such concerns. Legislators, regulators and the public cannot make fully informed decisions about fracking without full disclosure on the part of the oil and gas industry and its regulators.
500	0053-3 The Department should immediately implement and complete of an independent scientific review with a focus on high-risk areas and fields.
501	0045-23 The statewide EIR required by SB 4 is an opportunity to consider cumulative impacts of increased hydraulic fracturing, acidizing, and well stimulation in California; viable statewide alternatives; and shared possible mitigation measures. The statewide EIR, however, cannot serve as complete and final environmental review under CEQA for all well stimulation projects going forward in California. As the state conducts its EIR, the geographic scope of its environmental review must be statewide: it must not exclude analysis of Kern County.
502	0047-2 The Nature Conservancy strongly recommend that development of California's unconventional oil resources should be preceded by a full environmental analysis under the CEQA on the effects of expanding crude oil production using well stimulation methods addressed by the Division's proposed regulations.

503	0047-7, 0219-2, 0264-2 The Division has not explained how the regulations proposed at this time will be informed and or amended by the results of the EIR and scientific study that are called for in SB 4, which will not be available prior to the completion of this rulemaking.
504	0047-8 Almost inevitably, the EIR and Scientific Study will reveal the need to amend, potentially substantially, the Division's well stimulation regulations. The method and timing by the Division to integrate those changes into the well stimulation rules currently under development should be clearly explained and be included in these proposed regulations. We recommend the Division expressly define and commit to how it intends to ensure this integration in a timely manner; whether, for example, the agency intends to stay final well stimulation rules pending completion of the EIR and scientific study, or to adopt amendments to these proposed regulations at a later date that incorporate the findings of the EIR and study.
505	0047-14 The Nature Conservancy recommends that the Division, at a minimum, complete the environmental review of the effects of unconventional oil development under CEQA required by SB 4 and integrate its findings into the Division's unconventional oil development regulations.
506	0187-2 Prior to approval on a well stimulation permit, the operator of any oil or gas well receiving a permit must sample and provide chemical analysis of aquifer, underground water, springs, creeks, rivers, and standing bodies of water in the area within one half mile of the proposed well head site. The results of chemical analysis must be provided to surface property owners and tenants of legally recognized parcels on land within the one half-mile radius, prior to commencement of operations.
507	4165-2, 0290-5, 0283-5 SB-4 requires that an EIR addressing these issues -- these environmental issues be done. ·I find no reference in this EIR and the proposed regulations – no reference to enforcing mitigation measures that may be conditions of approval in this future EIR. Impacts need to be monitored for mitigation, including air quality fees, oil and gas field cleanup fees, monitoring fees; "a remove and restore" requirement for roads, pads, flaring facilities, hazardous materials used/ stored/transported, etc.
508	4145-1 People are asking for a moratorium on hydraulic fracturing while the regulations and EIR are being prepared and implemented A moratorium would shut the industry down; the entire industry down in California. I hope that that is not really something that will come out of this process.
509	4147-4 In addition to the potential hazards that could be identified in the EIR the document should identify potential benefits of well stimulation.
510	4242-2 With the completion of the EIR on January 1, 2015, the Division will have a comprehensive framework for ensuring public safety with regards to well stimulation procedures.· While focusing on the environmental issue is a good start but by itself, it is not enough.
511	4317-5 The notification requirements are inadequate. For purposes of public notices, the definition of "tenants" as limited to residents with a written lease is far too limited and would exclude a number of lawful tenants who should receive the notice and information on water testing.

512	4344-1 I support strengthening rules about notification of adjoining property owners and tenants- 1500 feet is inadequate should be all contiguous owners and tenants.
513	4356-2, 4585-2, Before you allow any more fracking an environmental impact report should be conducted, and determined to comply with California's health, water, air and climate statutes and regulations with no exemptions.
514	4504-2 Industry has received a pass on the environmental impact reports required of others.
	Response to Comments 485-514: Senate Bill 4 and subsequent related legislation set specific deadlines for each major deliverable the bills require. It is the Division's, the Natural Resources Agency's and other state and local agencies intent to meet those deadlines. Permanent regulations are to be finalized by January 1, 2015. They will not be in effect until July 1, 2015. Informal agreements between the Division and other state and local agencies describing delineation of authority with respect to well stimulation activities, consultation, information sharing, and coordinated enforcement, among other issues, must be finalized by January 1, 2015. Section 3161 (b)(4)(A) and (B) of the Public Resources Code requires the Division to prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) in order to provide the public with detailed information regarding any potential environmental and public health impacts associated with well stimulation treatments in California. Statute requires that the EIR be completed by July 1, 2015. Section 3160 (a) of the Public Resources Code requires the Secretary of the Natural Resources Agency to cause to be conducted and completed, an independent scientific study on well stimulation treatments, including, but not limited to, hydraulic fracturing and acid well stimulation treatments. The independent scientific study is to evaluate the hazards and risks and potential hazards and risks that well stimulation treatments pose to natural resources and public, occupational, and environmental health and safety. The first volume of the study will be completed by January 1, 2015. Subsequent volumes will be completed on or before July 1, 2015. The fact that the deadlines for completion for the EIR and scientific study are after the finalization of the permanent regulations may require the regulations be revisited for amending in the near future.
	<u>Seismicity</u>
515	0018-11 Concerns have been expressed with regard to the possible migration of fracture fluids along existing fault lines or fracture planes, with consequent impacts on interconnected drinking water aquifers. Evaluation of existing faults is a standard component of the well drilling and development program. However, from a practical standpoint, it should be recognized that shale gas plays contain gas because geologic conditions have served to effectively contain that gas within the shale deposit.

516	4286-4 Columbia University, the University of Oklahoma, and the U.S. Geological Survey published in the Journal of Geology that this earthquake was definitely caused by oil, gas drilling, or fracking, and reinjection processes. They published that this was directly from fracking. They also published that for three decades until 2000, until the year 2000, seismic events in the midsection of the nation averaged about 21 earthquakes per year. It jumped to 50, okay, in 2009. It jumped to 87 in 2010. It jumped to 134 in 2011. And they said this is almost certainly caused by wastewater disposal due to fracking. Now, California has over a hundred major faults that are known, and we get over a thousand earthquakes, most of them so small we can't feel them, but this is an exponential increase, an exponential increase in the amount of earthquakes per year. We could bring a catastrophic, cataclysmic event upon ourselves, and we cannot recover from something like that. Not only was it increase, but it was also magnitude higher, and this is something we really seriously need to take into consideration.
517	0085-5 Studies need to be completed that show nuclear power plants are protected in the event of an earthquake cause by manmade earthquakes and tremors.
518	4109-2, 4278-1 Studies show that many earthquakes are occurring in areas where fracking is occurring. The Texas Railroad Commission is hiring experts to study the seismic activity that's been happening after fracking that's occurred. I'm from Texas, and I know that's not common to Texas. Section 1789 of the Division's regulations is merely after the fact, 60-day window for reporting 2.0 earthquake; that that's not sufficient.
519	4263-1 Regulations must include a requirement that any well stimulation technique not take place until there's been a determination of what earthquake faults are in the vicinity as further studies make even clearer there is now the seismicity caused by injection drilling and re-injecting of the fluids then there needs to be guidelines as to exactly where wells can be drilled if it's going to set off an earthquake fault that has the potential of 7.3 Richter scale quake.
520	0287-3 Applications for Stimulation Treatment must provide evidence that there is no active geologic fault within 10 miles of the proposed treatment zone. State geologists must verify due diligence in preparation and presentation of evidence. Applications for Stimulation Treatment must provide evidence that there is no municipal water supply within 10 miles of the proposed treatment zone.
521	4175-6, 4139-1, 0045-7, 4205-2, 4208-5, 4096-2, 4243-2 The earthquake problem. ·Great Britain has banned fracking because it caused earthquakes where they had never in history had ·earthquakes. · The same thing has happened in Texas. ·We have the most faults in the United States. Why make the problem worse when we know that California is due for a large earthquake? It is irresponsible to the point of being suicidal to allow a widespread industrial practice that has a substantial risk of increasing earthquakes and natural disasters in California.
522	4155-4 Concern that there is a fracked well near Shafter High School that may lead to earthquake near school and or the ground sinking.
523	0087-10, 0043-11, 0046-10, 0056-21, 0056-24, 0013-16, 0135-4, 0310-10, 0255-9, 0030-19, 4113-1 The regulations do not address potential dangers from seismic activity induced by fracking

	operations. Regulations should require an assessment of the risk of induced seismic activity from fracking activity including well stimulation as part of the permitting process.
524	0003-6, 0025-7, 0195-2 Wastewater from hydraulic fracturing has been linked to increased seismic activity after being injected into underground disposal wells. In California, where existing fault lines threaten to trigger major seismic events even without hydraulic fracturing waste fluid, we cannot afford the risk of inducing potentially devastating earthquakes.
525	0056-26 The evaluation should be conducted by an independent geologist qualified in the field. The operator should be required to provide the geologist with all relevant information available to it including all data collected during any seismic survey, testing or analysis of the oil field regardless of any claim of trade secret.
526	0056-27,050-12, 0123-21 Although the proposed regulations do not cover "underground injection projects" or "subsurface injection or disposal projects," it is extremely important and relevant to also evaluate and regulate the seismic impacts of such operations.
527	4066-2, 4225-3 California's portion of the Monterey Shale Formation encompasses several highly active faults, which would be apt to cause more earthquake-related damage than in other areas. The aforementioned is troubling.
528	0002-14 0030-10, 4067-5 The injection of fluid in rocks causes an increase of the pore pressure and modifies the state of the stress. ASCE recommends that DOC require micro-seismic monitoring at injection sites. The Regulations should require micro seismic monitoring to establish baseline ground movement, as well as monitoring before, during, and after well stimulation. This will help ensure a better understanding of induced earthquake activity, and develop better ways to protect California's people and infrastructure.
529	0251-13 If an earthquake occurs near drilling operations than drilling and injections of all kinds in the area should be suspended immediately.
530	0209-2 What is the added risk of earthquakes caused by fracking?
531	4313-5, 4391-3, The possibility of earthquake making fracking in earthquake country is not good for the community of the Valley.
532	4315-4, 4436-6, 4585-4 There is evidence that well stimulation can cause or increase earthquakes and tremors.
533	4336-4, 4342-3 We do not need earthquakes or the devastation potential.
534	4269-2 Fracking in an earthquake zone downwind from Diablo Canyon is unconscionable.
535	4432-2, 4440-2 The land in California is already unstable with multiple earthquake faults and the practice of

	fracking presents unnecessary risk to our citizens. The safety of this practice has not been adequately established.
	Response to comments 515-535: Thank you for your comments. These regulations include Section 1785.1, which requires monitoring of the California Integrated Seismic Network during and after hydraulic fracturing. If an earthquake of magnitude 2.7 or greater occurs within a specified area around the well, then further hydraulic fracturing in the area is suspended until the Division, in consultation with the California Geological Survey, determines that there is no indication of a heightened risk of seismic activity from hydraulic fracturing.
	<u>Water Contamination</u>
536	4282-1 We do not know where our rivers are going. We do not have knowledge of where they have been. And so contaminated water spreading into our aquifers will be a great detriment not just to California's agricultural business, but to all the people in the United States because we do send our fruits and vegetables around.
537	0047-39 To be more protective of surface water sources, we recommend that the Division require setbacks from occupied structures and from any wetland or water body, with larger setbacks required from surface sources that provide drinking and/or irrigation water.
538	0281-1 Fracking is a violation of the Porter-Cologne Water Quality Control Act because fracking fluids meet the definition of "waste" in Cal. Water Code Section 13050(d). Typical fracking operations affect connate waters--waters trapped in layers of sedimentary rocks. Discharge of waste to waters is prohibited without a permit under Cal. Water Code Section 13260. While injection wells may be permitted the current regulatory scheme proposed in the regulations does not adequately address contamination of connate waters or their potential connectivity to other ground and surface waters. For these reasons these regulations violate the public trust doctrine because water allocated for fracking benefits a small minority and potentially harms subsurface waters and hydrologically connected groundwater basins and surface waters. Courts have held that resources should be allocated to benefit the public trust (Illinois Central R.R. v. Illinois, 146 U.S. 387,454 [1892]). While the public trust has been typically held to protect uses such as navigation, fishing, and recreation these uses are dependent upon adequate water quality to protect relevant ecosystem functions and values and thus by implication the public trust embraces protection of ecosystem values necessary to uphold the public trust interests. The regulations, as proposed, fail to adequately address potential contamination of subsurface and connected surface waters in a manner that would harm ecosystem functions and thus and thus harm to the public trust interests.
539	0281-2 California law is replete with reinforces and reiterates the hierarchy of beneficial uses for water. An exhaustive summary is not possible but Cal. Water Code Section 1254 specifically states that domestic use is the highest use (most protected). The potential contamination of water for domestic users associated with fracking allowed under these regulations is thus contrary to existing policy and privileges uses that are lower in hierarchy than domestic use.
540	4278-2 The University of Missouri released a study last year on endocrine disruption in areas near

	fracking, and they're advising that pregnant women, children and vulnerable population not be near this. What they're showing is things are entering -- some of these chemicals are entering the groundwater and the surface water.
541	4141-1 I'm very concerned about the process of fracking and how it may also spread, and I don't think people know enough about the process to be able to clearly define what would happen in the area of the groundwater.
542	4182-1 As far as groundwater pollution is concerned, the Monterey shale averages 1900 feet thick and 11,200 feet deep. Groundwater in the Kern-Tulare formation is confined in Corcoran clay depths of 300 to 600 feet· That puts nearly 11,000 feet, or roughly two miles for the groundwater and the formations we are proposing to stimulate.
543	4182-3, 4179-2 Over 1.2 million wells have been fractured. The former EPA chief administrator, Lisa Jackson, admitted herself at a house committee hearing that she did not know of a single case that the fracking process itself has affected water.
544	0003-4 In addition to the harmful well stimulation fluids themselves, these processes can also bring harmful substances from underground to the surface. This "flowback fluid" may contain heavy metals such as lead, mercury, or arsenic, or even naturally occurring radioactive material (NORMs) like radium isotopes. These chemicals can harm public health and safety and the environment by contaminating groundwater, surface water, air, and soil. There have been several studies which tie hydraulic fracturing to nearby water and air contamination and increased rates of illness.
545	0043-7 The regulations are silent on contamination of water that results from migration of fluids, gases or substances due to the use of a well stimulation technique, not due to well failure.
546	0045-3, 4096-3 Fracking involves injecting underground a cocktail of chemicals that can include toxics like hydrofluoric acid, formaldehyde and benzene, often through or adjacent to groundwater used for drinking and irrigation.
547	0045-6, 4208-3 These processes produce large quantities of toxic wastewater that requires management and disposal.
548	0018-9 The effects of well integrity issues by either shale gas or conventional wells are local, not regional in nature, typically affecting only nearby water wells. In most aquifers, these groundwater effects dissipate relatively quickly upon correction of the well seal problem.
549	0015-1 The potential for degradation of water quality, and material reduction in actual volume of available water through the increased oil and natural gas development in California is an issue that must fully be addressed through DOGGR's regulatory package.
550	4067-4 The DOC proposal does not appear to contain adequate standards to control storm water runoff from well sites. Although oil and gas exploration and production wells are governed by Clean Water Act requirements for a pollutant discharge permit when disposing of flowback water to a publicly owned treatment works (POTW), the proposed DOC rules do not identify specific control

	standards for storm water runoff from hydraulic fracturing wells. The DOC rule should identify best-management practices for the control of storm water runoff. This could include the use of infiltration ponds, which are often suitable for use in arid or semiarid climates.
551	4286-2 In drought years like this one we rely more on groundwater, like 60 percent. This is problematic as some of the aquifers are already contaminated due to poor land practices. Now, if we already have some aquifers contaminated and we're talking about maybe threatening or contaminating more aquifers, we're running into serious water problems.
552	0146-1, 0292-8 There must be appropriate protections of ground water and the environment.
553	4131-1, 0265-1 If you turn on the spigot to poison California, where the hell are you going to run to? Where will we get our water?
554	4127-3 Half if not two-thirds of gas is left in the earth. If there's an escape into our underground reservoirs which tend to be proximate to some of these shale formations in some cases, well, then, the entire fresh water resource is depleted.
555	0010-38 Over 90 percent of hydraulic fracturing that happens in California, happens in Kern County, most of that happening on the west side where there is no groundwater.• No inhabitants in no real economic activity other than the well fields.• So there are -- don't create a problem for anybody.
556	4238-2 In Rialto, there used to be a rocket testing facility where they tested different fuels. •And as a result of that, from the '40s and '50s, we have a perchloric problem that's seeped into the groundwater and now it's polluting wells one at a time and causing the well water not to be useful.• More and more it's become an issue of where are we going to get clean water in California?
557	0022-1 At the scoping hearing in Ventura last week the DOGGR geologist might have meant to put our minds at ease when he described the fluids, injected under high pressure when a well is fracked, as “99% water”. It would be silly to point out that no more than 1% of a glass of water could be formaldehyde or diesel or any of the hundreds of chemicals that the oil and gas industry is fighting tooth and nail to keep as trade secrets; nobody is going to serve you a glass of fracking fluid. By the time it gets to your tap, via failed cement jobs in new or ancient oil wells, contaminated groundwater or surface spills, it will be so diluted that - what? How much carcinogen should you accept in your water? Anybody who says that dilution is a solution is not qualified to inform policies that affect public health.
558	4327-1 Fracking terminally contaminates water. Water contamination?
559	4336-2 We do not want our water poisoned.
560	4133-3 The oil industry does not have the technology to prevent contamination of the water for future generations after the profits from fracking are long gone.

561	4340-1 It is not acceptable to poison anyone's water for the purpose of industry. It simply isn't worth it. New jobs can be created. New water cannot.
562	4436-3, 4428-3, 4480-2, 4504-1, 4496-2 Injecting huge amounts of water, sand and unknown chemicals into the ground poses a very real danger of contaminating the groundwater, especially given the multiple fault lines we have in California. Contaminating a part of one aquifer eventually poisons the rest of the aquifer. I have not heard of any method in place to clean up contaminated water. Once the groundwater is contaminated, our health and that of future generations are compromised.
563	4585-3 Fracking turns millions of gallons of water into hazardous waste. Where will that water go? Meanwhile we are suffering record levels of drought. It is not in the interest of our economic vitality if we contaminate our aquifers with chemicals injected deep underground.
564	4562-2 We need to be careful as to how we spend our water. The chemicals that are leached out of the system such as methane gas and toxic chemicals contaminate nearby groundwater also contributing to our abuse of the water that we need so dearly.
	Response to comments 536-564: Consistent with the mandate of Public Resources Code section 3160, subdivision (b), the purpose of these regulations is to ensure well integrity and geologic and hydrologic isolation of the hydrocarbon zone during and after well stimulation treatment. These regulations also include requirements for storage and handling of fluids associated with well stimulation treatment at the surface. In addition, all wells that have well stimulation treatment performed on them are subject to groundwater monitoring requirements under Water Code section 10783. Wells that have well stimulation treatment performed on them must be covered by a regional, area-specific, or well-specific groundwater monitoring plan and the State Water Resources Control Board is currently developing the model groundwater monitoring criteria required under Water Code section 10783. Section 1785 requires the operator to monitor the surface injection pressure, the slurry rate, the proppant concentration, the fluid rate, and the pressure of each annuli of the well. Section 1785(b) specifies two thresholds at which the operator must terminate the well stimulation treatment, report the incident to the Division, and conduct diagnostics. Regardless of whether one of the specified monitoring thresholds is surpassed, if the operator has any indication of well breach or a breach of geologic and hydrologic isolation, then the operator must terminate the well stimulation treatment, report the incident to the Division, and conduct diagnostics. In the event of a well breach, Section 1785(d) requires the operator to cease operations and notify the Regional Water Quality Control Board. The Regional Water Quality Control Board would take the lead in the groundwater investigation and would specify what water quality testing is necessary. Likewise, if an incident occurs at the surface that has the potential to contaminate surface or groundwater, then the Regional Water Quality Control Board would take the lead in ensuring that appropriate investigation, monitoring, and, if necessary, remediation occurs.
	<u>Water Usage and Drought</u>
565	0003-5, 0025-6, 0045-5, 0050-6, 0050-13, 0135-5, 0037-2, 0075-5, 4177-7, 4236-1, 4243-1, 4247-1, 4255-2, 4194-2, 4205-3, 4208-4, 0075-12, 4225-1, 4231-2, 4092-4, 4095-2, 0161-2, 4128-4, 4143-2, 0313-3, 4288-1, 0085-4, 0085-12, 0125-4, 0090-3, 4279-2, 4192-5, 0085-4 Hydraulic fracturing also uses a tremendous volume of water, sometimes millions of gallons per

	well. In a state facing water scarcity and projected water shortages in the future, the use of large quantities of water jeopardizes the freshwater supply for agriculture, tourism, and wildlife that depend on having clean and ample water.
566	4283-1 There's a lot of water out there that does not meet drinking quality that could potentially be used as an alternative for fracking.
567	0209-1 Where is the water coming from which the oil companies plan to use for fracking? Where are the oil companies planning to acquire the water they need for fracking? Are they planning to import this needed water? Are the oil companies going to remove all the toxic waste water before it contaminates our ground water and aquifers? Where do the oil companies plan to dispose of this toxic waste water?
568	4124-1, 41261, 0125-5 There's different kinds of water use. There's water that you take and then there's water that you take and don't give back. So a golf course, it evaporates, runs off to a stream, but at least that water is given back.· The wells that we were looking at back in West Virginia and Pennsylvania that was being injected down below, that water is permanently removed.
569	4124-3 I think you guys can do, very easily, a rework of some of the language in here and get better data on it so that we can monitor it and actually get companies to put it out in public, and then they have a little incentive to perform better, because ultimately if there is going to be some fracking, it's going to have to be done with much less water, and the number that the Western State Petroleum Association, the guys here, I'd love to know the source they used, because their numbers are about ten times less than the Marcella Shale, and it makes sense to be different in different shale basins, but repeated requests to get their actual raw data for that number that they provide and has actually been reported by the head of your department in many public venues, it's not transparent, so it would be great to have that.
570	4124-2 I keep hearing this is the strictest fracking regulation in the country. You guys aren't asking for nearly as much data as West Virginia and Pennsylvania asked for when they take water.· No water type, is it a lake, a stream; and then the time of extraction, did it take place during drought?· You look at that and talk about when the water comes and goes.
571	4114-1 And right now I want to ask what the authority is that you are talking about giving away the public's assets, because any trustee that knowingly allows for the risk or -- well, basically it's the state's responsibility to ensure that the trust assets that they administer are in suitable condition for public use, and water that has a whole lot of chemicals in it is not suitable for drinking or fishing or any of these historic trust uses.
572	4112-3 Back east hydraulic fracturing uses millions of gallons of water per frack job. Here in California the average is 115,000 gallons per frack job for geological reasons and so on. Director of Conservation also agrees with that number.
573	4112-4 Just for perspective, about 500 or so fracking jobs in California in 2012, 116,000 per on average. The average golf course in California uses 320,000 gallons of water per day.

574	4109-1 I'm not concerned about the water and the drought, because I think that fracking technology has improved that area of concern.
575	4225-2 If the water is not hazardous chemicals, then it releases radioactivity in the ground that might get ·into our crops.
576	4273-5 We would love to see to a point where we can use substandard non-potable water and with treatment use that for hydraulic fracturing or technology will eventually allow us to get to the point where hydraulic fracturing is actually non-hydraulic based.
577	4273-6 We hope that we can have water treatment and flowback treatment that will clean up that water to an actual potable use, so taking non-potable water and making it potable.
578	4196-2 It's been suggested here that more potable water will come from this fracking process, and to those who believe that and for those who would applaud that, I would like to offer them a tall, flaming glass of fracking water so they can enjoy
579	4251-1 The regulation should specify that fracking will not be allowed to use any water during years of drought such as 2014.
580	4249-2 The Governor plans on spending 23 billion dollars to bring more water to the Central Valley. Will the water be used for agriculture or for fracking? Taxpayers are going to pay the 23 billion.
581	4247-2 There needs to be a study to determine if the State even has enough water for fracking; what with the drought and all.
582	4182-2 The battle cry of fracking opponents is the amount of water required to be between 3 to 5 million gallons per well. The average well of Monterey shale requires only 164,000 gallons of water to fracture.· By contrast, the average golf course uses roughly 286,000 gallons of water per day to irrigate.· I believe there are five golf courses in Kern County which use enough water per day or irrigation to frack ten wells. An Olympic-sized swimming pool contains 660,000 gallons of water, which is enough water to frack four wells.
583	4179-3 Agriculture needs energy as much as the rest of California. Fracking isn't the problem the problem is that the population has outgrown the state's ability to supply it with water.
584	4197-4 Lots of oil companies clean up their produced water and sell it for agricultural use. This practice should continue. Oil companies also build treatment plants in oilfields where the produced water is cleaned up enough to be discharged into rivers.
585	4177-2 In Kern County oil and agriculture have gotten along for about 100 years. But now we have a drought. Why are we going to waste water on dirty oil extraction when we need it for farming?

586	4177-8 It takes 200 truck trips to transport the water needed for fracking and the waste water afterwards. That's a lot of water to transport or the oil company could just dump the waste water in the next almond orchard and we can get cancer or have birth defects from eating the almonds.
587	0051-8 A person from the industry said, there is no documented case of groundwater being contaminated, you know, through fracking and so on through Kern County.· That is not technically true because they have pumped millions of gallons of our good groundwater and then contaminated it immediately by injecting it down these wells.
588	4169-3, 0085-4, 0085-13 Who is going to monitor the oil companies who are monitoring the water table? ·And who is going to monitor the monitors? I understand the oil companies have been delegated to hire their own experts to monitor the water. ·That is of concern to me.
589	0007-1 If the Monterey shale formation is produced, we believe greater than 150 billion barrels of water will be co-produced with hydrocarbons, which is nearly 7 trillion gallons of water. If state policy required the recovery of produced water, a large portion of this water could be economically converted for safe public use such as irrigation. Once liberated from sub-surface formations, this water would enter the normal meteorological water cycle.
590	0177-4, 0294-4 Quantities of ground water being used for fracking must be monitored in computer-analyzed conjunction with real-time measuring of agricultural and human consumption water needs - not only in close proximity to a project but in the wider geological surroundings where affected riverbeds and aquifers extend for many miles beyond the immediate environment.
591	0108-6 A maximum amount of water used by a well head in the well-stimulation process should be set, especially due to our drought conditions, or standards set that adjust according to level of snow pack or what is available for agricultural or residential use.
592	0050-14 The regulations should therefore include provisions that halt the use of water for well stimulation operations during times of drought or other water shortages. Water should be provided first for existing uses including drinking, environmental and wildlife protection, industry and agriculture.
593	0050-15 Water Code sections 10910 et seq. that addresses the availability of water should be required before any such well stimulation project is approved by DOGGR. Only if that assessment confirms that there is sufficient water available should this irreplaceable resource be considered for well stimulation, and then only if all potential environmental impacts are fully addressed.
594	0050-15 Water Code sections 10910 et seq. that addresses the availability of water should be required before any such well stimulation project is approved by the Division. Only if that assessment confirms that there is sufficient water available should this irreplaceable resource be considered for well stimulation, and then only if all potential environmental impacts are fully addressed.

595	0011-4 Our region has competing industries, all of which have economic importance to the County, and to protect the interests of all, we believe the application for well stimulation treatments should not only identify the source of water, but the aquifer source and water basin as well. Revised to state the aquifer source and sub basin as well. Review of the water source would reduce the risk of over drafting aquifers in the future, or at least inform the public of the risk.
596	0011-5 The regulations should include a process to deny a permit that identifies aquifers that are overdrawn or may become overdrawn as a result of well stimulation techniques. Using water from over drafted basins potentially impacts other property and business owners.
597	0051-2 It is very disturbing to see this excellent ground water being used for well stimulation activities. It is even more disturbing to see fresh snow melt water from the Sierras being used in this way. These practices must be banned totally in areas such as those surrounding Wasco and Shafter. We are in overdraft with our water.
598	4069-24 Disclosure is not prevention. Water scarcity is the greatest threat to California's economy, environment, and public health and safety. Once contamination of a water source has occurred, it is too late - you can't put the genie back in the bottle. With 2013 being the driest year on record, snowpack in the state at 10-20% of normal, and aquifers in overdraft, every watershed in California is under stress and expected to become increasingly so. Water is over allocated in the State as it is, and there is currently no adequate plan for providing future water necessary for California's agriculture and tourism industries to flourish.
599	4070-9 California is now experiencing extreme drought conditions. Well stimulation uses a great deal of water. This must be considered as a significant cost. The "free market" does not consider these long term costs, so the state must do so.
600	0180-1 All I have to say is, who in their right mind would waste our precious water on fracking when we are heading into our 3rd straight yr. of a drought?! Look at some towns in TX that have no water because they did exactly that. Why don't or can't we learn from other's mistakes? Fracking will destroy CA! Fracking is destroying this country. The people get nothing out of it except pollution and tainted water. PEOPLE BEFORE PROFITS!!
601	4145-2 Fracking does not pollute groundwater. Fracking had occurred since 1947. Every example of water pollution that has been thrown out there by the EPA or the naysayers has been proven to be wrong.
602	4146-4 Shale gas drilling also runs the risk of contaminating water tables, as you know.
603	4149-1 Thermal Energy thinks regulations involving the reuse and recycling of high percentage of these massive volumes of water should be part of the conversation. ·The water ratio formation runs under our central valley.
604	4149-2 The United States Energy Information Agency estimates there are 13.7 billion barrels of

	recoverable hydrocarbons in its formation. · At that same twelve to one water-to-oil ratio, this amounts to 164 billion barrels of water to be produced in the life of that field. · That is about 7 trillion gallons of water that can be used to irrigate crops in the central valley, reduce stress on the public drinking water supplies, and can be economically returned to the water supply. Last Friday the Wall Street Journal contained a substantive piece regarding the California drought. ·In the central valley, we have continued to produce. ·Water available is about three-quarters of a billion gallons per year. · That is roughly 32 billion gallons. ·At 60 percent recovery of distillate, this means approximately 20 billion gallons of water for potable use.
605	4150-1 We have heard, a lot of water is used. · And then what do we do with the wastewater and other chemicals used, as well as what do we do with them?
606	0090-7 I have a study here that was just recently published in Scientific Journal by Susan Nagel, Ph.D., and fracking chemicals disrupt hormone function. · This is December 16th, 2013. ·Okay. ·She looked at the water surrounding wells that have been fracked and found that ·there are deadly chemicals that contribute to endocrine.
607	4153-3, 4156-1, 4157-2, 4167-3, 4177-9 We are going to have a situation where we can't find new water that we need, and fracking uses a lot of water. Let's protect our water resources and use them for food, as they should be used.
608	4232-8 For the city of San Diego I know that the city moves all the subsurface water from Campo the way through including public and private lands, and I believe that, you know, fracking will hurt the water there that could possibly be -- that is being used in some places for drinking water like in Campo, and so we will -- since the city of San Diego owns the water rights, subsurface water rights, will they have to give approval to allow people to frack in their water? And so, you know, that's another issue that I have right there.
609	4301-4 In addition to environmental issues, we must be alarmed by the vast quantities of water required in the fracking process. With highly variable water supplies in Western States, it is irresponsible to waste this precious resource on fracking.
610	4326-3, 4327-2, 4329-1, 4476-2 We do not have enough water to waste it with poisonous compounds used in fracking.
611	4269-3 Compromising our water table is irresponsible.
612	4328-1 I am very concerned about the amount of water used in hydraulic fracturing. Is there any contingency for either recycling water or somehow replenishing it?
613	4330-3 We cannot drink money.
614	4332-1 I am terrified that we will not only contaminate our water supply with fracking waters but will use our precious and scarce water for an endeavor that has a short term benefit. The risk/benefit ratio is not at all good.

615	4333-1 Water is significantly limited in our area and California in general. Any process threatening water supply via contamination or massive exploitation poses too great a risk to this state.
616	4336-1 We need to save our water fracking is very wasteful of water. Better to conserve water for agriculture and homes.
617	4249-2 What is the relationship between Gov. Browns water tunnel to bring large amounts of water to the central valley. Is this a coincident that the large amounts of water needed for fracking will now be available and paid for with tax dollars, Browns estimate 23 billion others say closer to 57-61 billion corporate welfare comes to mind.
618	4342-2 We have a water deficit already and only a finite recyclable amount of potable water on the planet.
619	4351-1 Large quantities of water are needed to frack for oil and gas. There is not one drop to spare for fracking.
620	4391-2 California needs to protect its water resources due to our drought problems.
621	4595-6 It is not in the interest of our economic vitality in the long run if we continue to burn oil, heat up our planter, cause further drought and suffer the consequences of loss of snow pack and severe water shortages.
	Response to Comments 565-621: The imposition of restrictions on the source or volume of water used for well stimulation treatment is outside the scope of this rulemaking. However, SB 4 requires various public disclosures regarding the source, volume, and disposition of water used in well stimulation treatment and these regulations implement those public disclosure requirements. In Section 1783.1 of the proposed regulations, the application for a well stimulation permit shall include a water management plan that will provide an estimate of the amount of water to be used in the treatment, an estimate of water to be recycled following the well stimulation treatment, a description of how and where the water from the well stimulation treatment will be recycled, including a description of any treatment or reclamation activities to be conducted prior to recycling or reuse; and the anticipated source of water to be used in the treatment. The application will also include the anticipated disposal method that will be used for the recovered water in the flowback fluid from the treatment that is not produced water. And in Section 1788 of the proposed regulations, an operator will be required to disclose after a well stimulation treatment the source, volume, and specific composition and disposition of all water associated with the well stimulation treatment.
	<u>Wildlife Impacts</u>
622	000-16, 0030-11, 4192-4 Prohibit stimulation in, under, or around sensitive areas, including but not limited to, the Pacific Ocean (offshore oil platforms), coastal bays and estuaries, coastal zones draining to the ocean,

	bays, or estuaries, near residential areas, sensitive receptors (hospitals, schools, daycare facilities, elderly housing and convalescent facilities), sensitive ecosystems, wetlands, critical watersheds, groundwater recharge areas, national forest lands, national monuments, national wildlife refuges, state ecological reserves, areas classified as “environmentally sensitive” pursuant to 14 C.C.R. Section 1760, and known fault zones.
623	0003-7, 0025-8, 4270-2, 4146-2 Harm to wildlife is also well documented. Several species, including a number of endangered or threatened species, are harmed by added truck traffic, exposure to spills and leaks, habitat loss and modification, water scarcity, climate change, and exposure to methane.
624	0075-7 Reference to a Department of Fish and Wildlife document reconfirming the continuing biological collapse that is occurring in the Bay-Delta Estuary. The document mentions that fish populations have been dropping in the Delta since the State Water Project began exporting water from the Delta.
	Response to Comments 622-624: These regulations have been developed to supplement the Division’s existing oil and gas regulatory framework to meet the intent and requirements outlined in Senate Bill 4. These regulations also respond to the feedback the Division has received in ten public comments hearings held throughout the state, tens of thousands of public comments submitted in written format, and in scientific and policy papers, which are listed in the Final Statement of Reasons. These regulations include monitoring, evaluation, and testing requirements for before, during, and after well stimulation treatment to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. These regulations also implement the public disclosure, neighbor notification, water testing, and permitting requirements established by Senate Bill 4. The Division believes that these regulations provide an effective framework for a level regulatory scrutiny that is commensurate with the level of public concern with well stimulation treatment operations. The impacts of well stimulations treatment on wildlife will be considered the Environmental Impact report and independent scientific study required by SB 4. Section 3161 (b)(4)(A) and (B) of the Public Resources Code requires the Division to prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) in order to provide the public with detailed information regarding any potential environmental and public health impacts associated with well stimulation treatments in California. Statute requires that the EIR be completed by July 1, 2015. Section 3160 (a) of the Public Resources Code requires the Secretary of the Natural Resources Agency to cause to be conducted and completed, an independent scientific study on well stimulation treatments, including, but not limited to, hydraulic fracturing and acid well stimulation treatments. The independent scientific study is to evaluate the hazards and risks and potential hazards and risks that well stimulation treatments pose to natural resources and public, occupational, and environmental health and safety. The first volume of the study will be completed by January 1, 2015. Subsequent volumes will be completed on or before July 1, 2015.
	<u>Other States and Countries</u>

625	4286-6 Many European countries have banned fracking; France and Bulgaria have banned fracking. Germany is really close to banning fracking. It can be done.
626	4252-24248-1, 4251-4 In Dunkard Creek, Pennsylvania fracking fluids were illegally dumped in a nearby river or suspected of being dumped. · Scientists were monitoring the stream and community nearby, and they found after the spill about 37 miles of the river basically were dead. ·They recorded a loss of 280 species of fish. ·This is a really big concern.
627	4273-4 What happened in Dunkard Creek, Pennsylvania is criminal. When companies frack in California they put the fluid into tanks and treat or dispose of it at an authorized facility
628	4248-1 Steve Opal, University of Arkansas has been monitoring the impact of sedimentation from fracking. Grading of the well pad for a fracking operations creates a lot of dirt. Some of this has been dumped into streams. Steve Phillips measured the equivalent of 550 dump truck of sediments being dumped in streams. This is a real issue to fish, an issue for ecologists. So this is another impact from fracking.
629	4235-1, 4171-4 My family's land has been negatively impacted by Chesapeake Energy in West Virginia, fracking on land nearby. Other family members in Ohio where companies in Pennsylvania send their frack waste water for disposal and in the process pollute clean water. Kansas, Oklahoma, Texas and Pennsylvania are experiencing earthquakes that result from waste water injection wells. Now companies are set to frack the Monterey Shale which will threaten our food supply. Regulations do not work.
630	4247-3 I have family in Colorado where they have fracked hundreds of wells. Oil companies have tainted people's groundwater. The companies pay off people for contaminating their wells. The wells can never be used again.
631	0050-3 Recognizing the risks, more and more states have enacted new laws to govern fracking. California joined the ranks of states addressing fracking and other well stimulation treatments when it enacted SB 4.
632	0002-18, 0030-5, 4247-5, 0045-11 The Governor has stated that California will have the most stringent regulations in the U.S., so we include the following list of other states and local jurisdictions which have implemented specific policies that are more protective than the proposed regulations. New York and Maryland have implemented moratoria on hydraulic fracturing while risks to health and the environment are examined. Vermont has banned the practice outright. Pennsylvania assumes water contamination is the presumed fault of any stimulations unless an operator has conducted sampling and analysis. Wyoming regulations require ground and surface water monitoring within one-half mile of wells at various intervals before, during, and after spudding and casing, and monitoring for air pollutants near oil and gas production sites. Alaska regulations require water monitoring within one-half mile from the well head and the well path before and after treatments, shorter notice/reporting periods, cement-evaluation logging, envelope rather than radius models, and detailed characterization

	of each treatment stage along the well. Many state and local jurisdictions have implemented setbacks from sensitive receptors. In Dallas, for example, no drilling is allowed within 1,500 feet of homes, schools, churches, or other protected sites. The Division should look at other jurisdictions and states that have implemented more stringent rules and mitigation measures than the proposed Regulations.
633	0002-56, 0211-1 A New Mexico oil well recently experienced a blowout, resulting in a spill of more than 8,400 gallons of fracturing fluid, oil, and water. The blowout occurred when a nearby well was being hydraulically fractured and the fracturing fluids intersected this offset well. The incident led the New Mexico Oil Conservation Division to request information about other instances of communication between wells during drilling, completion, stimulation or production operations. Incidents of communication between wells during stimulation have been documented in British Columbia, Pennsylvania, Texas, and other states across the country. The oil and gas regulator in Alberta, Canada recognized that communication between wells during fracturing is a serious risk to well integrity and groundwater, and created requirements to reduce the likelihood of occurrence. Similarly, Enform, a Canadian oil and gas industry safety association, published recommended practices to manage the risk of communication. Fracking operations can cause irreparable harm; water is a finite resource without which we cannot live.
634	4169-1, 0307-1 Oil companies say there aren't any problems with fracking, but there are. Of the four states reviewed by the Associated Press -- Pennsylvania, Ohio, Texas, and West Virginia -- Pennsylvania confirmed cases of contamination of water with more than 100 instances certified in the past five years.· In the last two years alone Pennsylvania has fielded nearly 900 complaints related to oil and natural gas drilling, such as fracking, ranging from pollution by dislodged gas and other chemicals to temporarily reduced water flow. Also, in Pennsylvania -- or in a recent case --·I am not exactly sure -- the oil company was fined over $100,000 for polluting a tributary of the Susquehanna River. Ohio has confirmed six cases of contaminated water supplies out of 190 complaints since 2010. Ohio has confirmed six cases of contaminated water supplies out of 190 complaints since 2010. Over the last four years West Virginia was received 122 complaints, four of which were considered strong enough to warrant corrective action. With its spread- -- spreadsheet of more than 2,000 complaints, Texas had, by far, the most comprehensive collection of data.
635	4175-4 North Dakota is having a boom and a record low unemployment rate, but what about the lack of regulations and the illegal pipelines that have been found in North Dakota and have burst and caused spills that they didn't even know were there?· And so there is a lot to be considered on that issue also.
636	4177-12 Colorado's Garfield County, residences complain about sever odor and health impacts regarding flow back from drilling pits and tanks.
637	0045-109 Other oil and gas producing states have adopted regulations that exceed the Division's existing and proposed regulations and that are consistent with our recommendations. Although some of the regulations below fall short of the best practices we recommend in the comments above, we provide these examples to demonstrate that other states have stronger regulations than California's existing and proposed rules and also regulate categories of practice about which California's current regulations are completely silent. • Sections 1761 and 1780: Wyoming regulates all forms of well stimulation without any

	thresholds. • Section 1784(a)(1): Colorado has more stringent requirements for cement bond logging by not allowing the requirement to be waived: • Section 1784(a)(2)(ii): Alberta, Canada has requirements for preventing and mitigating communication during well stimulation. • Section 1784.1: Texas has pressure testing requirements for non-cemented completions and also requires failed tests to be reported to the regulator. • Section 1785(c): In the event of excess pressure during stimulation, Texas requires the well to be remediated prior to further operations. • Section 1786(a): o (6) Louisiana requires disclosure of the chemical composition of spills. o (10) Ohio requires manifesting of oil and gas waste. • Section 1722.2: o (d) The API recommends the use of formation pressure tests.. o (f) Alaska, the BLM, Colorado, Louisiana, Montana, New Mexico, North Dakota, Ohio, Oklahoma, Pennsylvania, Texas, and Wyoming all have requirements for casing pressure testing. The API also recommends pressure testing prior to drill out. • Section 1723.3: o (b): ▪ The API recommends setting surface casing at least 100' below the deepest USDW. ▪ Document HF1. First Edition, October 2009. ▪ Wyoming requires surface casing to be set three joints below permitted water wells. ▪ Texas requires surface casing to be set no more than 200 feet below protected water. o (d) Ohio requires 200 feet of overlap for production liners. • Section 1722.4: o (e) The API recommends proper hole conditioning and cleaning prior to cementing. o (g) Southwestern Energy, in comments to the Texas Railroad Commission on its Revised Proposed Rules for Drilling, Casing, Cementing, and Fracture Stimulation, recommended a wellbore diameter at least two inches greater than the nominal outside diameter of the casing. o (h): ▪ Ohio has requirements for meeting API cement standards and minimum compressive strength. ▪ Texas has requirements for meeting API cement standards; controlling gas migration; and free water content and minimum compressive strength for cement behind surface casing.. ▪ Wyoming has requirements for free water content of cement and minimum compressive strength:. o (i): ▪ Texas has requirements for testing cement behind surface casing without published performance data. ▪ The API recommends appropriate cement testing. o (j): Texas has requirements for the use of centralizers on surface and production casing.
638	4545-2 Tar sands fracking in Northeast Canada is now causing unanticipated emissions of mercury into the air, as well as unexpected uncontrolled oil leaks and other environmental damage.
639	4585-5 New York has an indefinite ban on fracking. New Jersey has a ban on treatment or storage of fracking waste. We need such bans until we better understand fracking.
640	4432-4 We should take our lesson from Germany, which successfully harvest 40% of its electric energy

	from solar power.
641	4511-4, 4532-4, 0174-6 Other states have acted to protect their citizens. It is time for California to join them with a moratorium on fracking.
642	4560-1 Hydraulic fracturing affects the community. As seen in other states, such as Arkansas, Colorado, Delaware, Louisiana, Maryland, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Michigan, Pennsylvania, Texas, West Virginia, and Wyoming, water and air *have* been polluted, seismic activity has been induced, and farmland has been contaminated and destroyed.
	Response to Comments 625-642: In the development of these proposed regulations, the Division reviewed and evaluated regulations in place in other jurisdictions. The Division believes that these regulations, together with its existing well construction standards, compare favorably with what is found in other jurisdictions. California has always been a leader in requiring protective well construction standards, and these regulations will require an engineering review in advance of well stimulation treatment that is at least as thorough as what is found in other states. The public disclosure requirements under SB 4 are at least as detailed as what is found in other states, and California is the first state to impose significant limitations on asserting trade secret protection to avoid making required public disclosures. The Division's primary statutory mandate, Public Resources Code section 3106, is that the Division permit operators "to utilize all methods and practices known to the oil industry for the purpose of increasing the ultimate recovery of underground hydrocarbons," but regulate operations so as to prevent, as far as possible, damage to life, health, property, and natural resources, including underground oil and gas deposits and water suitable for irrigation or domestic purposes. Specifically, Public Resources Code section 3106, subdivision (b), contemplates that the Division will regulate, but allow, "the application of pressure heat or other means for the reduction of viscosity of the hydrocarbons, the supplying of additional motive force, or the creating of enlarged or new channels for the underground movement of hydrocarbons into production wells." In recent years the Legislature has considered several legislative proposals that explicitly banned or placed a moratorium on well stimulation activities in the state. Each of these legislative proposals have failed passage in the Legislature. Senate Bill 4 does not contain any explicit ban or moratorium on well stimulation treatments. Rather it contains explicit direction to the Division to regulate well stimulation treatments. Consistent with this statutory mandate of Public Resources Code 3106 and Senate Bill 4, the Division has established regulations that address environmental risks and respond to public concerns, but do not prohibit methods and practices that are proven to increase hydrocarbon recovery. These regulations have been developed to supplement the Division's existing oil and gas regulatory framework to meet the intent and requirements outlined in Senate Bill 4. These regulations also respond to the feedback the Division has received in ten public comments hearings held throughout the state, tens of thousands of public comments submitted in written format, and in scientific and policy papers, which are listed in the Final Statement of Reasons. These regulations include monitoring, evaluation, and testing requirements for before, during, and after well stimulation treatment to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. These regulations also implement the public disclosure, neighbor notification, water testing, and permitting requirements established by Senate Bill 4. The Division believes that these regulations provide an effective

	framework for a level regulatory scrutiny that is commensurate with the level of public concern with well stimulation treatment operations.
	Required Setbacks
643	0045-108, 0047-39 Setbacks are essential to protect ground water, surface water, clean air, human health, wild lands and wildlife habitat. Setbacks should be based on scientific analysis and research. See attachment, "Comments of Miriam Rotkin-Ellman, MPH, Staff Scientist, Natural Resources Defense Council, Regarding Proposed Colorado Oil and Gas Conservation Commission Statewide Setbacks and Public Health" for additional information and recommendations. To be more protective of surface water sources, we recommend that the Division require setbacks from occupied structures and from any wetland or water body, with larger setbacks required from surface sources that provide drinking and/or irrigation water.
644	0202-3 The regulations should restrict enhanced extraction wells from being positioned dangerously close to major water sources that fuel the profitable Salinas Valley and California agriculture regions. For example, prohibit wells within two miles of the Salinas River. Recommend adding this language to the regulations. "Prohibited well sites: Significant damage could occur to the agriculture and wine industry if a major leak of fracking or enhanced extraction chemicals pollute the headwaters of the Salinas Valley or pollutes the Salinas River. Therefore fracking, acid injection, and enhanced extraction techniques are prohibited within the Salinas Valley watershed. That prohibited watershed area is defined as beginning where Hwy-101 enters Monterey County at its northern boundary (vicinity of the Red Barn) and extending south until Hwy-101 exits Monterey County (vicinity of Camp Roberts), as well as stretching 16 miles (25.7495 kilometers) east and west of Highway 101 along its north-south course through Monterey County."
	Response to Comments 643-644: Setback requirements are not included in the proposed regulations. Proximity to dwelling and other structures is a question of local land use policy, and, consistent with the mandate of SB 4, protection of water is addressed by regulations ensuring well integrity and geologic and hydrologic isolation during and after well stimulation treatment. These regulations have been developed to supplement the Division's existing oil and gas regulatory framework to meet the intent and requirements outlined in Senate Bill 4. These regulations also respond to the feedback the Division has received in ten public comments hearings held throughout the state, tens of thousands of public comments submitted in written format, and in scientific and policy papers, which are listed in the Final Statement of Reasons. These regulations include monitoring, evaluation, and testing requirements for before, during, and after well stimulation treatment to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. These regulations also implement the public disclosure, neighbor notification, water testing, and permitting requirements established by Senate Bill 4. The Division believes that these regulations provide an effective framework for a level regulatory scrutiny that is commensurate with the level of public concern with well stimulation treatment operations. The Environmental Impact report and/or independent scientific study required by SB 4 may contemplate and recommend set requirements. Section 3161 (b)(4)(A) and (B) of the Public Resources Code requires the Division to prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) in order to provide the public with detailed information regarding any potential environmental and

	public health impacts associated with well stimulation treatments in California. Statute requires that the EIR be completed by July 1, 2015. SB 4 also amended the Public Resources Code to add Section 3160 (a), which requires the Secretary of the Natural Resources Agency to cause to be conducted and completed, an independent scientific study on well stimulation treatments, including, but not limited to, hydraulic fracturing and acid well stimulation treatments. The independent scientific study is to evaluate the hazards and risks and potential hazards and risks that well stimulation treatments pose to natural resources and public, occupational, and environmental health and safety. This study will be completed on or before July 1, 2015.
	Other Comments and Recommendations
645	0060-1 Entities who will profit from fracking should do the following: a) claim their management and oversight will be unique and rigorous b) assert their administrative culture is to protect the environment c) cite newer better equipment/research that will preclude problems seen in other areas of the world d) commit to best business practices and total transparency e) disavow irresponsible fracking that has caused harm f) declare themselves able and ready to rectify any accidents
	Response to comment 645: These regulations do establish requirements for effective evaluation, modeling, and monitoring before, during, and after well stimulation treatment, and these requirements are designed to create incentive for operators to use best available technologies. Requirements for having bonds in place to cover compliance costs are addressed in statute and are outside the scope of these regulations. Requirement for declarations from operators regarding their intent and company culture are outside the scope of these regulations.
646	0103-15 Who defines the standards for those that test the wellbore's mechanical integrity—is there a list of certified professionals?
647	0191-1 The regulations must be based on safe and science based decisions that are healthy for the public now and into the future.
648	4298-2 Life is more important than money.
649	0112-1, 0102-1, 0115-1, 0070-1, 0186-2 Regulations for Fracking should be weighted towards the citizens of California and the environment as opposed to balance with business.
650	0146-2 The goal of a the regulations should be a comprehensive list of approved chemicals, a clear understanding of their impact on the environment and approved methods of isolating fracking by-products from aquifers and other water sources.

651	0052-3 The Division has relied on operator goodwill and sound engineering practice for far too long. In some cases, and by the Division's own admission, this reliance has proven to be misplaced. It should draft specific well stimulation treatment regulations that require the operators to demonstrate, to the Division, property owners and the public, that well stimulation treatment operations will be safe – before any permit issues.
652	0292-4 How can we assure that there will be no leaking of fracking fluid or acid?
653	0292-5 How can we be totally sure that any methane will not leak into the atmosphere?
654	0292-6 How will we be able to clean the water which will be polluted through the well stimulation process?
655	0169-1 Ground water should be protected to ensure that ground water that is closely hydrologically connected to surface waters does not interfere with the attainment of surface water quality standards, which are designed to protect the integrity of associated ecosystems.
656	4296-1 As a chemist, I am well acquainted with the fractured fluids, the acid fluids, and all the chemicals that go into it that's used by the service companies. I've seen a lot of masses in my day. I've seen a lot of chemicals used that you would not want to put on in a dish with your ice cream, okay. Some of it was ridiculous, but a lot of this has been removed, has been removed by regulations.
657	4293-1 Stop calling oil fossil fuels. It is not fossil fuels, it is organic. The earth produces the oil we get that we have, it's still producing it in abundance. If you take the spill in the Gulf country, there was so much oil coming out there, they didn't know what to do with it. It proved how much oil there is.
658	4293-2, 4293-1 If drilling doesn't happen here because of environmental regulations then it will happen in another place where the regulations are not as strong. Either way it's going to happen. So it is better if it happens here.
659	4292-1 What God has to say about the oil that's underneath the ground in California? Isaiah, Chapter 45, verses one through three. "Thus says the Lord to his anointed, to Cyrus, whose right hand I have held, to subdue nations before him and loose the armor of kings, to open before him the double doors so that the gates will not be shut. I will go before you and make the crooked places straight. I will break in pieces the gates of bronze and cut the bars of iron. I will give you the treasures of darkness and hidden riches of secret places that you may know that I, the Lord, who call you by your name and the God of Israel."
660	4283-3 It is better that fracking happen here, where it can be regulated, rather than somewhere else where the regulations are not as stringent.
661	4288-4 I recently had seen a publicity stunt with one of these companies drinking their fracking solution. I thought that has got to be a hoax, so I looked online, I read what was going on. And evidently Halliburton uses a solution that is made with food grade products. So, that tells me that there are

	a lot of alternatives that are actually safe. And I think that California should be a leader in demanding that that's what we use if we're going to go forward with this kind of oil extraction.
662	4286-5 When oil companies are sued for environmental and health damage as a result of their activities, as part of the settlement they often require the other side to sign a non-disclosure agreement. This allows companies who give testimony to Congress, okay, to truthfully state there is no documented cases of contamination, and then elected officials can repeat these statements.
663	4284-2 As a state we need to put money into research and development of oil and gas resources.
664	4283-2 The industry says, and rightly so, that fracking is a perfectly safe and effective process that has been used for decades. It has changed however because the process that was -- has been used for decades stopped working, so many of those wells were stopped or abandoned. Then the industry discovered new chemicals, new technology, new ways to get at the dregs of the fossil fuel that is still left in the ground, and so I don't think it's fair to say that that kind of fracking is the same as the fracking that the industry has used for the past several decades.
665	4283-1 There has been regulation on the oil well activity that has existed up to this date and that regulation continues, but that regulation has not stopped the fact that many of the sites that have been worked end up being contaminated, and now the companies are having to go back and clean up the mess.
666	0125-2 The oil and gas industry has again done what it's so effectively done for years. It spends millions of dollars to buy influence in our legislature; this to keep our representatives from enacting reasonable laws that would protect our environment, our health and our economy.
667	0125-3, 0041-12 The Division officials are far too cozy with the oil and gas industry and there is a revolving door from the gas industry to regulatory positions. DOGGR, continue to act more as arms of the oil and gas industry than as protectors of our environment. Our government needs to consider the certain costs to Californians of water and air pollution.
668	4270-3 Test the Anterra disposal injection well that is located at 1933 Wooley Road between Rice and Rose. Trucks from Bakersfield and from all over come to Oxnard to dump fracking fluids that kill our strawberry fields, it is right in the middle of our strawberry fields. Our workers are working right beside that. And the tanks where you hold your chemicals are rusty.
669	4268-2 I recommend only a few holes over a long time period, and the only thing I'm saying, rather than look at the regulations and just approve them in masse for any number of holes, as long as you get the right permit, I'm asking that we go at this slowly and carefully, very few holes till we see what happens. So if the results are bad, we can stop right there and do no more harm; and if the results are good, then proceed, do a few more holes with caution, always monitoring the results.
670	4138-3 If fracking is safe, as it's being claimed, prove it by the -- by complete openness and testing -- independent testing in the future. Fund universities to come in, watch people -- have people come to watch what goes on, and basically openness and prove it safe.

671	4114-2 I would urge that a little more investigation be done into the science and how it supports whatever you're trying to do, because it does not support going ahead with a fracking program and just regulating it. It doesn't.
672	4109-3 I would say what California needs now is more refineries. We've had no refineries since the 1970s.
673	4224-1 The question whether or not we should allow fracking is or should be a democracy issue. The question is who should -- who should decide whether or not fracking will be allowed? Should it be the human beings who live in the communities who are most affected by it, or should it be the corporate, the tiny -- not tiny corporations, these are mega corporations, but the tiny board of directors of corporations who may live thousands of miles from where the fracking -- their fracking operations will occur and will not be affected by it?
674	4217-1 This is an issue of property rights. People have the right to use their property as they see fit.
675	4223-2 We have enough petroleum in reserves already. We have more than we can afford to burn, given the prospect of global warming, and if we already have more than we can afford to burn, I don't know why we would want to take any kind of risk to go after more fuels and fracking.
676	0075-10, 4196-1 A report recently released by the American Lung Association revealed that the oil industry spent 45.4 million in the State between January 1st, 2009, ·and June 30th, 2013. ·The Western States Petroleum Association alone has spent over 20 million 2009 to lobby Legislature.· You can be sure that these draft regulations won't protect the land, water, fish, wildlife and people of California from an expansion of fracking when a big oil lobby is praised them.·
677	4205-1 Point 1. Petroleum people don't like you. They just want to make a profit off you. ·If we don't get that, something is missing, folks. Point 2. In California petroleum companies don’t pay taxes. If they did pay their fair share of taxes; maybe our economy would be a little better than it is now.
678	4197-1 In reply to Senator Dave Lu's request three years ago after years of rapid increase in the fracking process in our state, DOGGR indicated it had no real idea where or how fracking was occurring here.· No information about water use, no data regarding safety and no permitting process and claimed that fracking was actually incorrectly used.
679	4197-3 If DOGGR limits its regulatory oversight over the monitoring of ground water, air pollution, then it strikes me as very much like allowing raw sewage affluent to continue into rivers and coastal waters until the account becomes excessive or disease develops. ·Much more monitoring has to be done. ·There has to be an allover assessment of the high incidents of well failure, and until that, it only seems that limited fracking or a moratorium would be appropriate.
680	4266-2 The concern for a lot of residents here for the state is having intermittent regulations where there's not a lot of permit requirements, no strength behind those petitions, then the actual report,

	the information provided to the public for what these companies are putting into our groundwater. There are a lot of concerns for that.
	Response to Comments 646-680: These regulations have been developed to supplement the Division's existing oil and gas regulatory framework to meet the intent and requirements outlined in Senate Bill 4. These regulations also respond to the feedback the Division has received in ten public comments hearings held throughout the state, tens of thousands of public comments submitted in written format, and in scientific and policy papers, which are listed in the Final Statement of Reasons. These regulations include monitoring, evaluation, and testing requirements for before, during, and after well stimulation treatment to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. These regulations also implement the public disclosure, neighbor notification, water testing, and permitting requirements established by Senate Bill 4. The Division believes that these regulations provide an effective framework for a level regulatory scrutiny that is commensurate with the level of public concern with well stimulation treatment operations. The potential impacts on the environment and public health will be considered in the Environmental Impact report and independent scientific study required by SB 4. Section 3161 (b)(4)(A) and (B) of the Public Resources Code requires the Division to prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) in order to provide the public with detailed information regarding any potential environmental and public health impacts associated with well stimulation treatments in California. Statute requires that the EIR be completed by July 1, 2015. SB 4 also amended the Public Resources Code to add Section 3160 (a), which requires the Secretary of the Natural Resources Agency to cause to be conducted and completed, an independent scientific study on well stimulation treatments, including, but not limited to, hydraulic fracturing and acid well stimulation treatments. The independent scientific study is to evaluate the hazards and risks and potential hazards and risks that well stimulation treatments pose to natural resources and public, occupational, and environmental health and safety. This study will be completed on or before July 1, 2015.
681	0021-18 Recommend they make the data more consumer friendly, that includes mapping the sites rather than just using longitude and latitude, that's not very useful for your average person on the street.· That would include listing the approximate address of where the well stimulations are occurring and classifying the type of well stimulation that occurred.
	Response to comment 681: The Division is working to develop and implement business processes and information technology to make information about all aspects of well stimulation treatment operations available on its public website in formats that can be easily searched and aggregated.
682	0021-19 Request for more information being provided on things like why stimulations are limited to dumps beyond 30 inches, or why is the stimulations looking at only ·short-term operations.· This technology is rapidly evolving.· It could be that at any point in time.
	Response to comment 682: Public Resources Code section 3157 distinguishes well stimulation treatment from routine well

	cleanout, well maintenance, removal of formation damage from drilling, bottom hole pressure surveys, and other routine operations that do not affect the integrity of the well or the formation. This distinction will not always be clear cut and the Division anticipates case-by-case technical discussion with operators regarding whether certain treatments are or are not well stimulation treatment. The purpose of Section 1761(a)(1)(A) is to establish a basic framework for that analysis, and to dispense with discussion of certain treatments that clearly are not well stimulation treatment because of the low volume of fluid used. The definition of "well stimulation treatment" and the distinction discussed above would apply equally new technologies and techniques that may by developed in the future. However, it may be that these regulation will need to be revisited in the future to ensure that they are effective and practical for newly emerging technologies.
683	4256-2, 4257-1 When it comes to credibility, the folks that speak for the oil, coal and gas industry have none. This is a rogue and reckless industry. This is an industry unlike any other in this country that is allowed to dump their waste product into our public airways without any costs. That's unacceptable.
684	4252-2 The Los Angeles basin has over 70 wells; some of them abandoned badly back in the '30s, some of them have shown, take the Fairfax Ross Dress for Less explosion that was caused by over-pressurization of the Salt Lake field. It's been proven over and over again by isotopic gas analysis that this gas was coming specifically from the Salt Lake field.· It matched it exactly.· And if DOGGR still has its position that that disaster was caused biogenic gas, California is in real, real trouble.
685	4252-3 DOGGR refuses to accept the work of fine Petro, petroleum engineers, civil engineers and geologists at USC, and George Chilinger, a world-renowned engineer, a petroleum specialist, Dr. Bernard Endres and Dr. John Robertson.· The work that they've done with gas migration and identifying it on a number of fields in Los Angeles basin and subsidence.
686	4252-4 Subsidence is a huge problem now around the area of the England oil fields.· Homes are being structurally damaged and elementary school children are being threatened by the opening of the known branch fault offered the new -- off of the Newport-Inglewood Fault, and the Newport-Inglewood Fault is considered an active fault and capable of generating a 7.1 to 7.4 earthquake. And if we know that there's fault slippage in these different fault blocks, one is going to affect the other. There's going to be.· So DOGGR really has to address this stuff.· All they're doing is taking a blind eye to this stuff and not – not fulfilling their responsibility as a regulatory agency under the Underground Injection Control Program and in these inadequate regulations, the regulation of well stimulation that's been done for supposedly decades.
687	4252-5 First we're told by DOGGR fracking hadn't been done at all in California, and we know at the Inglewood oil field at least 23 additional hydraulic fractures, vertical fractures, along with 166 high rate gravel packs.· And now that they're pre-developing more there, instead of three to five rigs every week, we're seeing at least seven to nine.· So with this expansion of the Inglewood oil field, the largest urban oil field in the United States, and the emissions that are coming off that oil field just from the normal operations, but then the increase with the hydraulic fractures, something has to be done.

688	4252-6 With what you are going to see and what you are seeing now, and operators coming back and doing false studies so they are going back to that source rock that wasn't economically viable to explore them and seeing how much of it they can find in these old oil fields.· So this is something that absolutely has to be addressed because with the Los Angeles basin and the number of leaking wells, I mean, with the Salt Lake field, about 500 wells were abandoned in the mid-'30s.· That's not according to, you know, one of the best practices of the industry today.
689	4252-1 There are quite a few people that are very confident in DOGGR, unfortunately it's an industry captioned entity along with the political influence of the governor in that he fired both Elena Miller, the oil and gas supervisor and Derek Chernow the director of the Department of Conservation to appoint Mark Nechodom and Tim Kustic in those places.· To facilitate quicker permitting by DOGGR, even though DOGGR's current permitting process after ten days if the well isn't permeated, it's by default allowed to be drilled. DOGGR now as an agency is not credible.
690	4238-3 The man from the oil industry says, Well, 90 percent of it is going to be in Kern County, but he's not telling us how much that is or how many wells are going to wind up in other places and whether they are safe or not.
691	4246-1, 0085-3 The oil companies describe hydraulic fracturing revolutionary. It is a revolutionary way to poison our water. And it is a revolutionary way to destabilize our ground, tear our food. Why do we need to stay addicted to oil? What about moving into the 21st century with renewable energy sources.
692	4243-4 I don't believe we have the technology to contain an accident or remediate it after an earthquake, but if you don't believe me just look at what BP has been doing. They still haven't cleaned up the Gulf. I ask you what kind of legacy do we have to leave. What do we want to leave for the rest of us that stay and live in California for our children?
	Response to comments 683-692: These comments are not specifically directed at the rulemaking action or to the procedures followed in in adopting the regulations.
693	4239-1 Require that all employees of DOGGR, the Department and executives of oil industry companies doing business within the state of California must reside within 150 feet of a fracking well.· So that you can all partake of the fruits of your labors. We're talking about cancer and respiratory diseases. We're talking about groundwater. We're talking about cracked home foundations and declining property values.
	Response to comment 693: Rejected. Imposition of requirements for where people live are outside the scope of this rulemaking. These regulations have been developed to supplement the Division's existing oil and gas regulatory framework to meet the intent and requirements outlined in Senate Bill 4. These regulations also respond to the feedback the Division has received in ten public comments hearings held throughout the state, tens of thousands of public comments submitted in written format, and in scientific and policy papers, which are listed in the Final Statement of Reasons. These regulations include monitoring, evaluation, and testing requirements for before, during,

	and after well stimulation treatment to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. These regulations also implement the public disclosure, neighbor notification, water testing, and permitting requirements established by Senate Bill 4. The Division believes that these regulations provide an effective framework for a level regulatory scrutiny that is commensurate with the level of public concern with well stimulation treatment operations.
694	4233-3 There should be provisions within the regulations for the Division to be proactive to going out and getting information from industry. The regulations as they stand leave the Division relying on industry to notify the Division of what they are doing, when they are doing and where they are doing it.
	Response to comment 694: Rejected. The Division has ample statutory authority to conduct unannounced site inspections and other investigations and to obtain needed information from operators. It is not necessary prescribe the Division's investigative practices in regulation.
695	4233-3 Commend you on a truly, truly great name for these regulations. Well stimulation really represents the hand job that these regulations are in the industry.
696	0010-39 In Southern California, there have been studies that have already been done including one in the Inglewood field that looked at several different areas including water contamination, earthquakes, air quality, and a number of things. The study was peer review and there was no ill effects that came from that. So there is information out there already on what happens in Southern California.
697	4190-1 The oil companies have done a terrible job educating the public about fracking, oil extraction and the processes involved. As a result there is a lot of anti-fracking propaganda out there and the public has a lot of misconceptions. Fracking is not the most dangerous thing out there.
698	0010-32 CIPA actually opposed SB 4 as it was going through the legislative process. We believe that oil well fracturing has been done safely in California for over fifty years and will continue to be so. Part of the reason that has happened is the DOGGR has an oil safety program that is one of the toughest in the nation; so we have done a very good job of protecting water with our well designs.
699	0010-33 Some people say that not enough science has been done on fracking. The industry has been fracking for over 50 years and there is lots of science.
700	4177-11 2004 EPA study found: (1) in some fracking operations fracking chemicals are injected directly into USDWs during normal operations. (2) 20-85% of frack fluids remain in the fracked formation.
	Response to comments 695-700: Thank you for your comments.
701	4177-6 Hold off on regulations until after the Final EPA report later this year.

	Response to comment 701: Public Resources Code section 3161 requires the Division to complete this rulemaking by January 1, 2015.
702	4177-1 Fracking is the dirtiest and most dangerous form of oil extraction there is, and with proven oil sources that we can burn, more than we can burn now, why do we have to resort to such a dangerous and, again, dirty form of oil extraction?
703	4169-2, 4177-3 Locally, in California, just recently, as you probably know, in Sacramento a local subsidiary of Occidental was fined $60,000 for dumping fracking fluids into unlined pits. This is the kind of ethics these companies have. It is all about profit, and it is not much about safety.
	Response to comments 702-703: Thank you for your comments.
704	0030-16, 0260-1 The Halliburton loophole exempting fracking from federal law protecting water and other resources must be closed.
	Response to comment 704: The “Halliburton exemption” is a provision in the U.S. Safe Drinking Water Act, and the Division does not have the authority to modify federal law. However, the Safe Drinking Water Act in no way prevents states from regulating hydraulic fracturing on their own. These regulations are designed to ensure effective regulation of hydraulic fracturing and other forms of well stimulation treatment, and to ensure detailed public disclosures regarding those operations.
705	4157-4 There is also the fact that fracking has gone on for so long without proper regulation. I can't even put a roof on my own home without a visit from the county code inspector, yet the oil industry has been allowed to proceed with fracking without proper regulations, without even having to disclose what chemicals they are injecting into the ground around our homes.
706	4146-1 What is the greatest sin that was ever committed by the people in the Middle East in countries like Iraq and Iran?• Their greatest sin is the act being born on the sands that cover oil fields that suddenly belong to the multinational oil barons. Their punishment starts at 1.2 million deaths, and now this is a fate that we will share in California. • And we have committed the ultimate global sin, being born over oil shale deposits that belong suddenly, magically to the multinational oil barons.
707	4146-6 Story about King Midas. Discovers oil, eventually fracks wells. King Midas learned how to turn his entire country from one that was greatly dependent on foreign oil and gas to·a country that is now forever dependent foreign water and food.
708	0090-6 I don't have the confidence that the oil industry can take clean water, pump it into the ground with chemicals, and not have it come back out.· 70 percent of the water comes back out, and it comes back out with more than what went in it.· It comes back out with radon and whatever is down

	there.· Arsenic. And so where does it go?
709	4152-2 As has been demonstrated across multiple state and federal jurisdictions, hydraulic fracturing is a safe and effective technology that can be used to increase the recovery of hydrocarbons and deliver significant economic benefits without adverse environmental impacts.
710	0010-01 We disagree with the false claims that well stimulation has caused contamination to groundwater, caused cancer clusters, and induced felt seismic events, increases global warming or any of the other unsubstantiated claims made by environmental groups and other for the purpose of moving their own agenda forward.
	Response to comments 705-710: Thank you for your comments.
711	0015-8, 0085-16, 0012-6 The regulation should include a description (or reference to existing regulations) of the operator's responsibilities once the well stimulation treatment has been completed, and requirements associated with abandoning wells that are no longer in production. Additionally it would be helpful in sections 1784 through 1787, to reference relevant Public Resources Code sections that are applicable and integral to the success of the proposed sections.
	Response to comment 711: Requirements for plugging and abandonment of wells and lease restoration are outside the scope of these regulations and it is not necessary to reference those requirements in these regulations. Sections 1784 through 1787 do each list referenced statutes in the note following the text of the regulation.
712	0032-2 We believe that DOGGR, consistent with statutory authority, should remain the principal regulatory agency responsible for regulating hydraulic fracturing activities, including managing and coordinating the release of information to other regulatory agencies and to the general public on hydraulic fracturing and other well stimulation activities. DOGGR has the unique technical competencies to understand the data generated in the conduct of oilfield operations and provide other agency and public stakeholders with information demonstrating that these operations are safely conducted.
713	0032-3 The Division's current body of regulations has delivered an excellent track record of protecting public health and the environment in all aspects of oil and gas development, including longstanding practices like hydraulic fracturing and well stimulation. The point should not be lost in the public debate that the stringency of these regulations, including the safety factors and built in redundancies, are first and foremost designed to isolate and contain oil and gas, hydraulic fracturing fluids, and proppant in the intended zones and to protect fresh water zones.
714	0053-4 There is no evidence of many problems because there is no access to information and most E&P companies avoid or do not document anything other than numbers and often bury information in their tiered consultants and subcontractors rather than having "evidence" in their files.

	Response to comments 712-714: Thank you for your comments.
715	0037-1 DOC should have an additional comment period for the proposed regulations.
	Response to comments 715: Rejected. The Department has made these regulations available for public comment for a total of 120 days over a ten month period, with ten public comment hearings in five different locations around the state. This is well beyond what is required under the Administrative Procedure Act.
716	0037-6, 0085-16 How will oversight and/or enforcement be handled by the Regional Water Board, and does it have the personnel with the knowledge and experience to manage its new responsibilities?
	Response to comment 716: The staffing and enforcement practices of the Regional Water Quality Control Board are outside the scope of these regulations.
717	0085-16 It's unclear how individuals will be able to protect themselves, present grievances, or receive satisfaction when damage occurs.
	Response to comment 717: Questions and concerns about oil and gas operations can always be raised with staff in the Division's district office. District office contact information is available on the Division's public website at http://www.conservation.ca.gov/Index/Pages/ContactUs.aspx.
718	0037-7 How will the Division work with the Regional Water Board, and other agencies, commissions and other bodies will be involved in protecting the environment from the consequences of well stimulation?
	Response to comment 718: Pursuant to Public Resources Code section 3160, subdivision (c), the Division and the various Water Boards are developing a formal agreement describing respective regulatory functions and detailing how the agencies will coordinate their efforts. Once completed, this formal agreement will be available on the agencies' public websites.
719	0037-9 How will possible or long-term contamination be addressed?
	Response to comment 719: Under SB 4, a groundwater monitoring plan must be in place wherever well stimulation treatment will occur.
720	0028-2 The regulations should contain a provision to allow for changes that may become appropriate as

	our knowledge advances.
	Response to comment 720: The definition of "well stimulation treatment" would apply equally new technologies and techniques that may by developed in the future. However, it may be that these regulation will need to be revisited in the future to ensure that they are effective and practical for newly emerging technologies. The Division has the authority to adopt new regulations and to amend existing regulations. It is not necessary to state in regulation that the regulation may be amended at some time in the future.
721	0025-27, 0021-18 SB 4 requires the Division to perform "random periodic spot check inspections to ensure that the information provided on well stimulation treatments is accurately reported, including that the estimates provided prior to the commencement of the well stimulation treatment are reasonably consistent with the well history." However, the proposed regulations omit any requirement for follow up monitoring, including the "random periodic spot checks" clearly mandated by SB 4. The proposed regulations instead rely on operator reports to the Division of operator-conducted post-stimulation monitoring. The Division should amend the language of the proposed regulations to place certain monitoring requirements on the Division, at least for the purpose of ensuring minimal compliance with the regulations' certifications of activity. Baseline groundwater testing is meaningless unless effective and accurate follow-up testing is conducted.
	Response to comment 721: Rejected. The Division has ample statutory authority to conduct unannounced site inspections and other investigations and to obtain needed information from operators. It is not necessary prescribe the Division's investigative practices in regulation.
722	0025-39 Rubber-stamping fracking and other forms of well stimulation in the manner permitted by the proposed regulations subjects communities that already suffer from oil and gas development impacts to increased exposure and risks from air, water, and soil contamination.
723	0045-10 Despite these risks, fracking enjoys dangerous exemptions from critical federal environmental laws, including the Safe Drinking Water Act, the Clean Water Act and the National Environmental Policy Act. No drilling practices, including fracking, should be exempted from our landmark federal environmental laws.
724	0002-8 Specify delineation and connection of regulatory authority among all state, regional, and local agencies, as mandated under SB 4. Regulations must formalize agencies' jurisdictions and duties and thereby facilitating more complete and coordinated regulatory coverage for all aspects of well stimulation. Responsible agencies must have formal agreements with other agencies before implementation.
725	0002-13 Eliminate injection of dangerous chemicals, and promote the use of food-grade and other benign additives, including a prohibition on the injection of any distillate hydrocarbon, BTEX, and other hydrocarbons.

726	0018-1 The Interstate Oil and Gas Compact Commission has recently issued recommendations for effective environmental management of hydraulic fracturing operations pursuant to their State Review of Oil and Natural Gas Environmental Regulations (STRONGER) program (IOGCC, 2013).
727	0018-2 Based upon our review, we find that the proposed SB 4 regulations go far beyond the consensus technical recommendations of the Interstate Oil and Gas Compact Commission and impose paperwork requirements on oil and gas operators and state regulatory authorities that could undermine efforts to effectively manage the potential environment risks.
728	0018-5 Proposed Rules Duplicate Existing Regulatory Requirements: The requirements for well drilling, completion, and operation are thoroughly addressed under the California Code of Regulations Title 14, Division 2, Chapter 4, Subchapter 1 Onshore Well Regulations, and Subchapter 2 Environmental Protection. The proposed SB 4 Well Stimulation Treatment Regulations duplicate these existing regulations, particularly with regard to casing and cementing specifications. If the operator complies with the current rules, the duplicative requirements of the proposed rule are not only unnecessary, but confusing and burdensome to both the applicant and the regulatory agency. The Interstate Oil and Gas Compact Commission should review the requirements of SB 4 to identify what, if any, additional regulatory provisions are needed to meet the intent of this law, without duplication of existing regulations.
729	0018-10 Many of the hypothetical impacts have not occurred and are not likely to occur, based upon sound scientific principles. For example, it has been postulated that hydraulic fractures could migrate thousands of feet upward from the production zone into overlying drinking water aquifers, resulting in groundwater contamination by fracturing fluids and stray gas. In addition, similar concerns have been expressed with regard to extensive lateral migration of induced fractures. To our knowledge, such impacts have not been observed, nor is there a reasonable probability of such impacts due to the physical limitations of fracture propagation. Hydraulic fracturing pressures are typically sufficient to fracture rock no more than 1000 feet above the production zone, and cannot create fractures extending upward several thousand feet to the depth of overlying groundwater units.
730	0018-12 Only those concerns with a reasonable technical basis can be effectively addressed by regulations. Regulatory provisions that are directed toward technical problems that have not occurred and are not likely to occur can impose a significant burden on both oil and gas operators and the regulatory agency, with no environmental benefit for the citizens of the state.
	Response to Comments 722-730: These regulations have been developed to supplement the Division's existing oil and gas regulatory framework to meet the intent and requirements outlined in Senate Bill 4. These regulations also respond to the feedback the Division has received in ten public comments hearings held throughout the state, tens of thousands of public comments submitted in written format, and in scientific and policy papers, which are listed in the Final Statement of Reasons. These regulations include monitoring, evaluation, and testing requirements for before, during, and after well stimulation treatment to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. These regulations also implement the public disclosure, neighbor notification, water testing, and permitting requirements established by Senate Bill 4. The Division believes that these regulations provide an effective

	framework for a level regulatory scrutiny that is commensurate with the level of public concern with well stimulation treatment operations. The potential impacts on the environment and public health will be considered in the Environmental Impact report and independent scientific study required by SB 4. Section 3161 (b)(4)(A) and (B) of the Public Resources Code requires the Division to prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) in order to provide the public with detailed information regarding any potential environmental and public health impacts associated with well stimulation treatments in California. Statute requires that the EIR be completed by July 1, 2015. SB 4 also amended the Public Resources Code to add Section 3160 (a), which requires the Secretary of the Natural Resources Agency to cause to be conducted and completed, an independent scientific study on well stimulation treatments, including, but not limited to, hydraulic fracturing and acid well stimulation treatments. The independent scientific study is to evaluate the hazards and risks and potential hazards and risks that well stimulation treatments pose to natural resources and public, occupational, and environmental health and safety. This study will be completed on or before July 1, 2015. Pursuant to Public Resources Code section 3160, subdivision (c), the Division and the various other state agencies are developing formal agreements describing respective regulatory functions and detailing how the agencies will coordinate their efforts. Once completed, this formal agreement will be available on the agencies' public websites.
731	0011-1 We believe the State has the responsibility to monitor inspections and testing prior to well stimulation treatments. The draft regulations were written to give the Division the option, not mandatory obligation, to supervise testing and evaluations and should be revised.
	Response to comment 731: Section 1783(d) requires 72-hour and 3-hour notice to the Division so that the Division will have an opportunity to witness well stimulation treatment operations. Section 1785(a) requires operators to record monitoring parameters during well stimulation treatment, so if Division staff are unable to witness a treatment there will be a record of the treatment for the Division to review. If there is any indication of a well breach during well stimulation treatment, Section 1785(c) requires the operator to notify the Division and allow the Division to witness the diagnostics performed. If diagnostics indicate that a well breach did occur, Section 1785(d) and (e) require that the well be shut-in and that operation of the well cannot resume without approval from the Division. Although the regulations provide for extensive oversight by the Division, well stimulation treatment is conducted by the operator, and it is the operator's responsibility to comply with all applicable requirements.
732	0011-14, 0030-12 Public Resources Code 3160(c)(l-4) state that the Division must consult with other state agencies to delegate agency authority and responsibilities through formal agreements prior to January 2015. These agreements should be made prior to, or concurrent with, the approval of the draft regulations.

	Response to comment 732: Pursuant to Public Resources Code section 3161, these regulations must be completed by January 1, 2015.
733	0011-15 SB 4 states that regulations should be revised appropriately to incorporate the agreements. The purpose of Subchapter 2 is to set forth the rules and regulations for environmental protection. As the lead agency, the Division's regulations should reflect the agreements in Subchapter 2, in a codified manner.
	Response to comment 733: This is not feasible because SB 4 requires that the formal agreements and the regulations must both be completed by January 1, 2015.
734	0021-11 The Division should also expand its inspection power by allowing staff to appear at oil production sites unannounced and by setting response deadlines for oil field operators. Increasing accountability and reporting accuracy hinges on frequent inspections, operators expecting inspections at any time, and on companies promptly sharing requested information.
	Response to comment 734: The Division's authorities and mandates for investigation of well stimulation treatment operations, are clear and it not necessary prescribe the Division's investigative practices in regulation.
735	0021-13 The South Coast Air Quality Management District's well stimulation reporting system, implemented in 2013, allows a company to list multiple "operator" names and locates well stimulations by zip code and longitude and latitude coordinates. Efforts to track activities are complicated by this inconsistent information and complex geographic information. These regulations can learn from SCAQMD's pilot program and improve information usefulness by requiring thorough, uniform, and simple information.
736	0047-3 As an initial matter, we believe that the Division should strive for transparency and easy public access to all of the data and information that the agency and oil industry will be collecting, both in compliance with SB 4 and under previous statutory and regulatory provisions. Particularly given the controversy and concern surrounding hydraulic fracturing, there is every reason for the Division to strive to make all of the well stimulation treatment notices, neighbor notifications, water monitoring, testing and sampling information promptly and electronically available to the public in an easily searchable form, including well locations on adequate maps.
	Response to comments 735-736: The Division is working to develop and implement business processes and information technology to make information about all aspects of well stimulation treatment operations available on its public website in formats that can be easily searched and aggregated.
737	0047-9 The Nature Conservancy is concerned that, due to the substantial workload facing the Division, that the Division will be delayed in meeting some of SB 4's deadlines. In such a scenario, well stimulation activities in California will continue to be governed by inadequate interim regulations,

	a situation that could persist until at least January 1, 2016, and arguably perhaps longer.
738	0047-10 The Nature Conservancy believes that the Division should outline contingencies should such a scenario come to pass and recommend that the Division explicitly address this issue in these proposed regulations. This contingency should address whether the Division has authority and intention to implement additional interim protective rules if the final rule process is not completed as scheduled.
	Response to comments 737-738: Thank you for your comments. Under Public Resources Code section 3161, the interim regulations will remain in effect until these regulations become effective. These regulations are on track to be in effect on July 1, 2015.
739	4067-2 ASCE strongly recommends that federal and state regulations be reviewed, revised or enhanced, as needed, to: • Mandate full public disclosure of all chemicals and other propping agents in the fracturing fluid. • Control the handling, use, and disposal of chemicals in the hydraulic fracturing process. • Establish well construction and decommissioning standards to protect underground sources of drinking water and to prevent methane loss. • Establish site closure and restoration standards. • Reduce the freshwater footprint for each fracturing operation by reuse of the flow back fluid. • Assure the safe treatment and disposal of used fracturing fluids, flow back fluid and producer well waters. • Ensure adequate controls over storm water runoff or overflow from the well site. • Ensure that there is no surface infiltration of waste and production fluids into near-surface aquifers and recharge zones. • Promote research on hydraulic fracturing, including the effects of multiple drilling operations in a single watershed. • Protect in-stream water flows and determine the cumulative impact of multiple drilling operations within a single groundwater basin or watershed.
	Response to comment 739: A complete review of all state and federal regulations is beyond the scope of this rulemaking. These regulations have been developed to supplement the Division's existing oil and gas regulatory framework to meet the intent and requirements outlined in Senate Bill 4. These regulations also respond to the feedback the Division has received in ten public comments hearings held throughout the state, tens of thousands of public comments submitted in written format, and in scientific and policy papers, which are listed in the Final Statement of Reasons. These regulations include monitoring, evaluation, and testing requirements for before, during, and after well stimulation treatment to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. These regulations also implement the public disclosure, neighbor notification, water testing, and permitting requirements established by Senate Bill 4. The Division believes that these regulations provide an effective framework for a level regulatory scrutiny that is commensurate with the level of public concern with well stimulation treatment operations. The potential impacts on the environment and public health will be considered in the

	Environmental Impact report and independent scientific study required by SB 4. Section 3161 (b)(4)(A) and (B) of the Public Resources Code requires the Division to prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) in order to provide the public with detailed information regarding any potential environmental and public health impacts associated with well stimulation treatments in California. Statute requires that the EIR be completed by July 1, 2015. SB 4 also amended the Public Resources Code to add Section 3160 (a), which requires the Secretary of the Natural Resources Agency to cause to be conducted and completed, an independent scientific study on well stimulation treatments, including, but not limited to, hydraulic fracturing and acid well stimulation treatments. The independent scientific study is to evaluate the hazards and risks and potential hazards and risks that well stimulation treatments pose to natural resources and public, occupational, and environmental health and safety. This study will be completed on or before July 1, 2015.
740	4069-21 Because hydraulic fracturing (including acidization) is a rapidly developing technology with ongoing experimentation, these regulations are designed to apply to methods and substances that do not even exist yet. Therefore, it does not appear possible that DOGGR can allow HF operations to go forward while still fulfilling its fiduciary responsibility to "prevent oil and gas operations from harming human health, property, and natural resources" under Public Resources Code 3106(a). DOGGR cannot possibly foresee what precautions must be taken and what safeguards would be necessary to protect the health and safety of the public and natural resources.
	Response to comment 740: The definition of "well stimulation treatment" would apply equally new technologies and techniques that may by developed in the future. However, it may be that these regulation will need to be revisited in the future to ensure that they are effective and practical for newly emerging technologies.
741	4069-23 If the State will not take the necessary actions to protect its citizens, communities must be given adequate time to take whatever measures they feel are necessary to protect the health of their economies and their ecosystems through land use regulations and/or ballot initiatives.
742	4070-1 California has a large important oil and gas industry and many existing wells have employed well stimulation, including hydraulic fracturing. Oil and Gas spokespeople often say that they operate safely but there is reason to fear for public safety. Among other things, many offshore wells have persistently dumped toxic waste into the ocean. Those who say don't regulate these chemicals are saying, let the oil and gas industry keep dumping toxic chemicals into California waters. Self-regulation is no regulation. The State of California must learn from the European Union, which allows introduction and use of new chemicals only after they have been proven relatively safe for human exposure (nothing is completely safe, including water and sodium chloride or table salt, it is a quantitative matter, as physicians have recognized for centuries). The EU law for Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) in EU Commerce went into force June 1, 2007.
743	4313-3 Salinas Valley feeds the world.

744	4321-1 I would like to state my opposition to allowing fracking in Kern County.
745	4349-1 This area of the Salinas River and all areas are already in dire straits due to pollution and overdependence on our water for premium exports of fine wines.
746	4350-1 Fracking has caused too much trouble in other areas.
	Response to Comments 741-746: These regulations have been developed to supplement the Division's existing oil and gas regulatory framework to meet the intent and requirements outlined in Senate Bill 4. These regulations also respond to the feedback the Division has received in ten public comments hearings held throughout the state, tens of thousands of public comments submitted in written format, and in scientific and policy papers, which are listed in the Final Statement of Reasons. These regulations include monitoring, evaluation, and testing requirements for before, during, and after well stimulation treatment to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. These regulations also implement the public disclosure, neighbor notification, water testing, and permitting requirements established by Senate Bill 4. The Division believes that these regulations provide an effective framework for a level regulatory scrutiny that is commensurate with the level of public concern with well stimulation treatment operations. The potential impacts on the environment and public health will be considered in the Environmental Impact report and independent scientific study required by SB 4. Section 3161 (b)(4)(A) and (B) of the Public Resources Code requires the Division to prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) in order to provide the public with detailed information regarding any potential environmental and public health impacts associated with well stimulation treatments in California. Statute requires that the EIR be completed by July 1, 2015. SB 4 also amended the Public Resources Code to add Section 3160 (a), which requires the Secretary of the Natural Resources Agency to cause to be conducted and completed, an independent scientific study on well stimulation treatments, including, but not limited to, hydraulic fracturing and acid well stimulation treatments. The independent scientific study is to evaluate the hazards and risks and potential hazards and risks that well stimulation treatments pose to natural resources and public, occupational, and environmental health and safety. This study will be completed on or before July 1, 2015.
	1751. Single-Project Authorization
747	0045-29 Section 1751 would allow multiple stimulation and drilling permits to be combined into a single project authorization. This proposed rule seeks to expand the authority granted by subdivision (d)(2), which allows one well stimulation treatment permit to be combined with one well drilling permit. This section should be revised to renaming the term from "Single Project" to Combined Authorization" and use the new term throughout the section.
748	0053-7, 0002-19 A "single project authorization" or "Grouped Authorization" or single well grouping must include

	the linkage of the Application for treatment and the Notice of Intent to drill or rework along with a separate public notice as to when the treatment activities will commence. Grouping is not currently required for the entire process of drilling, re-drilling, or other works and completion for the entire well and requiring grouping for only one phase in a well construction is not reasonable nor efficient.
749	0053-8, 0047-17 The proposed changes of 1751 involves both the processing of applications for Stimulation Treatment and the processing of Notices of Intent to Drill, to Rework, and to Abandon wells in groups rather than the single (one-by-one) well processing and thereby far exceeds the issues of stimulation treatment. Subsurface conditions can vary widely even within a reasonably small area, and there is certainly a dramatic difference between 10 and even 20 permit applications receiving a single-project authorization. We question whether the Division could adequately regulate and supervise drilling practices for more than a handful of wells under a single authorization. This section should be changed to limit the number of multiple applications for permits to perform up to a total of 10 under the “single-project authorization” and to insure that the project has undergone the appropriate level of CEQA review.
750	0047-16 While it makes sense to group applications by operator or oil field, or type/time of well stimulation, we are concerned that there is no cap on how many well stimulation permits may be subject to a single authorization, nor how the Division proposes to determine what groupings are permissible.
751	0287-1 "Single Project" should be explicitly limited to a geographically contiguous area, i.e. field, reservoir, anticline, dome. Single Project Authorizations should be suspended immediately upon the occurrence of local seismic activity that may be related to the extraction activity and third party evaluations must be required for re-evaluation of the "Project Authorization".
752	0003-11, 0025-13 Section 1751 of the proposed regulations defines a "single-project authorization" as a "single Division approval for multiple applications for permits to perform well stimulation treatments and/or notices of intent to drill or rework wells.” There is no authority in SB 4 that would allow this circumvention of the permitting process.
753	0003-12 This provision provides no context as to how the regulation will be implemented. The proposed regulations only state that the Division "will specify what operations are approved ... and the conditions under which the operations are approved." Indeed, the Department states that the context will be provided at a later date through a separate rulemaking process in 2014. Because the propriety of Section 1751 cannot be adequately assessed by the public without broader rules regarding how and when single-project authorizations would be implemented, Section 1751 should be removed in its entirety from the proposed regulations.
754	4069-1 Section 1751 permits submitted for approval must encompass the entire footprint of the proposed well stimulation project so that cumulative impacts may be considered.
755	0053-5 The “single-project authorization” element ("grouping") would alter the entire current regulatory and permitting structure of the Division without justification and support. The grouping alteration would further exclude public and stakeholder access and notification to the entire application and permitting process and further hide the entire oil and gas exploration and production sector from public awareness and review.

756	0053-7 A "single project authorization" or "Grouped Authorization" or single well grouping must include the linkage of the Application for treatment and the Notice of Intent to drill or rework along with a separate public notice as to when the treatment activities will commence. 1751 Groupings could include: Notice of Intent/Permit to Drill and Application/Permit to Stimulate one or more wells Notice of Intent/Permit to Rework and Application/Permit to stimulate one or more wells Application/Permit to Stimulate without other Permits for one or more wells - stimulation through previously formed perforations Multiple Notices of Intent/Permits for Drilling of more than one new wells Multiple Notices of Intent/Permits for Reworking of Existing Wells Grouping is not currently required for the entire process of drilling, re-drilling, or other works and completion for the entire well and requiring grouping for only one phase in a well construction is not reasonable nor efficient.
757	0026-1, 0127-3, 0046-11 A single project authorization is not appropriate for issuance of permits for performance of well stimulation treatments on multiple wells. The environmental constraints and potential impacts may vary from well to well. Proximity to domestic and agricultural water wells, habitable structures, crops, places of public assembly, schools and other variables all dictate that each well be analyzed separately for appropriateness for well stimulation and mitigation measures that must be imposed to protect the environment and the health and safety of the general public, residents, school children, etc.
758	0127-4 Each fracturing job will have an outcome which should be studied and taken into consideration before authorizing further permits.
759	0021-1 Section 1751(a) allows “single-project authorization” to include multiple applications for permits to perform well stimulation treatments as well as multiple notices of intent to drill or rework wells. This broad language could allow an authorization for activities at multiple contrasting and far-reaching sites. Section 1751 should further specify what qualifies as a “single project” and limit the authorization to a single site. A single site should consist of a single or multiple, contiguous parcels with similar geology and proximity to sensitive receptors (i.e. residences and schools). To ensure this single site requirement is met, operators should justify requests for “single-project authorization”, and DOGGR should maintain the right to deny such requests.
760	0045-30 While we recognize that Governor Brown’s signing statement directed the Division to allow permits to be grouped together, the Division did not include this as one of the reasons for creating Section 1751 in the ISOR. To the contrary, the Division stated in its SB4 Implementation Plan iii that it would not develop the regulation to implement the group permitting procedures outlined in the Governor’s signing statement until January 2014.
761	0045-31 In order to properly assess and mitigate potential environmental and human health impacts, a unique permit should be applied for, reviewed, and approved for each well on which stimulation operations will be performed. The ability to group multiple permits for the purpose of a single project authorization may be acceptable, but the function of such a process should be to encourage and facilitate a comprehensive and cumulative analysis of potential environmental impacts and to develop strategies to mitigate these impacts.

762	0045-32, 4241-3 Grouping permits should not be used to relieve the operator of regulatory obligations or in any way limit the completeness or uniqueness of a permit application. Similarly, grouping permits should not reduce the amount or thoroughness of review of each permit by Division staff.
763	0047-18 The proposed regulations should clarify that all permits grouped under a single project authorization are subject to the same, rigorous standard of review as individual permit applications.
764	4068-2, 4232-2 This language is unduly vague and ambiguous. It would allow an operator to include a virtually unlimited number of applications into a project, requesting a single approval. This regulation should include a limitation to the number of wells included in one "single-project" and limitations to the geographical scope of a "single-project." The purpose of the regulations is to protect the public and public resources, not to enable operators to obscure operations by combining a sufficiently large number of operations to confuse the public and thereby inhibit or prevent effective public participation.
	Response to comments 747-764: Accepted in part. Language is added to section 1751 to clarify that each application and notice submitted for single-project authorization will be reviewed in the same manner as it would had the application or notice been submitted individually. The purpose of Section 1751 is to establish a procedure for requesting a single-project review and authorization for multiple well stimulation treatment permit applications or notices of intent to drill or rework a well. Operators commonly plan to conduct multiple drilling and well stimulation operations in short period of time. In those instances, consideration of each permit on an individual basis can be much less efficient than considering the group of operations as a single project. Each individual application within the group of proposed operations will be subject to the same scrutiny and requirements as it would had it been submitted individually, and Section 1751 in no way relieves operators of any requirements. It is not necessary to place limitations on the number, type, or connectivity of the proposed applications submitted for a single-project authorization. Although there may not be any efficiency achieved by reviewing a large number of unrelated applications as a group, nothing would be lost by doing so. Each individual application within the group of proposed operations will be subject to the same scrutiny and requirements as it would had it been submitted individually. Section 1751 is consistent with statute. Public Resources Code section 3160, subdivision (d), requires operators to obtain a permit from the Division before performing a well stimulation treatment. Public Resources Code section 3203 requires operators to submit a notice of intention and obtain approval from the Division before drilling or reworking a well. Public Resources Code section 3160, subdivision (d)(2), provides that well stimulation permits and approvals of notices of intention to drill or rework wells may be approved under a single authorization if they are applied for concurrently. None of these statutes prohibits coordinated consideration of applications or notices, and coordinated consideration of application or notices does not circumvent any statutory requirement.
765	0018-7 Recommend that the Department revise the proposed rules to facilitate a single permitting step, whereby, in advance of drilling, completing, and treating the well, the applicant commits to

	perform the specified testing and monitoring actions and to notify the agency promptly if any problems are observed. Records of these testing and monitoring activities would then be maintained by the operator and furnished to the agency upon request. This approach would facilitate safe well development without costly delays and would allow the agency to focus on addressing actual problems rather than processing paperwork. It should be noted that this approach is consistent with the current Division regulatory program, but with the addition of more specific requirements regarding well completion and testing.
766	0226-3 Each field should be considered a Single Project and whenever possible that you decide on more rather than less reporting so that the public has accurate information on the extent of the fracking and the extent of the chemicals used. There should be no arbitrary benchmarks for reporting. Big and small wells should have to report in the same rigorous way.
767	0045-33 The state of Colorado has developed a voluntary program for operators to develop a Comprehensive Drilling Plan, the goal of which is "to identify foreseeable oil and gas activities in a defined geographic area, facilitate discussions about potential impacts, and identify measures to minimize adverse impacts to public health, safety, welfare, and the environment, including wildlife resources, from such activities." We encourage the Division to review the details of this program and incorporate these concepts into any program for single-project authorization.
768	0018-13 Recommended Change: Combine the drilling and treatment permits into a single step to be processed in advance of drilling so as to avoid costly delays and promote safety. Rather than submit copious testing and monitoring records for agency review and pre-approval, require that operator report any problems to agency and maintain all records to be provided upon request. Remove duplicative requirements with California Code of Regulations Title 14, Division 2, Chapter 4, Subchapters 1 and 2.
769	4234-1 Section 1751 needs to be amended so that all permits orders for drilling be working and abandonment should be combined into one annual permit for all in each and every field in the state of California.· It is -- put them all in one group, but do not separate the permit for stimulation from the permits for drilling and rework.
	Response to comments 765-769: Rejected. The Division must ensure that each application for a permit to conduct a well stimulation treatment is subject to individual scrutiny and that all applicable requirements are met for each well stimulation treatment. The Division will work with operators individually and collectively to identify possible approaches for aggregating data across multiple permits that do not compromise individual review. To facilitate this, the regulations include Single-Project Authorization provisions in Section 1751. However, at this time, the Division is not prepared to codify a Comprehensive Drilling Plan, single-step permitting, field wide projects, or any other suggested streamlining method because the Division is not yet satisfied that these models will allow for adequate scrutiny.
	<u>1761. Well Stimulation and Underground Injection Projects</u>
770	4234-2 Section 1761 definitions of stimulation. Keep it simple. Use one. Anything that is to promote permeability of a formulation is a stimulus. So if you do it without a rework permit, it's still a

	stimulus.
771	0002-20 The term "well stimulation treatment," combined with the “applicability” definition in Section 1780, is too narrowly defined in the draft regulations and must be amended in the final regulations.
772	0141-6 Look at the scope definition of fracking acidification in your proposed ruling doesn't include hydraulic fracking. The regulation should apply to all activities that apply pressure or chemicals in the sufficient amount of pressure or concentration that exceeds fracturing a rock, might be like expansion or some mixed stuff maintenance like to be.
773	0041-5 The well stimulation treatment definitions under 1761 should definitely include “routine well cleanout work; routine well maintenance; routine treatment for the purpose of the removal of formation damage due to drilling, bottom hole pressure surveys, routine activities that do not affect the integrity of the well or the formation; the removal of sale or precipitate from the perforations, casing or tubing; or a treatment that does not penetrate into the formation more than 36 inches from the tube. Forty barrels of acid were recently used on one well site in September 2013 in Upper Ojai by Excalibur and the supervisor said they were not fracking; they were just cleaning out the well. Forty barrels of acid for cleaning or other amounts “for cleaning” or other purposes also must be reported to the public.
774	0021-2, 0002-9 Further clarification is needed on why Sections (a)(1) and (b) narrowly define well stimulation to exclude underground injection projects and operations perforating subsurface formations less than 36 inches from the well-bore. These distinctions may result in the policies overlooking the activities SB4 intended to regulate. To avoid under-regulation of some well stimulation treatments, the Division should create a definition covering any process using well stimulation techniques or altering the permeability of underground formations.
	Response to comments 770-774: Rejected. Public Resources Code section 3157 defines the term “well stimulation treatment,” but further elaboration is necessary to make it clear whether specific types of operations do or do not meet the definition. Public Resources Code section 3157 distinguishes well stimulation treatment from routine well cleanout, well maintenance, removal of formation damage from drilling, bottom hole pressure surveys, and other routine operations that do not affect the integrity of the well or the formation. The purpose of Section 1761 is to build upon the statutory definition of “well stimulation treatment” to make it as clear as possible what operations are subject to the proposed regulations and to the permitting requirements of Public Resources Code section 3160, subdivision (d).
775	0045-36, 0002-22 The purpose of stimulation is to restore or enhance the delivery of hydrocarbons to the wellbore. Reservoir stimulation accomplishes this primarily by restoring, improving, increasing or otherwise modifying the permeability of the target formation. As such, we request that the term “increasing” be replaced by the word “modifying” in the definition, because not all stimulation techniques will increase the permeability of the formation. Although the word “increasing” was used in the well stimulation treatment definition in SB4, we believe this revision is consistent with the intent of the law to regulate all well stimulation techniques.
	Response to comment 775: Rejected.

	A key element of the statutory definition of “well stimulation treatment” is that a well stimulation treatment is designed to enhance oil and gas production or recovery “by increasing the permeability of the formation.” (Pub. Resources Code, § 3157.) If the definition in regulation were to replace “increasing” with “modifying,” then the regulatory definition would be at odds with the statutory definition.
776	0045-37 Currently, stimulation practices fall into two main categories: matrix stimulation and fracture stimulation. For matrix stimulation treatments, fluids are injected below the fracture pressure of the target formation; for fracture stimulation treatments, fluids are injected above the fracture pressure of the target formation. Acid matrix stimulation or “acidizing” is the most common form of matrix stimulation; hydraulic fracturing is the most common form of fracture stimulation. However, researchers are also experimenting with novel forms of stimulation, including cryogenic fracturing and controlled underground explosions. The definition of “well stimulation” must be broad enough to encompass current as well as potential future stimulation techniques. The definition proposed by the Division falls short of this goal.
	Response to comment 776: Rejected. The definition of “well stimulation treatment” is found in statute in Public Resources Code section 3157. The regulatory definition in Section 1761 elaborates on the statutory definition in order to distinguish operations included in the statutory definition from the operations that are excluded by the statutory definition. The regulatory definition does not exclude operations that would meet the statutory definition of “well stimulation treatment,” and if an operation meets the statutory definition, then it would be regulated as such.
777	4152-5, 4094-5, 4211-4 The proposed regulations rely upon newly created regulatory definitions of well stimulation in protected waters to determine their applicability. These definitions reflect DOGGR's interpretation of the scope and the text of SB 4. WSPA supports DOGGR's approach to the hydraulic fracturing as utilizing the process, and we also support the definition of acid matrix stimulation, not only based on concentration of acid in the treatment, but also on the intent and the intent to stimulate the formation. This approach clearly distinguishes covered treatments from routine maintenance activities, as SB 4 directs DOGGR to do.
	Response to comment 777: Rejected. The acid concentration threshold that was initially proposed in Section 1780(a) has been deleted and the Acid Volume Threshold has been added to the definition of “well stimulation treatment” at Section 1761(a)(3). Consistent with the statutory definition, the Acid Volume Threshold is intended to identify excluded operations based on the effect of the treatment, as designed, upon the formation. The intent of a treatment is a subjective question and is not an element in the statutory distinction between well stimulation treatment and excluded routine operations.
778	0049-03 The definitions of “underground injection project” and “well stimulation treatment” provided in Section 1761 are confusing and potentially overlapping. The regulatory differences between well stimulation treatments and underground injection projects are, however, significant. As the Initial Statement of Reasons explains, “[b]ecause of the commonalities between well stimulation treatments and underground injection projects, it is necessary to be as clear as possible in distinguishing the two types of operations.” Unfortunately, the Proposed Regulations have failed to achieve this goal.

779	0049-04 Section 1761 should be revised to provide additional specifics to the definitions of “well stimulation treatment” and “underground injection project,” including the duration of each well treatment activity as well as the exact difference in the purpose of the two types of activities.
780	0050-11, 0251-3, 4290-3 The Regulations do not apply to underground injection processes; which are used both for "enhanced oil recovery" and for disposal of wastewater, including wastes from fracking. This exclusion leaves dangerous practices subject only to the current minimal controls. For example, an enhanced oil recovery technique called "steam flooding" would be excluded from the Regulations. Steam flooding involves converting water to steam and injecting it into the ground to release heavy oil it is currently used in Kern County, where each year, billions of gallons of wastewater are dumped into unlined ponds and leak into groundwater. The regulations need to be extended to include forms of underground injection, specifically, cyclic steaming.
781	0002-23, 0021-3 Excluding underground injection projects from the regulations is problematic because many injection projects have both injection and production wells that undergo well stimulation treatments. If underground injection wells are stimulated as part of a Drilling or Reworking Permit, they must be subject to these treatment rules. No exemption can be allowed for wells in underground injection projects from regulations regarding well stimulation.
782	0045-48 Excluding underground injection projects from the regulations full stop is problematic because many injection projects also utilize well stimulation. If underground injection wells are stimulated, they should be subject to these rules. Instead of exempting underground injection projects from regulations regarding well stimulation, we suggest that the regulations state that the forms of enhanced oil recovery (i.e. EOR; we include both secondary and tertiary recovery techniques in this term) contained in SB 4 and the newly added sections of Article 3, Chapter 1 of Division 3 of the Public Resources Code are not forms of stimulation and vice versa. We believe, however, that the well stimulation treatment definition will already exclude enhanced oil recovery techniques because of the qualifier that well stimulation techniques must modify the permeability of the formation. Most enhanced oil recovery techniques are designed to modify the properties of the hydrocarbons or use specialized fluids to contact more of the reservoir rather than modifying the permeability of the rocks.
783	0041-6 Underground injection projects or subsurface injection or disposal projects must not be exempted from the regulations as they also use toxic chemicals and acids the public must be informed about. A Class 2 disposal site operated by Anterra at 1933 E. Wooley Road, Oxnard, CA (do a Google maps search) lies in the center of a strawberry field and hundreds of thousands of gallons of oil waste and fracking fluids are injected into an area that has no cap rock at all.
784	0026-3 Although this section states that the proposed SB4 Well Stimulation Treatment Regulations do not apply to underground injection projects, the proposed regulations in places tacitly authorize such practices (see Prop. Regs. Sec. 1788(a)(14).) Underground disposal of the by-products of well stimulation activities should not be permitted. Such by-products should be disposed of in landfills prepared to accept them and in a manner meeting all federal, state and local laws, ordinances and regulations.
785	0050-5 The Regulations specifically exclude underground injection projects, which consume massive amounts of water and pose grave environmental dangers.

786	0002-22 Any enhanced oil recovery or wastewater disposal process that employs stimulation (pressures exceeding 0.6psi/foot depth) is a well stimulation treatment and subject to these regulations.
787	4069-2 1761(b)(2) UICs should also be included in these State regulations, over and above any other regulations which may apply.
	Response to comments 778-787: Accepted in part. Section 1761(b)(3) was added to further clarify that regulations regarding well stimulation treatment apply to well stimulation treatment operations and regulations regarding underground injection project operations apply underground injection project operations. Wells that are part of underground injection project are not exempt from these regulations. If well stimulation treatment is done on a well that is part of an underground injection project, then the well stimulation treatment operations are subject to the requirements for well stimulation treatment. However, the requirements for well stimulation treatment do not apply to the underground injection project operations, as there are separate requirements that apply to those.
788	0045-38 The term “well stimulation treatment” is too vaguely defined. The definition should not include the modifier that it refers to a “short term and non-continual process.” Neither “short term” nor “continual” are defined, and they are vague terms open to liberal and varied interpretations. The term “underground injection project” or “subsurface injection or disposal process project,” which is limited to “sustained or continual injection over an extended period” suffers from the same ambiguity. As an initial matter, this distinction between short term and non-continual and continual injection has no basis in SB 4 or the newly added sections of Article 3, Chapter 1 of Division 3 of the Public Resources Code. More importantly, the vagueness invites abuse. The problem with such a distinction is demonstrated by the very express examples offered in the draft regulations. For example, cyclic steam injection is listed as an “underground injection project”; however, cyclic steam injection (aka “Huff and Puff”) is—as its own name implies—a process that starts and stops. It is not continuous. The initial injection phase can last days to weeks. It is unclear from the definition as currently drafted whether a process that lasts days is “short term”. If “non-continual” and “continual” are left in the final regulations without definite temporal limits, a company engaged in a new unconventional extraction process will too easily be able to regulation shop, deciding whether to be bound by the regulations covering “well stimulation” or, if it is more desirable, by those applicable to “underground injection process.”
789	0045-47, 0002-22 The definition of “underground injection project” or “subsurface injection or disposal project” suffers from the use of the vague phrase “sustained or continual injection over an extended period.” This definition should be deleted from the rules altogether.
790	0045-35 We object to the proposal to exempt underground injection projects from well stimulation regulations. We propose the following revised definition: (1) “Well stimulation treatment” means a treatment of a well designed to enhance oil and gas production or recovery by modifying the permeability of the formation. Examples of well stimulation treatments include hydraulic fracturing, acid fracturing, and acid matrix stimulation. Well stimulation treatment does not include activities that do not affect the integrity of the well or the formation (2) Well stimulation treatments do not include enhanced oil recovery techniques. Examples of

	enhanced oil recovery techniques include waterflood injection, steamflood injection, cyclic steam injection, miscible gas injection, chemical flooding, and microbial flooding.
	Response to comments 788-790: Rejected. It is necessary to define "underground injection project" or "subsurface injection or disposal project" in order to distinguish underground injection projects from well stimulation treatment. Injection projects for enhanced oil recovery, injection disposal, and underground gas storage are covered by extensive, existing regulations, found in sections 1724.6 through 1724.10 and sections 1748 through 1748.3 of the regulations. These requirements for a "subsurface injection or disposal project" do not apply to well stimulation treatments. The scope, duration, and purpose of injection projects and well stimulation treatments are substantially different, and therefore the regulatory approach to each practice is different. However, because both practices involve putting fluids into an oil or gas well, some have advocated that the Division should apply the underground injection project regulations to well stimulation treatments. Disagreement about the distinction between these two categories of operations has been the subject of litigation in state and federal courts. For this reason, Section 1761 clearly defines the term "underground injection project" and is intended to resolve any confusion about the Division's intention to regulate well stimulation treatments in a manner that is distinct from the way that underground injection projects are regulated. The definitions note that well stimulation treatment is a short term and non-continual process and that an underground injection project involves sustained or continual injection, as these are salient distinctions between the two types of operations.
791	0010-08, 0032-17 Revise 4th sentence to read "Well stimulation treatment does not include routine well cleanout work, routine well maintenance, solids control work, sand control treatments, routine treatment for the purpose of the removal of formation damage dues to drilling,….or a treatment that is not related to scale or precipitation from perforations, casing or tubing that is not calculated to penetrate the formation more than 36 inches from the wellbore." This revision will add clarity to the regulations for acid well stimulations and that the affecting well of formation integrity is not a condition on the prior listed exclusions.
	Response to comment 791: Rejected. The terms "solids control work" and "sand control treatments" are not defined in statute or regulation. The Division will work with operators to help identify whether a given treatment meats the definition of a well stimulation treatment. The suggested grammatical change would mean that removal of scale and precipitation are well stimulation treatment, and that would be contrary to the statutory definition.
792	4068-3 Section 1761(a)(1) - the last clause of this paragraph exempts from the definition of "Well stimulation treatment" any "treatment that does not penetrate into the formation more than 36 inches from the wellbore." This language should be limited to treatments not intended to or likely to produce any significant amount of hydrocarbons, and not intended for the disposal of waste materials. This appears to be a loophole that would allow an operator to run any treatment if they can claim it shouldn't penetrate beyond 36 inches from the wellbore. In that case an operator would not be required to monitor the formation to ensure no penetration beyond 36 inches from the wellbore. Accordingly an operator could complete almost any treatment or disguised waste disposal process by claiming that it was not intended or likely to penetrate beyond 36 inches.

793	0008-2, 0030-8, 4290-2, 4232-4 Channelkeeper believes that the 36-inch minimum wellbore distance and 7% acid qualifiers used to define well stimulation projects are arbitrary and unnecessarily limited. There is no information available demonstrating that well stimulation activities falling below these thresholds are protective of the environment. Therefore, we recommend that these thresholds be removed from the proposed regulations and that all forms of well stimulation including those that utilize acid in any concentration be included within the scope of the regulations.
794	0056-3, 0045-41, 0021-4, 0047-19, 0002-74, 4210-3 The exclusion from the definition of well stimulation treatment of treatments that do "not penetrate into the formation more than 36 inches from the wellbore" is arbitrary and without justification. Any pressurized injection of hydraulic fracturing fluid should be covered by the regulations regardless of how far the injections of such fluids penetrate. It would seem the risks are largely the same regardless of the extent of penetration. For example, a hydraulic fracturing operation designed to penetrate less than 36 inches may experience problems that create risks to the environment. In addition, it would appear that the Division would have great difficulty in determining the extent of any actual penetration for purposes of enforcement.
795	0045-42 The Division provides no information as to how the penetration distance should be determined or verified.
796	0045-43 The proposed rules appear to provide complete discretion to the operator to decide whether or not a proposed stimulation treatment will meet the penetration distance threshold, and consequently whether or not to apply for a permit.
797	0045-44 The Division has failed to provide any requirements for how the anticipated penetration distance should be calculated. There is also no requirement for the penetration distance to be verified after stimulation.
798	0045-45 Many of the risks that the legislature sought to address by requiring the Division to regulate well stimulation are not proportional to the penetration distance of a stimulation treatment, for example the use and handling of potentially hazardous chemicals and waste, and well integrity.
799	0045-46 The penetration distance concept appears to be based on a false assumption that the treatment will penetrate radially into the formation. In reality, variations in the geologic properties of the target formation will result in variable penetration. As such, it is unclear whether the proposed 36 inch threshold should be considered an average, maximum, or other measure. The penetration distance threshold concept does not have scientific or technical merit and the Division must abandon this provision. If finalized, this rule would set a dangerous precedent.
800	0045-34 The term "well stimulation treatment" is too narrowly defined in the draft regulations and should be amended in the final regulations. In particular, the definition should not limit the regulations to treatments that penetrate a formation more than 36 inches from the well-bore. This threshold is arbitrary, has no basis in the implementing legislation—the newly added sections of Article 3, Chapter 1 of Division 3 of the Public Resources Code never mention any 36 inch exclusion—and could leave potentially dangerous processes unregulated or under-regulated.

801	0045-39 We object to the use of arbitrary thresholds to create distinct classes of well stimulation. The proposed threshold creates different regulatory regimes not just for the actual act of well stimulation, but also for many other steps in the extraction process, for example, public notice, well construction, chemical disclosure, and waste water handling. In practice, this means that oil and gas extraction performed below the threshold is not subject to the more stringent rules that apply to extraction above the threshold.
802	4068-3 Section 1761(a)(1) - the last clause of this paragraph exempts from the definition of "Well stimulation treatment" any "treatment that does not penetrate into the formation more than 36 inches from the wellbore." This language should be limited to treatments not intended to or likely to produce any significant amount of hydrocarbons, and not intended for the disposal of waste materials. This appears to be a loophole that would allow an operator to run any treatment if they can claim it shouldn't penetrate beyond 36 inches from the wellbore. In that case an operator would not be required to monitor the formation to ensure no penetration beyond 36 inches from the wellbore. Accordingly an operator could complete almost any treatment or disguised waste disposal process by claiming that it was not intended or likely to penetrate beyond 36 inches.
	Response to comments 792-802: Accepted in part. Section 1761(a)(3) was added to establish an Acid Volume Threshold, which is calculated on a case-by-case basis, factoring in the wellbore volume and the porosity of the formation. Calculation of the Acid Volume Threshold will return a number of gallons per treated foot of the wellbore, which will be used to help whether a treatment using acid is or is not a well stimulation treatment. Public Resources Code section 3157 defines "well stimulation treatment" to mean a treatment of a well that is designed to enhance oil and gas production by increasing the permeability of the formation. The definition of "well stimulation treatment" expressly excludes routine well cleanout work, well maintenance, removal of formation damage, bottom hole surveys, and other activities that do not affect the integrity of the well. Based on the Division's determination that wellbore damage generally extends 20 to 50 inches from the wellbore, the Acid Volume Threshold is designed to calculate the formation bulk volume per treated foot of the wellbore for a 36-inch radius from the wellbore. A distance of 36 inches was selected because it is a conservatively smaller area than the area where wellbore damage could typically occur. If a treatment is below the Acid Volume Threshold, then it is clearly within the range of wellbore cleanout, maintenance, and removal of formation damage. Well treatments using acid that exceed the Acid Volume Threshold are presumed to be well stimulation treatment, unless it is successfully demonstrated to the Division that the treatment will not increase the permeability of the formation. Additional discussion of the basis for the Acid Volume Threshold can be found in the document titled *Discussion of Calculated Acid Volume Threshold*, which is included in the rulemaking record.
803	0141-1 Well stimulation is too narrowly defined. Missing is Gravel Packing and a pressure rule that any pressure above 0.6psi/foot depth is well stimulation.

804	4240-5 You need to add a definition for high rate or high volume gravel packing.· The industry has identified this is a hydrate form of hydraulic fracturing.· And when -- our experience with South Coast Air Quality Management District was they do not want high grade gravel packing, high volume gravel packing added because it's actually -- what they're doing is they're doing high volume fracturing and ground fracking at the same time.· And yet the industry itself has identified this process as a hybrid process and they want it -- the South Coast Air Quality Management District to say, no, it is not.· So that does need to be added to your definitions.
	Response to comments 803-804: Accepted. Section 1761(a)(1)(A)(i) specifies that a treatment at pressure exceeding the formation fracture gradient is presumed to be a well stimulation treatment, and Section 1761(a)(1)(B) specifies that a gravel pack treatment that does not exceed the formation fracture gradient is not a well stimulation treatment.
	1780. Purpose, Scope, and Applicability
805	0084-8, 0099-8 As written there is a current exception to the permit process allowing for unpermitted well stimulation with treatment that uses an acid concentration of 7% or less. Without knowing the future technology and methodology of hydraulic fracturing and well stimulation it is recommend that the exception not be limited to acidic concentration levels.
806	0057-4 Change the minimum acid concentration to 3% instead of 7% for hydrofluoric acid: Section 1780. (a) The purpose of this article is to set forth regulations governing well stimulation treatments, as defined in Section 1761, subdivision (a)(1), except that the requirements of this article do not apply to acid matrix stimulation treatments that use a hydrofluoric acid concentration of 3% or less, or 7% or less for other acids. Nor is an operator required to obtain a permit under Public Resources Code section 3160, subdivision (d), prior to performing an acid matrix stimulation treatment that uses a hydrofluoric acid concentration of 3% or less, or 7% or less for other acids.
807	0276-1, 0284-1, 0243-1 It is a weakness of the regulations that the regulations appear to fully exempt acid matrix stimulations that use fluids with less than 7% acid.
808	4280-2, 0043-03 SB 4 does not apply to acid stimulation treatments below seven percent. So then if they want to go above seven percent, you will regulate them?
809	0002-26 Section 1780 should be amended as follows: (a) The purpose of this article is to set forth regulations governing well stimulation treatments, as defined in Section 1761, subdivision (a)(1), except that t The requirements of this article do not apply to acid matrix stimulation treatments that use an acid volume of more than 0 gallons per treated foot, or total acid volume of the treatment of more than 0 gallons concentration of 7% or less. Nor is an operator is required to obtain a permit under Public Resources Code Section 3160, subdivision (d), prior to performing an acid matrix stimulation treatment that uses an acid volume of more than 0 gallons per treated foot, or total acid volume of the treatment of more than 0 gallons concentration of 7% or less.

810	4285-4 Threshold concentration has to be established for each acid based on its risk. You may have -- if somebody in your household makes pickles, the best pickling acid is seven percent acetic acid, vinegar, and really that seven percent threshold, that's the best for making pickles. It's not all that dangerous. On the other extreme is hydrofluoric acid. Its chemical formula by the way is HF, which somebody cluelessly has also established as -- yes, I think you know what's coming -- as the abbreviation for hydraulic fracturing.
811	4285-5 HF is one of the most dangerous acids known. Ingesting one percent HF can be fatal. At two percent concentration, it causes agonizing but delayed burns. People may not know that they've suffered any harm at all for hours, which gives the acid time to penetrate the bones. If you spilled seven percent HF on yourself, you may experience no pain for an hour, but by that time you may have extreme tissue damage or bone damage.
812	0017-2 1780(a)(1) States that well stimulation using 7% acid, or less, is exempt from the regulation. No rationale for this exemption is provided and it's unclear why it's justified.
813	0046-12, 0056-4, 0002-21, 0045-49 Section 1780(a) exempts well stimulations that use an acid concentration of 7% or less, and exempts operators of these stimulations from obtaining a permit under Public Resources Code section 3160, subdivision (d), without studying the impact of such well stimulations.
814	0049-6, 0026-4, 0002-25, 0045-51, 0047-20 Despite Section 3160 (b)(1)(C)'s requirement that any threshold values for acid matrix stimulation treatments in the Proposed Regulations must be "based upon a quantitative assessment of the risks posed by acid matrix stimulation treatments," the Initial Statement of Reasons cites no support for its conclusion that acid matrix stimulation treatments with acid concentration of 7% or less are harmless but instead refers vaguely to "available information." *Id.* In fact, however, even the Initial Statement of Reasons admits that there is a "risk" that acid will migrate out of the production zone. *Id.* Moreover, the Department "has limited data about the specifics of acid matrix stimulation" in California but "[i]n the near future … will have the benefit of a great deal of new information about well stimulation treatment in the state." *Id.*
815	0049-5, 0041-7, 0141-2 The Proposed Regulations should be revised to remove the regulatory exemption for acid matrix stimulation treatments utilizing acid concentration of 7% or less.
816	0049-7 The Proposed Regulations should, in line with the precautionary principle, regulate all well stimulation treatments utilizing acid until the additional data is collected and analyzed. Should the data clearly demonstrate that acidizing well treatments with 7% acid concentration or less are harmless to the environment and water resources, the Department of Conservation will have the opportunity to revise the Proposed Regulations and exempt certain acid well stimulation treatments by January 1, 2020.
817	0002-23, 0045-40 The purpose, scope, and applicability of Article 4 (Well Stimulation Treatments) is too narrowly defined in the draft regulations, and must be amended in the final regulations. In addition, an acid concentration threshold is in contravention of the plain text of SB 4. SB 4 mandates that the Division establish a threshold *volume* for acid not a threshold concentration. Section 3160, subsection (b)(1)(C)(i) states that "the rules and regulations *shall* establish threshold values for acid *volume* applied per treated foot of any individual stage of the well, or for total acid *volume* of

	the treatment."
818	0045-52 The Division should set the threshold volume at zero until at least that time, when, as stated in the ISOR, “the Division will have the benefit of a great deal of new information about well stimulation treatment in the state.” Given the current lack of data, any volume of acid should be subject to the proposed rules.
819	0055-2 PRC 3160(b)(1)(C)(i) requires the regulations to "establish threshold values for acid volume applied per treated foot of any individual stage of the well or for total acid volume of the treatment, or both, based upon a quantitative assessment of the risks posed by acid matrix stimulation treatments that exceed the specified threshold value or values in order to prevent, as far as possible, damage to life, health, property, and natural resources." Instead, the regulations, in 1780(a), establish what appears to be an arbitrary threshold for acid concentration. While the concentration would be a very useful additional factor in determining the threshold volume, it cannot be a substitute. Furthermore, the threshold concentration must be established for each acid, or mixture of acids, based on its risk. 7% acetic acid may be found in kitchens; it is the best vinegar for making dill pickles. On the other extreme is hydrofluoric acid (chemical formula HF). HF is one of the most dangerous acids known. Ingesting 1% HF can be fatal. At 2% concentration, it causes agonizing, but delayed, burns. If you spill 7% HF on yourself, you may experience no pain for an hour, or up to several hours; by that time, you may already have extreme tissue or bone damage. Ingesting one tablespoon of 9% HF has been reported to cause death. So HF should be exempted from regulation only at a very low concentration or never be exempted, at any concentration or volume.
820	0045-50 Section 1780(a) should be amended to read as follows: “The purpose of this article is to set forth regulations governing well stimulation treatments, as defined in Section 1761, subdivision (a)(1) The requirements of this article apply to acid matrix stimulation treatments that use an acid volume of more than zero gallons per treated foot, or total acid volume of the treatment of more than 0 gallons . An operator is required to obtain a permit under Public Resources Code section 3160, subdivision (d), prior to performing an acid matrix stimulation treatment that uses an acid volume of more than 0 gallons per treated foot, or total acid volume of the treatment of more than 0 gallons.”
	Response to comments 805-820: Accepted. The acid concentration threshold has been removed from Section 1780(a).
821	002-24 Clean Water Action objects to the use of arbitrary thresholds to create distinct classes of well stimulation. Volumetric and other thresholds create different regulatory regimes not just for the actual act of well stimulation, but also for many other steps in the production process, such as: public notice, well construction, chemical disclosure, and waste water handling. In practice, this means that oil and gas production performed below the threshold is not subject to the more stringent rules that apply to production above the threshold. As such, they create a system in which regulations to protect environmental and human health are not consistently applied across all oil and gas operations.
822	4234-4 Acid maintenance. The 3-foot and 5-7 percent is supposed to address maintenance. But that can be dealt with very simply by saying it's for permeability improvements, if it is, its stimulation. If you

	want, you can add a pressure element because nobody has defined the pressure element in all of these regulations. That is, if you have to apply more than a thousand pounds per square inch gauge at the surface, it's a stimulation. Because you're doing something very different from normal.
823	4214-2, 4285-3, 4317-4, 4237-2 Well stimulation treatment is too narrowly defined that limits the regulations to only treatments that penetrate a formation more than 36 inches from the wellbore and acid metrics stimulations that utilize more than 7 percent concentration of acids. These thresholds are arbitrary and could have potentially dangerous processes under regulated. SB4 did not mandate that DOGGR establish a minimum penetration from the wellbore; and therefore, this threshold distance appears to be unnecessary limiting the scope of the regulations and undercutting the intent of SB4, which is to regulate all forms of well stimulation. DOGGR must adopt a definition covering any processes that increases the permeability of a formation regardless of the distance of penetration or acid concentration.
824	0251-5, 0021-5 "Well stimulation treatment" is too narrowly defined. It limits the regulations to only treatments that penetrate a formation more than 36 inches from the well-bore and acid matrix stimulations that utilize more than 7% concentration of acid. These thresholds are arbitrary and could leave potentially dangerous processes under-regulated. SB 4 did not mandate that DOGGR establish a minimum penetration from the well-bore, and therefore this threshold distance appears to be unnecessarily limiting the scope of the regulations and undercutting the intent of SB 4, which is to regulate all forms of well stimulation.
825	0251-6 The Division must adopt a definition covering any process that increases the permeability of a formation, regardless of distance of penetration or acid concentration.
	Response to comments 821-825: Accepted in part. The acid concentration threshold has been removed from Section 1780(a). Section 1761(a)(3) was added to establish an Acid Volume Threshold, which is calculated on a case-by-case basis, factoring in the wellbore volume and the porosity of the formation. Calculation of the Acid Volume Threshold will return a number of gallons per treated foot of the wellbore, which will be used to help whether a treatment using acid is or is not a well stimulation treatment. Public Resources Code section 3157 defines “well stimulation treatment” to mean a treatment of a well that is designed to enhance oil and gas production by increasing the permeability of the formation. The definition of “well stimulation treatment” expressly excludes routine well cleanout work, well maintenance, removal of formation damage, bottom hole surveys, and other activities that do not affect the integrity of the well. Based on the Division’s determination that wellbore damage generally extends 20 to 50 inches from the wellbore, the Acid Volume Threshold is designed to calculate the formation bulk volume per treated foot of the wellbore for a 36-inch radius from the wellbore. A distance of 36 inches was selected because it is a conservatively smaller area than the area where wellbore damage could typically occur. If a treatment is below the Acid Volume Threshold, then it is clearly within the range of wellbore cleanout, maintenance, and removal of formation damage. Well treatments using acid that exceed the Acid Volume Threshold are presumed to be well stimulation treatment, unless it is successfully demonstrated to the Division that the treatment will not increase the permeability of the formation.

	Additional discussion of the basis for the Acid Volume Threshold can be found in the document titled *Discussion of Calculated Acid Volume Threshold*, which is included in the rulemaking record.
826	0032-6, 0010-02 WSPA supports DOGGR's approach to defining hydraulic fracturing in a manner that focuses on fractures with proppant and the definition of acid matrix stimulation that includes treatments that use an acid concentration of 7% or more and that are intended to increase a formation's permeability (assuming an acid concentration of 7% or more). This approach clearly distinguishes covered treatments from activities that are associated with routine maintenance, enhanced oil recovery or disposal injection wells.
	Response to comment 826: Rejected. The acid concentration threshold that was initially proposed in Section 1780(a) has been deleted and the Acid Volume Threshold has been added to the definition of "well stimulation treatment" at Section 1761(a)(3). Consistent with the statutory definition, the Acid Volume Threshold is intended to identify excluded operations based on the effect of the treatment, as designed, upon the formation. The intent of a treatment is a subjective question and is not an element in the statutory distinction between well stimulation treatment and excluded routine operations.
827	4210-4 Underground injection wells often use well stimulation treatment, in which case they should be subjected to these rules.
828	0046-13 Item 1780 (b) states that "*well stimulations are not subsurface injection or disposal projects*" despite the fact that well stimulations involve the injection of massive volumes of water containing toxic, and in some cases carcinogenic, chemicals into the subsurface.
829	0045-110 We object to the proposal to exempt underground injection projects from well stimulation regulations. Underground injection wells often use well stimulation treatment in which they should be subject to the rules.
	Response to comments 827-829: Accepted in part. Section 1761(b)(3) was added to further clarify that regulations regarding well stimulation treatment apply to well stimulation treatment operations and regulations regarding underground injection project operations apply underground injection project operations. Wells that are part of underground injection project are not exempt from these regulations. If well stimulation treatment is done on a well that is part of an underground injection project, then the well stimulation treatment operations are subject to the requirements for well stimulation treatment. However, the requirements for well stimulation treatment do not apply to the underground injection project operations, as there are separate requirements that apply to those.
830	0002-26 Section 1780(c) should be amended as follows: "For purposes of this article, a well stimulation treatment commences when well stimulation fluid<u>s and equipment are delivered to the pad</u> ~~is pumped into the well,~~ and ends when well stimulation treatment equipment <u>and all fluids and additives are</u> ~~is~~ disconnected from the well and removed from the site."

831	0045-50 Section 1780(b) should be amended to read as follows: “For purposes of this article, a well stimulation treatment commences when well stimulation equipment or materials are brought to the wells site, and ends when either the well is shut in or when the well continuously flows to the flow line or to a storage vessel for collection, whichever occurs first.”
832	0026-5 For purposes of the regulations, well stimulation treatment should not be considered ended until all of the well stimulation fluids, including flow back fluids, are disposed of in accordance with all applicable federal, state and local laws, ordinances and regulations.
833	4068-4 Paragraph 1780(c) indicates that “a well stimulation treatment ... ends when the well stimulation treatment equipment is disconnected from the well.” This limitation fails to take into account that well stimulation treatments, in the forms of fluids, additives, or other introduced materials may remain within the well after treatment equipment is disconnected. The presence of the introduced fluids or materials indicates that the treatment continues, even if the well equipment has been disconnected.
834	4234-3 Regarding Section 1780(c), when drilling rig, what is the period for stimulation? It's whenever the drilling rig moves out, the rework, the rig moves out, the time of resumption or start of production.· It's all completion or stimulation.
	Response to comments 830-834: Rejected. The commencement and termination of treatment operations do not mark the beginning and end of the regulation treatment operations. There are requirements that must be complied with in advance of well stimulation, and there are requirements that must be complied after well stimulation treatment is complete. It is necessary to define the commencement and termination of well stimulation treatment operations because the timeframes for certain requirements are triggered at the commencement or end of a well stimulation treatment. Section 1780(c) identifies concrete activities that clearly indicate the time when the actual treatment is occurring, and therefore these activities are ideal for staging the pre-treatment and post-treatment requirements. If well stimulation treatment were said to begin and end long before or after the treatment was actually occurring, then the timing public disclosures, neighbor notifications, and well evaluations would be disrupted and statutory purposes would be undermined.
835	4232-5 Section 1780(c) talks about how things are going to be -- treatment commences or the treatment ends when the stimulation treatment equipment is disconnected from the well. But it doesn't talk about any of the fluids that are in the well at that time. Are they going to be pumped out? Is it going to be a sealed well at the end of the well? It doesn't say. So I would like that to be known so that I know it.
	Response to comment 835: The purpose of these regulations is to ensure the integrity of the well and the geologic and hydrologic isolation of the stimulated hydrocarbon formation during and after well stimulation treatment. In addition, Section 1788(a)(12)(E) requires public disclosure of the composition of water recovered from the well following well stimulation treatment.

	1781. Definitions
836	0002-27 The following terms should be defined in the regulations: "Acid Fracking or Fracturing", “Acid Fracturing (or AcidFracs)”, "Fracture", "Annulus," "Carrier fluids", "Breaches, leaks, seeps, or failures", "Cement bonds", “Closed Loop System”, “Fault”, “Formation permeability”, “Flowback or flowback fluid”, “Production”, “Flowback period”, “Stimulation Envelope or Envelope”, “Fresh Water”, “Horizontal projections”, “Microseismicity”, “Notice for treatments”, “Occupant”, “Planned modifications”, “Each POINT of treatment (or “a Point”)”, “Pressures”, “Produced or Formation Water”, “Operator”, “Property”, “Water with beneficial use(s)”, “Rock Fracture Pressure”, “Subsurface property owner”, “Stimulation Envelope”, “Stimulation treatment fluid”, “Tenant”, “Uppermost Hydrocarbon Zone”.
	Response to comment 836: Accepted in part. Definitions have been added of the terms “acid fracturing” and “tenant.” Definitions have not been added for any of the other terms because the term is not used in the regulations, the meaning of the term is commonly understood, or the term is already defined in the regulations.
837	0045-53 Section 1781 should be revised to read as follows: (a) “Matrix stimulation treatment” means well stimulation treatment conducted at pressures lower than the fracture pressure of the target underground geologic formation, in order to cause, restore, or enhance the production of hydrocarbons from a well. Matrix stimulation treatments include, but are not limited to, acid matrix stimulation treatments.
	Response to comment 837: Rejected. Adding this defined term would not have any effect because the term “matrix stimulation treatment” is not used in these regulations.
838	0045-53 Section 1781 should be revised to read as follows: (h) “Fracture stimulation treatment” means a well stimulation treatment conducted at pressures above the fracture pressure of the target underground geologic formation in order to restore, or enhance, for the purposes of this division, the production of oil or gas from a well.
	Response to comment 838: Rejected. Adding this defined term would not have any effect because the term “fracture stimulation treatment” is not used in these regulations.
839	0045-53 The definitions of “acid stimulation fluid” and “hydraulic fracturing fluid” should be removed.
	Response to comment 839: Rejected. The terms “acid stimulation treatment fluid” and “hydraulic fracturing fluid” are both used in the statutory definition of “well stimulation treatment fluid” found in Public Resources Code section 3153. Although the two terms are not themselves used in Article 4, it is necessary to define them to make clear the meaning of “well stimulation treatment fluid.”

840	0042-5 The Division should consider the inclusion of a definition of “independent third party” in the regulations.
841	0042-2 Sections 1783 and 1783.1 set forth the Application process to perform well stimulation treatment by well operators. Waste Management (WM) has the capability to support efforts of energy companies to secure the necessary permits in accordance with these sections. WM requests clarification as to whether provision of support services to well operators would, in any way, jeopardize WM “independence” with respect to providing “independent third party” services to operators pursuant to subsequent section 1783.3. WM notes that the terms “owner”, “operator” and “independent third party” are not defined in the proposed regulations. WM requests clarification of these definitions so as to clearly delineate the services that WM may provide to owners and operators of wells receiving well stimulation treatment.
	Response to comments 840-841: Accepted in part. Section 1781(m) was added to provide a definition of the term “independent third party.” The term “operator” is defined by statute in Public Resources Code section 3009, and the term “owner” is commonly understood.
842	0055-5 The definition of "tenant" needs to be changed to conform to that in the Interim Regulations. Neighboring tenants must be notified of pending well stimulation, and in some cases must be allowed to request water testing. Therefore, the less restrictive definition in the Interim Regulations should be used in the permanent regulations.
	Response to comment 842: Accepted. Section 1781(r) was added to provide a definition of the term “tenant,” and that definition is consistent with the definition of the term found in the SB 4 Interim Well Stimulation Treatment regulations.
843	0161-1 The term “well failure” should be defined. Lacking a proper definition will allow industry to define the term on a case to case basis.
	Response to comment 843: Rejected. Although the originally proposed regulations used the terms “well failure” and “well breach” interchangeably, the term “well breach” is now consistently used throughout so as to avoid confusion. The regulations do provide minimum parameters for what would constitute a “well breach” by establishing monitoring thresholds in Sections 1785(b) and 1787(d).
844	0120-1 The term “API” should be defined.
	Response to comment 844: Rejected. It is not necessary to define “API” because the abbreviation of American Petroleum Institute is standard and commonly understood among the regulated public.
845	4068-19 Technical terms and terms of art used in the regulations should be standardized. For example,

	the terms “fluid,” “fracturing fluid,” “fracture fluid,” “carrier fluid,” and “non-freshwater fluids” are all used in the proposed regulations. Sometimes such terms seem to include the proppant, but sometimes the proposed regulations refer to both “hydraulic fracturing fluid and proppant” which would indicate that fracturing fluid does not include proppant. To avoid ambiguity, confusion, obfuscation, chicanery and/or outright deception, these terms should be clarified through definitions that would apply consistently throughout the regulations.
	Response to comment 845: Rejected. The term “hydraulic fracturing fluid” is a defined term that is used consistently throughout. The terms “fracturing fluid,” “fracture fluid,” and “carrier fluid” are not used in these regulations. The term “fluid” is a commonly understood term that does not require definition in these regulations.
846	4152-8 WSPA supports the definition of “acid matrix stimulation,” which recognizes that the stimulation treatments intent is to increase the formulation permeability.
	Response to comment 846: Thank you for your comment.
847	0010-09, 0032-18 The definition of “Acid well stimulation treatment” should be revised to add the following sentence to the end of the definition: “Acid well stimulation treatments do not include treatments that are related to scale or precipitation from perforations, casing or tubing that is not calculated.” This addition will provide clarity for the applicability of the regulations for acid well stimulations.
	Response to comment 847: Rejected. Section 1761(a)(1)(B) already specifies that the removal of scale or precipitation from the perforations, casing, or tubing is not well stimulation treatment.
848	4069-3, 4234-10 Section 1781(f) should be revised because the Chemical Disclosure Registry needs to be on a public website that is accessible with a searchable database. FracFocus is grossly inadequate for this purpose, as it is an industry site with data in a non-searchable pdf format; these data are submitted on a voluntary basis by operators and are not vetted for quality assurance or accuracy. DOGGR should be able to create a searchable database in 60 days.
	Response to comment 848: Accepted in part. “Chemical Disclosure Registry” is a defined shorthand for the chemical registry Internet Web site known as fracfocus.org. Section 1788(b) was added to require that, in addition to posting chemical information to the Chemical Disclosure Registry, operators must submit all required public disclosures directly to the Division and that the Division will make the information available to the public in a format that can easily searched and aggregated. The defined term “Chemical Disclosure Registry” is functional and does not need to be changed.
849	0010-010 The definition of “hydraulic fracturing” does not include fracturing of injection wells since injection well fracturing does not increase oil and gas production. Language should be added to the regulation that makes that exemption explicit.

	Response to comment 849: Rejected. As specified in Section 1761, these regulations do apply to well stimulation treatment conducted on a well that is part of underground injection project.
850	4068-9 The proposed definition of “protected water” in Paragraph 1780(d) is too narrow. The 10,000 mg/l limit in the definition fails adequately to protect other water resources and therefore does not protect against potential damage to life, health, property, and natural resources. Nor does it bear in mind the best interests of lessors, lessees, and the state in protecting these water resources.
851	0004-2, 0030-18 In Section 1781(k); the definition for "Protected Water," as proposed, does not adequately recognize statute address’s protecting groundwater suitable for beneficial use, while acknowledging the existence of aquifers that are exempt under 40 C.F.R. Section 146.4. Section 1781(k), as proposed, creates a new class of water in California ("Protected Water"), defined as being less than 10,000 ppm total dissolved solids (TDS). While this has relationship to the U.S. Drinking Water (USDW) definition, it does not include the exemption or exclusion criteria of the USDW or the intent of SB 4 language. Further, this new definition does not recognize the established precedent that has governed protection of water under existing oil and gas operating practices, which is more typical of State Water Board Resolution 88-63. Under the 1/ 1114 promulgated Interim Well Stimulation Regulation the definition of Protected Water has been amended to include the exclusion of exempt aquifers under the UIC program.
852	0004-2, 0030-18 Chevron requests that the definition include the exempt aquifer exclusion and be further amended to reflect the intent of SB 4 that the waters must be of sufficient quality to be of beneficial use. This determination typically includes water quality criteria beyond just TDS and consideration of the ability of the zone to produce in sufficient volumes.
853	0051-7, 4234-6**,** 4237-4 Protect water up to 20,000 TDS. 10,000 TDS water can be made useful.
854	0012-4 The definition of protected water sets a dissolved solids concentration at 10,000 mg/1. Instead, the County suggests that the definition should link to the Regional Water Quality Control Board's definition of potable water, which may change over time change.
855	0049-8 The definition of “protected water” provided in Section 1781 of the Proposed Regulations should be revised and expanded to include all federal and state surface and ground water that contains more than 10,000 mg/L total dissolved solids. All waters afforded beneficial uses under a water quality control plan, such as the Los Angeles Basin Plan, must be considered protected waters under the Proposed Regulations. This is especially necessary for California where drought or near-drought conditions are routine and water demand is ever increasing.
856	4237-5 Stimulation treatments should use closed loop systems to protect the land and water from the poisoning.
857	4152-6 With regards to water testing, we recognize that a key provision of the legislation is water monitoring and testing requirements.· We believe that the intent of this provision is to ensure that

	the groundwater is suitable for drinking and irrigation and is being actively used for those purposes.· Since it is adequately protected during the stimulation operations, then we are committed to that.· We believe that the regulation should specify that the notice of the enforceability for water sampling and testing should apply to existing wells.
858	0015-4 Currently, DOGGR's formal rulemaking draft refers to protected water as "water outside of a hydrocarbon zone that contains no more than 10,000 mg/L total dissolved solids" (TDS) DOGGR should use the full definition of underground sources of drinking water (USDWs) as defined under the USEPA UIC Program. The UIC Program protects USDWs from 'endangerment' by setting minimum requirements for injection wells. DOGGR omits the concept of "exempted aquifers" from its protected water definition. The following definitions are used in the UIC program: An underground source of drinking water (USDW) is an aquifer or a part of an aquifer that is currently used as a drinking water source or may be needed as a drinking water source in the future. Specifically, a USDW: • Supplies any public water system, or • Contains a sufficient quantity of ground water to supply a public water system, and • Currently supplies drinking water for human consumption, or • contains fewer than 10,000 mg/l total dissolved solids (TDS), and • Is not an exempted aquifer.
859	0021-8, 0002-10, 0030-9, 4234-6 Section 1781(k) appears to unnecessarily use a narrower definition of "protected water" than other key pieces of water legislation, including the Clean Water Act and California's Porter-Cologne Act.9 This strict definition could leave potentially valuable waters unguarded and create conflicting positions across agencies on bodies of water. For example, Regional Water Quality Boards may regulate waters left unprotected by the draft policies and under-controlled well stimulation treatments could undermine agencies water protection and remediation efforts. To ensure a cohesive approach to water quality preservation, the Division should match its definition of protected waters with other agencies definition.
860	4068-5, 0195-1, 4214-3, 0251-7 Subparagraph 1781(k) would define "Protected Water" as "water that either: (1) Contains no more than 3,000 mg/l total dissolved solids; or (2) Contains no more than 10,000 mg/l total dissolved solids and is suitable for irrigation or domestic purpose." This definition is too narrow to adequately protect the life, health, property, and natural resources or to address the interests of lessors, lessees, and the state. This limit is less than ⅓ the TDS of seawater. Water is an invaluable resource and a public trust. Especially in view of current drought conditions and diminishing agricultural and domestic water resources, "protected water" should not be limited to a maximum of 10,000 mg/l TDS.
861	0032-7, 4094-6 The proposed definition of "protected water" covers a broader universe of underground water than the statute was intended to cover. SB4 includes the intent of protecting waters of beneficial use and exclusions for waters exempt under the Underground Injection Program (CFR 40, Section 146.4). The proposed regulation creates a new class of water in California ("Protected Water") as being less than 10,000 ppm total dissolved solids (TDS). While this has relationship to the U.S. Drinking Water (USDW) definition, it does not include the exemption or exclusion criteria of the USDW or the intent of SB-4 language. Under the 1/1/14 promulgated Interim Well Stimulation Regulations the definition of Protected Water has been amended to include the exclusion of exempt aquifers under the UIC program. WSPA recommends that the definition include the exempt aquifer exclusion and be further amended to reflect the intent of SB 4 that the waters must be of sufficient quality to be of beneficial use. This determination typically includes water quality criteria beyond just TDS and consideration of the ability of the zone to produce in

	sufficient volumes.
862	0010-03, 4297-1 The proposed definition of “protected water” covers a broader universe of underground water than the statute was intended to cover. In addition, the proposed regulations do not consistently distinguish those instances where “protected water” does not exist in a project area.
863	0032-8, 0010-04 The proposed regulations do not consistently distinguish those instances where “protected water” does not exist in a project area. The regulations should clearly define which regulatory requirements are only applicable to safeguard “protected water” (where properly defined) and implement those measures only in areas where such waters exist.
864	4068-6 Waters with TDS greater than 10,000 mg/l is a potential future water resource that easily could become suitable for irrigation or domestic purposes. It therefore should be protected “as far as possible” from “damage ... by the infiltration of, or the addition of, detrimental substances,” (such as stimulation treatment fluids and additives).
865	4068-7, 4068-9 Paragraph 1781(k) would allow operators to contaminate, with impunity, ground water resources that are less saline than seawater, but greater than 10,000 mg/l. Further, water can serve as a conduit by which treatments could migrate to other strata or to other water resources, resulting in contamination. Water resources should be protected regardless of the TDS.
866	0010-011, 0032-19 “Protected water” should be revised to read: water outside of a hydrocarbon zone that contains no more than 10,000 mg/l total dissolved solids*, other than* water that is not exempted by 40 CFR section 146.4 or any water for which there are no designated beneficial uses.
	Response to comments 850-866: Rejected. The defined term “protected water” was removed from the regulations. Public Resources Code section 3160, subdivision (b), calls for regulations that ensure well integrity and geologic and hydrologic isolation of the stimulated hydrocarbon formation, regardless of the quality of groundwater in the area. Accordingly, the requirements of these regulations apply regardless of the groundwater quality and therefore it is not necessary to define “protected water.”
	1782. General Well Stimulation Treatment Requirements
867	0049-8 Section 1782 of the Proposed Regulations should be revised to add a requirement that well operators must ensure compliance with all regulations protecting air, water, soil and other natural resources.
	Response to comment 867: Accepted. Section 1782(a)(9) was added stating that well stimulation treatment operations shall be conducted in compliance with all applicable requirements of the Regional Water Board, the Department of Toxic Substances Control, the Air Resources Board, the Air Quality Management District or Air Pollution Control District, the Certified Unified Program Agency, and any other local agencies with jurisdiction over the location of the well stimulation activities.

868	0032-20 Section 1782(a) should be revised to read, "When a well stimulation treatment is performed, the operator shall *take measures that seek* to ensure ~~that~~ all of the following:" An operator can only employ best industry practice to meet these objectives.
869	4069-8 1782(a) it is imperative that State regulators be the ones to ensure that these requirements are met. The regulations as written provide no oversight or process for independent verification. The operator/company should be responsible for underwriting the expense of the State inspections, and operations should be prohibited from going forward unless and until State inspectors are on-site.
	Response to comments 868-869: Rejected. The purpose of Section 1782 is to establish a set of governing principles under which all well stimulation treatments must be conducted, and to specify that the operator has the burden of operating in accordance with those principles.
870	0045-54 Revise Section 1782(a)(1) to include the casing design includes safety measures that ensure well control during drilling and completion and safe operations during the life of the well.
871	4068-9 Section 1782(a)(1) requires casing sufficiently cemented to provide effective control of the well at all times. However, the interim regulations require effective control "at all times during well stimulation treatment." The interim rules should have that limitation removed and should be changed to require effective control at all times, even after well stimulation treatment.
	Response to comments 870-871: Accepted. Section 1782(a)(1) provides that casing must be sufficiently cemented or otherwise anchored in the hole in order to effectively control the well at all times.
872	0008-3 We support the incorporation of Sections 1782(a)(2) and (a)(3) which provide additional certainty that operators will maintain geologic and hydrologic isolation.
	Response to comment 872: Thank you for your comment.
873	0015-2 Section 1782(a)(5) indicates that driller must "maintain" the wellbore's mechanical integrity. The Division should include criteria to support this determination of wellbore integrity.
874	0103-18 Section 1782(a)(5) says the well bore mechanical integrity should be kept. In the pre-rulemaking discussion draft, it was talking about the mechanical integrity being tested and maintained. Is there an approved list of certified professionals?
	Response to comment 873-874: Rejected. The purpose of Section 1782 is to establish a set of governing principles under which all well

	stimulation treatments must be conducted. Specific requirements for ensuring the mechanical integrity of a well subject to well stimulation treatment are found in Sections 1784.1, 1784.2, 1785, and 1787. The regulation does not require the use of designated certified professionals.
875	0026-6 In Section 1782(a)(6) “treat” should be “treatment.”
	Response to comment 875: Accepted.
876	4068-10 Subparagraph 1782 (a)(6) should be amended to ensure that operators maintain full records of all fluids and proppants used. The proposed regulation currently states “The hydraulic fracturing fluids and proppants used are of known quantity and description for reporting and disclosure as required pursuant to this Article.” This language could be interpreted to allow an operator to maintain records only of what is required to be reported, and not keep full records of all materials included in their fluids.
	Response to comment 876: Rejected. Sections 1783.1(a)(28) and 1788(a)(19) already require the operator to provide the identify and concentration of each chemical constituent in the well stimulation treatment fluid.
877	0045-54 Revise Section 1782(a)(7) to include that all well construction materials are compatible with fluids with which they may come into contact and are resistant to corrosion, erosion, swelling, or degradation that may result from such contact.
878	0021-9 The Division should consider revising Section 1782(a)(7) to require treatment fluids to not damage the well during *and after* the treatment process. Damage could occur during the production and well completion phases and a broader definition is needed to capture this.
879	0047-21 Section 1782(a)(7) requires that the well stimulation treatment fluid cannot be of a concentration level that will damage the well casing or cause degradation of the well’s mechanical integrity. However, the regulations do not provide a testing method or independent certification of this prior to commencement of well stimulation treatment operations. To ensure well integrity, such testing or certification should be a requirement in section 1784.
	Response to comments 877-879: Accepted in part. The purpose of Section 1782 is to establish a set of governing principles under which all well stimulation treatments must be conducted. Section 1782(a)(7) was reworded to provide a broader admonition that well stimulation treatment shall not damage the well during treatment. Specific requirements for ensuring the mechanical integrity of a well subject to well stimulation treatment are found in Sections 1784.1, 1784.2, 1785, and 1787.
880	0103-16 Who defines the “best industry standards” that are proposed in 1782(b)?
881	0056-5 The requirement that the operator shall "follow the intent of all applicable well construction requirements" should be revised to require the operator "to follow all applicable well construction requirements." Whether an operator is following the "intent" is very subjective and does not

	ensure compliance with the requirements.
882	4068-11 Subparagraph 1782(b) should be amended to also require best available technology.
	Response to comments 880-882: Rejected. The purpose of Section 1782(b) is to point out that operators must adhere to the general principles of Section 1782, even when adherence to all specific requirements might not be enough to do so. There are numerous documented sources of best industry and engineering practices, and an operator's experience in a given oilfield should also inform best practice. Best industry practice and good engineering would inform choice of technology, but it is not the intent of Section 1782 to prescribe the use of a given technology.
	1783. Application for Permit to Perform Well Stimulation Treatment
883	4234-7, 4234-8 Many other states have more stringent requirements than California. Each permit should summarize the relevant practices, requirements and standards for that particular permit from the United States. It's a very simple compilation. And apply those to that particular permit. Additionally, there should be an allowance for local practices, requirements, standards and regulations when equal or more stringent to take precedence over the sea requirements. Pressure tests, air -- pressure tests are irrelevant ·to a rework well. You can't do a full pressure test of a well if it's a rework permit.
	Response to comment 883: Rejected. Public Resources Code section 3160, subdivision (d), requires operators to obtain a permit from the Division before performing a well stimulation treatment. The purpose of Section 1783 is to reiterate the statutory permit requirement and affirm that well stimulation treatments must be performed in accordance with the conditions of the permit.
884	4111-1, 4100-1 All fracking permits should be conditional, that damage to drinking water and the environment is not occurring, and, basically, if it occurs, you're done, and that other companies using the same methods are not damaging the drinking water or environment, and that to re-establish the permit, the company involved would need to prove that it won't happen there.
	Response to comment 884: Rejected. These regulations protect groundwater and the environment by establishing specific requirements to ensure well integrity and the geologic and hydrologic isolation of the stimulated hydrocarbon formation. If site-specific precautions are identified, then they will be included as permit conditions on a case-by-case basis.
885	0018-6 The proposed rule requires the applicant to submit considerable information regarding the well completion (casing test results, cement test results, etc.) for review by the Division prior to being authorized to conduct the stimulation procedure. Given the extreme costs involved, the well drilling, completion, and stimulation steps are closely coordinated to avoid equipment downtime, multiple mobilizations, and related disruptions and expenses. Interrupting this process between the well completion and stimulation phases to allow the agency to review the completion records (casing, cementing, etc.) undermines the logistics and economics of well development, while increasing the safety risks. In addition, this permitting process places the regulatory agency in the

	difficult position of reviewing detailed well records under time and cost pressure.
	Response to comment 885: The Division is confident that the Division and the regulated public will successfully meet the challenge of developing and implementing this new permitting program.
886	4320-1, 0084-5, 0099-5, 4233-2 The criteria for approval, (or not), of well stimulation treatment permits needs to be clear, public and in the legislation. The current regulations do not set guidelines for the conditions the Division is to use to validate a permit. It must be clear as to what those conditions are, and what the process for the Division's approval is. There needs to be some type of a public input process for this.
887	4070-7 The State of California must not allow great increases in oil and gas production because of the harmful long term consequences. This means that the number of new well stimulation permits issued each year (once the approved chemical database is available) should be limited to 25 per year. That number may be exceeded only if a company shuts down a producing well and removes it permanently from operation.
888	4211-3, 4094-4, 4152-4 When it comes to well stimulation review and permitting, DOGGR has a critical role in reviewing proposed well stimulation activities as part of the permitting process. This review and approval process must be efficient while retaining a high level of transparency. The review process must utilize compliance criteria that are definitive, consistent and transparent and provide a high level of certainty for the operators so that its successful outcome will be achieved if the criteria are met.
889	0049-14 The Division should not be allowed to approve a Permit application without previously reviewing groundwater monitoring results and any other data and information, consulting with the public and coordinating with all administrative agencies that have authority to regulate the activities and impacts of the proposed well treatment. These agencies may include, but are not limited to, the Air Quality Management Districts, Department of Toxic Substances Control, State and Regional Water Boards and local agencies.
890	0049-15 Each permit must be supported by findings demonstrating the proposed well stimulation treatment will not impact public health or natural resources.
891	0011-18 The proposed regulations skip from application requirements (1783.1) to Notice of availability for water sampling (1783.2). The regulations do not describe the review process or other regulations that govern the review process. Public Resources Code Section 3160(d)(2&3) references discretionary actions from the Division's supervisor to review environmental impacts and quantifiable risks of proposed permits. This discretion or review is not reflected in the Division's regulations and is a significant omission. 3160(d)(2)(C) states that the time period available for approval of the portion of the combined authorization applicable to well stimulation treatment is subject to terms of this section and not Section 3202; however that section did not describe the time parameters for review and should be clarified in Subchapter 2.
892	0012-5, 0056-6 Section 1783 does not include notification requirements for local permitting jurisdictions involving

	well stimulation. The sharing of well stimulation information will enhance the productive relationship that exists between the Division and a County. This will ensure that a County's review covers the same project components as those reviewed by the Division.
893	0017-3 Section 1783.1 should include a requirement that local municipalities and water agencies are notified when an application for permit to perform well stimulation treatment is submitted to the Division of Oil and Gas. The application should include verification that the local municipalities and water agencies have been notified.
894	0049-13, 0011-2 Unless the proposed regulations are to be completely ministerial, they should be revised to state how public or local agencies can request a public hearing for the approval of certain permits. If they are ministerial, then criteria for denial should be outlined.
895	0011-10 If the Division receives an overwhelming amount of public comment on well permits the application should not be magisterially approved. There should be a channel for public comment and testimony to be heard and questions to be answered. Public comment received by the Division and applicant should be included in 1788, Required Public Disclosures, and posted to the public website.
896	0056-7 The local jurisdiction should be notified in a timely manner of any applications pursuant to this section and their comments invited.
	Response to comments 886-896: Accepted in part. Section 1783.1 details the information and analysis that must be included in an application for a well stimulation treatment permit. As required under Public Resources Code section 3160, subdivision (d), the Division will not approve an incomplete permit application and the Division's review of an application will include an evaluation of the quantifiable risk of the well stimulation treatment. Section 1783(c) was added specifying that as a matter of course complete well stimulation treatment application will be shared other state agencies in accordance with the written agreements with those agencies. Public Resources Code section 3160, subdivision (d)(5), requires the Division to share approved well stimulation treatment permits with the local planning entity. However, the Division invites discussion with any and all local agencies regarding information sharing in advance of permitting.
897	4067-6 Hydraulic fracturing operations can severely impact other infrastructure, such as roads, bridges, and culverts. ASCE recommends that the DOC consider the potential impacts of fracturing operations on local infrastructure systems as part of the well permitting process.
	Response to comment 897: Thank you for your comment.
898	4232-6 In Section1783 they talk about a valid permit. Is that single-project permit authorization with no limit to the number of wells? If we can have the limit on the number of wells.

899	0029-5 The regulations also fast-track multiple well-stimulation jobs with a single approval and without adequately studying the impact of each frack job -- and the regulations do not clearly provide for full disclosure of all environmental and health risks prior to the approval of a permit to frack, as required by existing law.
	Response to comments 898-899: Each well stimulation treatment permit application within a proposed single-project authorization will be subject to the same scrutiny and requirements as it would had it been submitted individually, and single-project authorization in no way relieves operators of any requirements for a given well stimulation treatment.
900	0290-4, 0181-1, 0283-4 All permits should require compliance with environmental requirements, e.g. clean water requirements under the Clean Water Act, air quality requirements under the Clean Air Act, etc.
901	0251-2 Projects need to demonstrate they are compliant with existing global warming law, specifically the executive order to reduce emissions by 80% by 2050. Projects should not be permitted if they will increase emissions above a given area's baseline emissions.
	Response to comments 900-901: Section 1782 and 1786 include admonitions that well stimulation treatments must be conducted in accordance with applicable environmental requirements, and the Division will be engaged with other regulatory agencies when evaluating an application for a well stimulation treatment application.
902	4278-4, 0186-1 The regulations should include a longer time period of at least 30 days before well stimulation occurs, and it should be in the newspapers, the public notice, and it should also be by e-mail to interested parties who can request prior notification, not a passive notice on a website.
903	0045-56 To assure the public that permits will be made available with adequate time for public review, the division should amend these regulations to state that all permits must be posted on its site for at least 30 days before issuance.
	Response to comments 902-903: Rejected. As required under Public Resources Code section 3160, subdivision (d), approved permits will be available on the Division's public website within five days of approval and operators are not permitted to commence well stimulation treatment unless all surface property owners and tenants with a specified distance have been given at least 30 days in advance.
904	0103-18 In the initial pre-discussion draft of Section 1783, it was mentioned that there were ten days advanced notice -- that the form DOGGR HF1, at least ten days prior, and that it would be posted within seven days on a public website, and then the revised ones, on page four at the bottom, it just states that applicants -- the application shall be submitted electronically.· There's no time frame mentioned, and there should be.· There should be plenty of advanced time for people to be able to see what's going on or comment on it, or know what the chemicals are.

905	4092-1, 4237-7, 4068-12 Section 1783 should be amended to provide adequate notice and information about proposed hydraulic fracturing efforts both to the Division and to other interested parties. As proposed, Subparagraph (a) requires data be provided to the Division at least 10 days prior to commencing the process. However, pursuant to Subparagraph (d) the Division then has seven days to post information about the proposed operation on its website. If the operator gives 10 day notice and the Division posts seven days later, this would result in a three-day notice to the public. Three days is too short to provide the public adequate response time, and too short for DOGGR to respond.
906	4147-3 Are there application time lines that are currently built into the application process?· If --if there is not a time line established, then there is a possibility that there can be a long lag time, which affects the ability of the industry to staff and stage where they are going with their application long term.
907	4234-11 Separate the permit from the 30-day notes. The permit should be done as part of an existing rework permit or a new drilling permit. It must be combined.
908	4214-5 All notices to stimulate a well must be incorporated by the current notice permit process for drilling and rework and re-drilling and be posted immediately to the Division's website on a daily basis in an easy-to-view format.
909	0010-07, 0032-16 Add Section 1760 to say: (a) The division shall approve or disapprove the Well Stimulation Notice of Intent within 10 days of receipt. (b) The operator may commence the well stimulation activity upon receipt of an approved notice unless third party notifications are required pursuant to section 1783.2. If the operator does not have third party land owners that they are required to notice, there is no need for the 30-day notice period.
	Response to comments 904-909: Rejected. The Division's pre-rulemaking discussion draft regulations included a timeframe for operator submission and Division review of well stimulation treatment permit applications relative to the time of commencement of operations. Subsequently, Senate Bill 4 was chaptered, adding Public Resources Code section 3160, subdivision (d). The statute specifies that the 10-day timeframe for response to drilling notices does not apply to review of well stimulation treatment permit applications, and that neighboring surface property owners and tenants must be notified at least 30 days before commencing treatment. The proposed regulations are in accordance with the statutory requirements.
910	0141-8 The Department should post fracking data on its website in a useable searchable format. Not as PDF files.
911	0010-36 To ensure submission of reports is done correctly and accurately, an electronic format for submission would be beneficial.

912	0047-4, 0049-9, 4069-9 Once submitted, all well stimulation treatment notices (prior to the effective date of these regulations) and permit applications should be made available to the public (Section 1783) and announced through the Division's listserv.
913	0011-11 The HF1 form referenced in previous draft regulations should be included in this text as well. The form should be required to be submitted electronically, and the submittal system should be set up so that the form is automatically put on the web through that submittal action.
914	0002-32 All applications for permits must be submitted electronically in a format that is searchable by public users of the Division's website. The Division must also provide for list serve subscribers for applications for particular Districts, Counties, Zip Codes, Fields/Units/Pools/Leases, and wells. Items must be reorganized so that related items are grouped with like items.
915	0002-31 The contents of the permit application must be publicly available and readily accessible on the Division's website within 24 hours of submittal.
916	4232-7 Operators are to give the state 72-hour notice before fracking. The state should put that notice online so people, cities and the county can know that fracking is going on.
	Response to comments 910-916: The Division is working to develop and implement business processes and information technology to make information about all aspects of well stimulation treatment operations available on its public website in formats that can be easily searched and aggregated.
917	4147-1, 0011-8 The issue of fees needs to be addressed clearly, if not in a regulation, at least within the initial statement of reasons in the staff report so it is clear what the cost to the industry is for permit applications, processing, inspections, et cetera. There is nothing written in Subchapter 2 for fees. Monterey County requires several inspections of every structure we issue permits for; which entails thousands of inspection per year over a large area. The state can do the same. Sufficient staff can be funded to inspect each well stimulation treatment permit site through fees that provide full cost recovery.
918	0026-7 Permit fees should be sufficiently adequate to enable the Division to establish a fund to clean up spills, water quality degradation, well contamination, breaches of well stimulation infrastructure or other mishap and to employ the additional staff necessary to enforce the regulations.
	Response to comment 917-918: Pursuant to Public Resources Code, Division 3, Chapter 1, Article 7, the Division's administrative costs are supported by annual assessments on oil and gas producers. Because the Division is already fully funded by the existing annual per-barrel assessments, any additional operational fees would be redundant.
919	0045-55 We support the proposed requirements of section 1783.

920	0002-29 Clean Water Action supports the requirement that operators must apply for and receive a discretionary approval of a conditioned permit prior to any announcement of any well stimulation treatment.
	Response to comment 919-920: Thank you for your comments.
921	0002-30, 0053-9 The industry recognizes that after extreme stimulation treatment higher flows of gas and oil occur but also that such increased flow rates may decline more rapidly than in more conventionally stimulated wells. Re-stimulation may not involve any physical changes to the well and thereby repeated stimulation treatments may not require an NOI and permit to rework. Treatment can be directed through existing perforations for the extension or expansion of previous induced pathway within the target zone or stimulation envelope. As such only the formation would be directly affected, and some may consider such activities as a more extreme form of "maintenance". The proposed regulation must consider and control such expected issues.
	Response to comment 921: Accepted in part. Section 1761 provides details the process for determining whether a given treatment is a “well stimulation treatment,” as defined in Public Resources Code section 3157. Under Section 1761, operators are always invited to explain to the Division why a given stimulation is not a well stimulation treatment.
922	0084-6, 0099-6 Given that the State of California is a financial stake holder in resource extraction, the Division will be biased in the approval of permits.
	Response to comment 922: Thank you for your comment.
923	4069-10 Section 1783(c) should be changed to read “72 business hours.” [For example, if the notification occurs at 4:59 p.m. on the Friday before a holiday weekend for a stimulation that will begin the following Tuesday, it serves no purpose.]
	Response to comment 923: Rejected. Public Resources Code section 3160, subdivision (d)(9), requires a minimum 72 hours of notice to the Division before commencing treatment so that the Division may witness the treatment. This provides more than enough time for Division staff to plan to be on site.
924	0010-012, 0032-21 Delete the 3 hour confirmation to the Division. Rationale: The 3 hour confirmation call is overly burdensome.
	Response to comment 924: Rejected. This requirement is necessary to avoid Division staff driving to a well site to witness an operation that does not occur as scheduled.

	1783.1. Contents of Application for Permit to Perform Well Stimulation Treatment
925	0045-57 The requirements for the content of a well stimulation permit should be beefed up to include more information on, (1) the coordinates of the surface and bottom hole locations; (2) the measured depth of the well; (3) the measured and true vertical depth of all perforations or the open-hole interval in the casing; (4) the depth of protected water reported as both measure depth and true vertical depth; (5) details such as maps, cross sections and vertical depth of water in fracking area; (6) volume, source and type of water (ie ground water, waste water) used in well stimulation; (7) surface treatment and pumping pressure; (8) the estimated or calculated fracture gradient of the producing and confining zone(s); (9) method of transport and transport distances and methods for base fluid and waste water ; (10) A description of methods the operator will use to maximize the use of non-potable water sources including reuse and recycling of wastewater; (11) An evaluation of potential adverse impacts to aquatic species and habitat, wetlands, and aquifers, including the potential for the introduction of invasive species, and methods to minimize those impacts; (12) geologic information on confining layers; (13) A map showing the well for which a permit is sought and line showing the surface projection of twice the largest dimension of the well stimulation treatment radius analysis. Within this line, the map must show all penetrations (e.g. production wells, injection wells, plugged wells, mines, etc.) State- or EPA-approved subsurface cleanup sites, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells, other pertinent surface features including structures intended for human occupancy, State, Tribal, and Territory boundaries, and roads. The map should also show faults, if known or suspected; and (14) casing and cementing information.
926	0084-3, 0099-3 The following must be adequately assessed for securing each permit: volume and source of water, water contamination and water quantity, quality and wastewater treatment, chemicals used including proprietary formulas and disposal, air quality, seismic activity, impacts to agriculture, traffic mitigation, emergency preparedness, and threats to endangered species.
927	0047-27 Due to significant transport of water and additives (which the statute requires to be evaluated), the application should also include disclosure of the intended access routes to the well site.
928	0049-11 Revise Section 1783.1 to require the Permit application to include the start and end date of the proposed well stimulation treatment, baseline groundwater monitoring data collected during the three months prior to the date of the proposed well treatment, the names and locations of all surface water bodies that may be impacted by well treatment and provide baseline surface water monitoring data collected during the three months prior to the proposed well stimulation treatment.
929	0052-2 This section should be greatly expanded to allow the Division, property owners and the public sufficient information to make informed permitting decisions. At a minimum, the following additional information should be provided by the applicant: (1) data on the injection and confining zones; (2) the location, orientation, and properties of known or suspected faults and fractures; (3) geologic name and depth to the bottom of all USDWs which may be affected by the injection; (4) well construction schematics including surface and subsurface details; (5) proposed stimulation (fracturing) program and the proposed injection procedure; (6) operating data during the procedure; (7) maps and cross sections of the AOR; (8) location and operating procedures of any active injection wells or wells in the AOR or nearby injection zones; a plugging and abandonment plan that incorporates monitoring of USDWs in the AOR; (10) a detailed chemical plan describing

	the proposed fracturing fluid composition, including the volume and range of concentrations for each constituent; (11) Baseline geochemical information on USDWs and other subsurface formations of interest within the AOR; and, (12) An analysis of: Compatibility of the injection fluid with formation fluids; subsequent geochemical reactions resulting from injection; the effect of the injection on integrity of construction materials; and, mobility of compounds in the injection zone.
930	0021-12 The Division should strive to make well stimulation permit information useful to the general public by making it easy to understand where and what well stimulation treatments are occurring. Achieving this requires the following changes to the listed sections of 1783: 1) Require operators use the same name on each permit application, 6) Provide an approximate address for the well that is compatible with Google maps, 15) Indicate the planned treatment (i.e. fracturing, acid matrix), and 18) Additionally identify all wells that were previously acidized.
931	0002-35 The Division must require in the permit application, mapping requirements similar to those outlined in Section 1783.4(b)(3) through (5) in the interim SB 4 well stimulation treatment regulations. The radius of review, however, must be extended. The Division must increase the radius for water testing to at least one mile (5280 feet) or twice the anticipated stimulation radius, whichever is greater. Mapping and analysis must include any existing active and abandoned oil/gas wells, water wells and surface water sources with beneficial uses, aquifer recharge zones, discernible faults, and other potential geologic features that could transport fluids or gases into waters with beneficial uses or to the ground surface.
932	0002-36 Section 1783.4(b)(3) of the interim regulations applies to “information that is publicly available.” Since the exact location of public supply wells may not be publicly available – exact locations are obfuscated to one mile – it may be impossible for an operator to know whether or not any public supply wells lie within the 1500 foot radius of the well head, or 500 feet of the surface projection of a well path. Mapping requirements must include all wells whose obfuscated location intersects with the required area of review.
933	0002-37 Mapping and review requirements must apply to all well stimulation permit applications and must demonstrate exemption from monitoring requirements due to the absence of nearby waters that may be have beneficial uses. Regulations must clearly state that the mapping requirements be included in all permit applications regardless of whether or not any actual groundwater monitoring will occur.
934	0002-39 For any well stimulation activities occurring on state or federal lands, the application should contain certification from the appropriate land management authority stating that the activity complies with any relevant land management plans.
935	0002-40 Section 1783.1 should include the following: All applications for permits to perform a well stimulation or re-stimulation treatments shall include the following: specific oil field, unit, area, lease, pool, or other identified production designation; names and descriptions of all faults penetrating the to-be-stimulated horizon ; all other previously stimulated and fractured wells ; any relevant Spill Contingency Plans or Pipeline Management Plans; whether any of the facilities associated with the well stimulation are classified as “environmentally sensitive”; none of the following information shall be protected as a trade secret: (A) Identities of the chemical constituents of additives, including CAS identification numbers; (B) Concentrations of the

	additives in the well stimulation treatment fluids; (C) Any air or other pollution monitoring data; (D) Health and safety data associated with well stimulation treatment fluids; and (E) Chemical composition of the flowback fluid (averaged and maxima values).
936	0047-22 The application should require a well operator to certify that it has received the necessary land use permit(s) from the appropriate local agency to drill and operate the well, or include copies of these permits in the well stimulation treatment permit application.
937	0047-24 A well operator should be required to perform baseline water quality testing of groundwater sources that underlie surface areas within a 1500 foot radius of the proposed well head and horizontal projection of the well bore and include the results of these tests in the permit application. Results of this testing should also be provided in notifications to surface property owners and tenants required pursuant to Section 1783.2 of the Draft Regulations.
938	0002-33 The water management plan attachment must be standardized to ensure that all required information is disclosed on every well stimulation permit application. The well stimulation treatment notices for the interim period have displayed a lack of clarity and uniformity that needs addressing.
939	0047-23 The water management plan required as part of the permit application should also require the operator to list groundwater wells, groundwater aquifers, and surface water features including streams, rivers, lakes, and reservoirs within a 1500 foot radius of the well head.
940	4067-7 Well operators should be required to document to a permanent datum the location (x, y, z) of any new underground utilities and piping associated with the fracturing operations.
941	4069-11 1783.1(a)(1) The names of service companies which will be on-site needs to also be on the permit application, since they will be the ones who will be conducting most of the operations including drilling, fracturing, handling wastewater, etc.
	Response to comments 925-941: Accepted in part. The purpose of Section 1783.1 is to implement the statutory permitting requirement of Public Resources Code section 3160, subdivision (d). Various additions and revisions have been made to the well stimulation treatment permit application specifications in Section 1783.1. The specified permit application contents reflect the statutory requirements for a permit application under Public Resources Code section 3160, subdivision (d)(1); the Division's assessment of the information that it will need to effectively evaluate a permit application; and interagency consultation, as contemplated in Public Resources Code section 3160, subdivision (b)(1)(A). Many of the suggested contents for permit applications are addressed in Section 1783.1. In addition, Section 1783.1(a)(21) requires operators to provide the results of the well stimulation treatment area analysis conducted under Section 1784(a), which will include modelling and analysis of the proposed treatment and surrounding geology. Many of the suggested contents for permit applications were not included in Section 1783.1 because the Division did not deem them necessary for review of a permit application. However, Section 1783.1(a)(31) provides that the Division may request additional information from an applicant on a case-by-case basis. The Division is working to develop and implement business processes and information

	technology to make information about all aspects of well stimulation treatment operations available on its public website in formats that can be easily searched and aggregated.
942	0002-28, 0053-10 Current regulations lack formal relationships between information submitted by the operator(s) as part of an application to drill for consideration by the Division. Studies and analyses may be done by the operator, but are not required to be submitted nor reviewed by the Division and not made available to the public.
	Response to comment 942: Section 1783.1(a)(20) requires that a well stimulation treatment permit application include the operator's plan for complying with the cement evaluation requirements of Section 1784.2, Section 1783.1(a)(21) requires operators to provide the results of the well stimulation treatment area analysis conducted under Section 1784(a), and Section 1783.1(a)(22) requires operators to provide the well stimulation treatment design required under Section 1784(b). All of the information required under Section 1783.1 will be considered in the Division's review of a well stimulation treatment permit application.
943	4211-9 WSPA members support provisions to supply information related to hydraulic fracturing operations that are relevant to the Davison's determination of compliance with the regulations, standard practices and operations.
944	0055-4 WSPA members support provisions to supply pertinent information related to hydraulic fracturing operations that are relevant to DOGGR's determination of compliance with regulations, standard practices and prudent operations. Members also are committed, as currently demonstrated by voluntary measures, to disclose the composition of the hydraulic fracturing fluids, while respecting intellectual property rights of well stimulation service providers.
	Response to comments 943-944: Thank you for your comments.
945	4067-9 The rules do not specifically prohibit the use of diesel fuel as a propping agent. In cases where diesel fuel is used as a propping agent, federal law plainly requires well owners and operators to obtain an underground injection control (UIC) permit from the state when used diesel fuel is disposed of in class II disposal wells. If the Department wishes to allow diesel fuel in hydraulic fracturing operations, it needs to make clear that all rules under the UIC program apply.
	Response to comment 945: The U.S Safe Drinking Water Act (SDWA) mandates the protection of underground sources of drinking water from endangerment related to underground injection activities (42 U.S.C. § 1421(b)(1)). The Underground Injection Control (UIC) Program requirements promulgated under SDWA authority and codified at 40 CFR Parts 124 and 144 through 148 create a regulatory framework to ensure protection of current and future USDWs from endangerment. Underground injection of fluids through wells is subject to the requirements of the SDWA except where specifically excluded by the statute. In the 2005 Energy Policy Act, Congress revised the SDWA definition of "underground injection" to specifically exclude from UIC regulation the "underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities" (42 U.S.C. § 1421(d)(1)(B)).

	UIC regulations further provide that "[a]ny underground injection, except into a well authorized by rule or except as authorized by permit issued under the UIC program, is prohibited" (40 CFR 144.11). The general exclusion of hydraulic fracturing from the SDWA in no way precludes the state from regulating hydraulic fracturing or any other form of well stimulation treatment. To the extent that the SDWA does apply, the proposed regulations are consistent with the federal law and the proposed regulations will effectively prevent well stimulation treatment from endangering underground sources of drinking water.
946	0010-013 Revise Section 1783.1(a)(12) to read, "For directionally drilled wells, the proposed coordinates (from surface location), the true vertical depth at total depth and the proposed well bore path." Rationale: The estimated well bore path is only required if the well bore path extends beyond a 1500 foot radius from the well head. At the permitting stage, the exact well bore path is not known but is of no consequence unless the well extends beyond the 1500 foot radius.
947	0032-22 Revise Section 1783.1(a)(12) to read, "For directionally drilled wells, the proposed coordinates (from surface location), the true vertical depth at total depth and the proposed well bore path The estimated well bore path is only required if the well bore path extends beyond a 1500 foot radius from the well head." Rationale: At the permitting stage, the exact well bore path is not known but is of no consequence unless the well extends beyond the 1500 foot radius.
	Response to comments 946-947: Rejected. In order to effectively evaluate the modelling and analysis of the proposed well stimulation treatment and the surrounding geology, the Division must know where the well stimulation treatment will occur.
948	0010-014, 0032-23 Revise Section 1783.1(a)(15) to read, "The planned location of the well stimulation treatment on the well bore, the estimated length, height, and direction of the induced fracture or other planned modification, if any, and the name and API number location of existing wells, including plugged and abandoned wells that occur within two fracture radii of the stimulated well or that may be affected by the well modifications within the same productive zone or that penetrate the zone of the well stimulation treatment."
949	0032-23 Revise Section 1783.1(a)(15) to read, "The planned location of the well stimulation treatment on the well bore, the estimated length, height, and direction of the induced fracture or other planned modification, if any, including plugged and abandoned wells that may be impacted by these fracture and are within two fracture radii of the stimulated well."
950	0010-015 Delete Section 1783.1(a)(18) because it is redundant to the revised Section 1783(a)(15).
951	0018-15 Section 1783.1(a)(18): Previously Fractured Wells: Available information on the locations of existing or abandoned wells may be relevant to the new drilling operation. However, it should be noted that previously fractured wells pose no additional hazard relative to conventional vertical wells. Indeed, in many cases, the goal of the hydraulic fracturing operation is to obtain lateral

	overlap of the fracture zones so as to optimize gas production from the shale unit. Recommended Change: Revise this section to require information only regarding the locations of previously drilled wells within the proposed horizontal extension of the new well.
952	0010-017 Delete Section 1783.1(a)(21) because it is redundant to the revised Section 1783(a)(15).
953	0010-019 Revise Section 1783.1(a)(21) to read, "The well stimulation treatment radius analysis of all wells within the area of the well stimulation radius analysis and within the same productive zone or that penetrate the zone of the well stimulation treatment." This change will clarify this section of the regulation.
954	0047-25 The permit application should identify all wells that have previously been subject to any type of well stimulation treatment in the same production horizon, not just those that have previously been hydraulically fractured.
	Response to comments 948-954: Accepted in part. The requirements for identifying wells within the area of a proposed well stimulation treatment are now addressed in Section 1784(a)(2), which provides, "The well stimulation treatment analysis shall include identification and review of all well bores located completely or partially within two times the ADSA to ensure the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation. The "ADSA" is defined in Section 1781(f) as the "estimated axial dimensions, expressed as maximum length, width, height, and azimuth, of the area(s) stimulated by a well stimulation treatment." The revised requirements now found in Section 1784(a)(2) specifies a process for identifying wells that may be impacted by well stimulation treatment, and remove the redundancy that was in Section 1783.1.
955	0015-5 Section 1783.1(a)(16) refers to "Depth of the base of protected water." Where describing vertical features throughout the document we suggest replacing the "depth of bottom" with "depth of top and bottom" or "depth of the vertical horizon" as the top depth may be of equal significance as the "depth to bottom."
	Response to comment 955: Rejected. The defined term "protected water" was removed from the regulations. Public Resources Code section 3160, subdivision (b), calls for regulations that ensure well integrity and geologic and hydrologic isolation of the stimulated hydrocarbon formation, regardless of the quality of groundwater in the area. Accordingly, the requirements of these regulations apply regardless of the groundwater quality and therefore it is not necessary to define "protected water."
956	0026-9 Spill contingency plans should be reviewed and approved by the Division and meet minimum requirements. Bonds should be required of operators to insure that funds will be available in the event of a spill and the further event of the financial inability of the operator to adequately respond to a spill.

957	0017-4 Section 1783.1(a)(19) states, “Identification of where in the operator’s Spill Contingency Plan handling of well stimulation fluid and additives has been addressed.” Rather than merely identifying the location of the spill response information, the permit application should require that the spill response procedures are included in the permit application.
958	0008-4 The interim regulations require a Spill Contingency Plan. This requirement appears to have been removed from the proposed final regulations. We recommend that the requirement to address handling of well stimulation fluid and additives in the operator’s Spill Contingency Plan be incorporated into the final regulations. This requirement was included in the interim regulations and helps protect the environment and public health from mechanical breakdown and human error.
959	0049-12 The application should provide the Spill Contingency Plan specific to the particular well stimulation operation and should specify how the Spill Contingency Plan is addressing any potential impact on surface water bodies, including in particular, surface waters that are impaired under Section 303(d) of the Clean Water Act.
960	0011-22 Section 1783.1(19) should be revised to reference the Section number that defines the Spill Contingency Plan. The regulations should be revised to require notification to an appropriate oversight agency (Department of Toxic Substances Control) and a process to release trade secret information for chemicals that require a Material Safety Data Sheet.
961	0103-9, 0103-19 The requirements regarding spill contingency plans are unclear.
962	0011-28 A process to release trade secret information should be included in the Spill Contingency Plan.
	Response to comments 955-962: Accepted in part. Existing regulations Section 1722(a) and 1722.9 already specify an operator must have a Spill Contingency and the required contents of the plan. Section 1783.1(a)(19) clarifies that well stimulation treatment fluids and additives must be addressed in the Spill Contingency Plan and requires that the permit application clearly indicate where that information can be found. Review of the relevant parts of a Spill Contingency Plan would be within the purview of the Division’s review of an application for a well stimulation treatment permit, and consultation with other regulatory agencies will also be part of the permit application review process. Public Resources Code section 3160, subdivision (j)(2), substantially limits assertion of trade secret protection to avoid public disclosure of the chemical constituents of well stimulation treatment fluids. In the event that the Division does find itself in possession of well stimulation treatment data subject to a claim of trade secret protection, the division will establish a process for sharing that information as required under Public Resources Code section 3160, subdivision (j). Bonding requirements are specified in statute and are outside the scope of these regulations.
963	0010-016 Revise Section 1783.1(a)(20) to read, “Method of the cement evaluation required under Section 1784(a)(1).” This change will clarify this section of the regulation.

964	0032-24 Revise Section 1783.1 (a)(20) to read, “Method of the cement evaluation required under Section 1784(a)(1).” Rationale: Clarification is made to address that the cement evaluation will be provided as a plan of action at the time of the well stimulation permit application and then provided with the completion report.
965	0055-5 The flexibility to submit a permit application for drilling a well concurrently with a well stimulation permit will be jeopardized by the requirement to provide the cement evaluation results with the well stimulation permit, rather than as part of the well history. This will require that the well stimulation permit await the outcome of the evaluation and then the resulting 30 day notice period, significantly delaying an integrated well drilling and completion program. Any cement evaluation outcome should be part of the well history report and submitted with the 60 day completion report. Oversight of this process is already provided via operator reporting and agency inspection.
	Response to comments 963-965: Accepted. Section 1783.1(a)(20) is revised to reflect the fact that the well may not yet be drilled at the time that the well stimulation treatment permit application is submitted, and therefore actual cement evaluation may occur after a permit is issued.
967	0018-16 An applicant is required to provide the cement evaluation specified under §1784(a)(1). This provision is duplicative, as casing and cementing requirements for oil and gas wells are already specified under Title 14, Division 2, Chapter 4, Subchapter 1, Article 3, Section 1722.4 Cementing Casing. These existing provisions address the distribution and bonding of cement, and provides requirements for submittal of cement bond logs and other surveys, if requested by DOGGR. Operator compliance with the provisions of §1722.4 therefore negates the need for a duplicative cementing evaluation in proposed §1784. Recommended Change: Incorporate any requirements for cementing in the drilling permit and do not require an additional separate application prior to well treatment. If problems are observed during cement testing, require operator to notify the agency and take corrective actions, but do not require the operator to submit testing records to agency unless requested. Review Subchapter 1, Article 3, Section 1722.4 Cementing Casing for duplicative requirements.
	Response to comment 967: Rejected. It is necessary to evaluate the competency of cement prior to well stimulation treatment because a well may have been constructed prior to establishment of existing well construction standards, the well may not have been constructed to the regulatory standards, or the well may have degraded since its construction.
968	0032-25 Revise Section 1783.1(a)(21) scope as stated as it is greater than the intent to address protected waters. “The well stimulation treatment radius analysis required under Section 1784(a)(2), including identification of all protected water within the area of the well stimulation treatment radius analysis, and the names and API numbers of all wells within the area of the well stimulation treatment radius analysis.”
	Response to comment 968: Rejected.

	The defined term “protected water” was removed from the regulations. Public Resources Code section 3160, subdivision (b), calls for regulations that ensure well integrity and geologic and hydrologic isolation of the stimulated hydrocarbon formation, regardless of the quality of groundwater in the area. Accordingly, the requirements of these regulations apply regardless of the groundwater quality and therefore it is not necessary to define “protected water.”
969	4234-9 Section 1783(a)(23) through (26) summarizes water management plans and gas management plans as just simply requiring a closed loop complete system from start to finish on any rework and especially the stimulation. Waste water characterization, that is, flowback must be done before it is taken off the path. Flow back wastewater should be fully characterized at the same level as any other waste water before it's taken off of the path.
970	0046-14 As flowback fluids contain concentrations of toxic and potentially carcinogenic and radioactive chemicals, regulations should prohibit these fluids from being introduced into the public water system such as via a waste water treatment plant or containment in a leach pit that has the potential to leak into groundwater.
971	0015-6 Section 1783.1(a)(23) and (24) requires a water management plan and disclosure of waste materials and disposal methods. We recommend adding an explicit requirement to describe any planned temporary or long-term on-site storage of well stimulation fluids and associated measures to protect surface water resources.
972	4280-5, 4290-4, 0051-3 The Division should be implementing some sort of requirements to use reused or recycled water, should require operators to use recycled water before using fresh water, and/or require mandatory recycling of all oil drilling fluids with the filtered residue handled as toxic waste.
973	0047-25 The application should also include provision for any anticipated recycling plan for treatment-generated waste materials.
974	4069-12 1783.1(a)(23) simply disclosing the anticipated source of water to be used is inadequate. Water is already over-allocated in California. The following additions should be made: (1) Operators/companies are prohibited from using any water source which has been publicly funded or previously allocated. (2) Operators/companies shall be required to post a bond or deposit monies into an escrow account equal or above the amount estimated to clean up and restore to its original condition any area which has been contaminated, damaged or otherwise altered by any and all activities related to well stimulation treatment operations. (3) If protected waters, including aquifers and surface waters, cannot be restored to their original quality, operators/companies shall be required to replace the amount of water removed from the water cycle due to contamination with an equal amount of water of comparable or superior quality.
	Response to comments 969-974: Accepted in part. Sections 1786(a)(8) and 1788(a)(12)(G) were added to clarify that the handling of fluids associated with well stimulation treatments are subject to the Hazardous Substance Control Act. In addition, Section 1786(a)(4) requires operators to store fluids associated with well stimulation treatment in contained systems, and Section 1788(a)(12)(E) was revised to specify sampling and testing required to determine the composition of water recovered from a well following well

	stimulation treatment. Limitations on the source of water used and specifications regarding recycling measures are outside the scope of this rulemaking. Bonding requirements are specified in statute and are outside the scope of these regulations.
975	0018-18 In Section 1783.1(a)(23), the applicant is required to provide information regarding the water management plan for the well stimulation process, including the estimated amount of water used in treatment, the estimated of amount of water to be recycled, the anticipated source of water used in treatment, and the anticipated disposal method. In this regard, if the applicant holds rights to use of a water source or has obtained rights to use water from a water purveyor, we would ask the Department to consider the authority of the Division to impede this water use. Rather, the jurisdiction of the Division would appear to be limited to recycling, treatment, and/or disposal of the produced water from the stimulation process. These elements of the well drilling and development process are already addressed under Title 14, Division 2, Chapter 4, Subchapter 2, Article 3, Section 1775 Oilfield Waste and Refuse. Recommended Change: Revise this provision of the permit application to require only general information regarding the anticipated provisions for recycling, treatment, or disposal of the flowback water, subject to the requirements of Subchapter 2, Article 3, Section 1775.
	Response to comment 975: Rejected. Public Resources Code section 3160, subdivision (d)(1)(C), expressly requires that a well stimulation treatment permit application include a water management plan that identifies the estimated amount of water to be used, the estimated amount of water to be recycled, the anticipated source of water, and the anticipated disposal method for recovered water after treatment.
976	4497-4 Section 1783.1(23) of proposed regulations, regarding a water management plan, “the anticipated source of the water to be used in the treatment” should require specific source. Also, the sentence is not a complete sentence.
977	0002-34 Water source disclosure must provide more specific information so as to accurately describe the precise source of all water to be used in a stimulation treatment. Pursuant to SB 4, PRC 3160(b)(2)(E), operators must disclose the “source, [and] volume... of all water to be used as base fluid during the well stimulation treatment.” If an operator discloses more than one water source, estimated volume from each source must be specified.
	Response to comments 976-977: Accepted. Section 1783.1(a)(23)(D) has been revised to clarify that “source of water” means the well(s), water supplier, or point of diversion where the water was obtained. This language is consistent with the definition of “source of water” found in recently-chaptered Senate Bill 1281.
978	0008-5 Regarding Section 1783.1(a)(23), we support the requirement to develop a water management plan, however, the word “anticipated” in this sentence is vague and open ended. Operators should describe with certainty what water source they will be utilizing before a permit is issued, and should not be allowed to deviate from that plan unless the permit has been re-evaluated to

	analyze impacts of alternative water supply use.
979	0037-4 How will the proposed regulations protect the Ventura River water supply and watershed? Item 23 only calls for a water plan with “estimates” of water use and “anticipated” sources of water and disposal methods.
980	0037-5 What are the methods of accountability and enforcement if the estimates and anticipated sources and waste are different?
	Response to comments 978-980: Public Resources Code section 3160, subdivision (d)(1)(C), expressly requires that a well stimulation treatment permit application include a water management plan that identifies the estimated amount of water to be used, the estimated amount of water to be recycled, the anticipated source of water, and the anticipated disposal method for recovered water after treatment.
981	0002-38 Clean Water Action strongly support Section 1783.1(a)(25) requiring that the appropriate Regional Water Board certify compliance with the appropriate type of groundwater monitoring plan. The Regional Boards are the most appropriate entity to ensure that proper compliance with groundwater monitoring requirements is met.
982	0010-018, 0032-26 Revise Section 1783.1(a)(25) to read “Certification that the well subject to the well stimulation is covered by a well-specific, field wide, or regional groundwater monitoring plan developed in accordance with Water Code section 10783; and …” Rationale: Regional Board certification on a well by well basis is overly burdensome on the Regional Boards. SB 4 already requires the Division to send all well permits be sent to the Regional Board. As currently written, the Board would be receiving two notices for every stimulated well. This requirement would further delay the permitting by inserting the Board certification as a prerequisite to the issuance of a stimulation permit. SB4 requires that the well be covered by one of three programs and that only the well-specific program are required to be sent to the RWQCB for review. The operator can provide certification or evidence that the well is included in the scope of either of the two broader programs or that the RWQCB has approved its well-specific plan when the well stimulation permit is initially submitted. If a well is covered under a regional or field wide plan, the primary communication will be the Division’s transmittal of the approved permit within five days of issuance to the Regional Board as required under PRC 3160(d)(5).
983	0018-19 Section 1783.1(a)(25): Certification of Groundwater Monitoring Plan: In this section, the applicant is required to provide certification from the Regional Water Board that the proposed well stimulation is covered by a previously approved groundwater monitoring plan. This provision presents both practical and administrative problems, as it burdens the Water Board with the need to provide a “certification” for monitoring plans at each stimulation site. In addition, awaiting this certification could unduly delay review of the stimulation permit application. A more practical approach would be to require the applicant simply to identify the monitoring plan application or approval from the Regional Water Board. Recommended Change: Delete requirement to provide “certification” and only request information regarding the application to or the approval from the Regional Water Board for the

	applicant's monitoring plan
984	0015-7 Section 1783.1(a)(25) requires a Regional Water Quality Control Board approved groundwater monitoring plan as part of the permit application. However, the monitoring requirements for these plans have yet to be developed by SWRCB (on or before July 1, 2015), as specified in the draft regulations. We recommend that DOGGR request the SWRCB convene a technical advisory committee of industry experts to advise on the development of the model groundwater monitoring criteria. Also, the regulation should specify how the permit application and monitoring requirements will be addressed prior to development and adoption of the SWRCB regulations and specify the entity having responsibility to pay for the required monitoring.
985	0043-6 In the proposed permanent regulations, water quality is addressed through a reference to the California Water Code. In the relevant section, 10783, a model for monitoring standards of well stimulation activities is not required until July 15, 2015. Implementation of actual, functional monitoring programs is not required until January 1, 2016. That is a full two years after well stimulation activities may have commenced under the "emergency" the Division regulations. We are unclear as to what current protection this timetable offers. Further, we note that in the absence of a monitoring program, individual well operators are to handle their own monitoring, per general instructions. There is no discussion anywhere in section 10783 of what is to be done if contamination of a water source as the result of a well stimulation technique is discovered.
986	0043-9 How can the Division approve applications without an adequate processes for monitoring water quality (and quantity) and enforcement of compliance and remediation?
987	0026-10 Each well should be subject to an individual water quality monitoring plan.
	Response to comments 981-987: Accepted in part. The State Water Resources Control Board is still in the process of developing the model groundwater monitoring criteria under Water Code section 10783. Regardless of the outcome of that process, it is necessary for the Division to coordinate with the State Water Resources Control Board and the Regional Water Quality Control Boards to ensure that well stimulation treatments are conducted in accordance with the requirements of Water Code Section 10783. Section 1783.1(a)(27) is revised to reflect the fact that an operator may still be working with Water Boards staff on compliance with Water Code section 10783 at the time application to the Division for a well stimulation treatment permit.
988	0005-01, 0004-01 Baker Hughes supports the public disclosure of chemical ingredients used in hydraulic fracturing fluids as an achievable policy goal, and we recognize that in order to meet growing public interest in California in other well stimulation treatments, notably acid, SB 4 has extended that goal to other forms of well stimulation fluids.
989	0005-02 Baker Hughes Incorporated can achieve disclosure of 100% of the chemical constituents without any trade secret claims, provided that the disclosure takes this form: [form included in body of letter] The salient feature of the form reproduced above is that it completely disassociates each chemical constituent from its respective trade name product, thus significantly reducing if not eliminating the potential for the disclosure to betray specific formulaic information to competitors. At the same time, the chemical composition of the overall well stimulation treatment fluid is

	provided, allowing for the development of appropriate water quality and waste stream testing parameters, spill contingency plans, etc. under the Proposed Rule. This is the form we are currently using to satisfy section 1783.1(a)(11)(1). The form is populated and transmitted electronically. It can be and is uploaded to the FracFocus Chemical Disclosure Registry. By adopting or approving this form the Division could substantially streamline the administrative burdens associated with segregating confidential and non-confidential filings, processing Public Records requests and, ultimately, participating in litigation.
990	0005-03 The CEPR and SmartCare™ line have driven competition among our chemical suppliers to provide "better" products (e.g., that biodegrade quicker, have lower aquatic toxicity, do not bioaccumulate, etc.), and allowed us and our customers to target and eliminate specific chemicals from our products, often in rapid evolution. It could be difficult to justify introducing such products into markets which make it significantly harder to protect proprietary information about the products, and if every market were to adopt the approach taken by California in SB 4, the effect could be to depress research and development in this important area. That we have overcome the hurdle today does not guarantee that we may do so tomorrow.
	Response to comments 988-990: Thank you for your comments.
991	4273-2 The proposed regulations require, Chemical Abstract Service numbers, and estimated concentrations of each and every chemical constituent of the well stimulation fluids to be used in treatment. An "estimate" should not be part of this document. The people of California deserve exact amounts of the pollutants that are being used to destroy their water supply.
992	0207-1 In the SB4 Interim Well Stimulation Treatment Notice regarding the "estimated concentrations, in percent mass, of each and every chemical constituent of the well stimulation fluids anticipated to be used in the treatment." Not sure how to represent the estimated concentrations in percent mass.
	Response to comments 991-992: Rejected. Public Resources Code section 3160, subdivision (d)(1)(D), requires that a permit application include, "A complete list of names, Chemical Abstract Service (CAS) number, and estimated concentrations, in percent by mass, of each and every chemical constituent of the well stimulation fluids anticipated to be used in treatment." Within 60 days after completion of the well stimulation treatment, operators are required to disclose the chemical constituents and maximum concentrations in the well stimulation fluids that were used in the treatment.
993	0002-40 Because the provisions of PRC 3160 (j) (2) prohibit certain information from being claimed as a trade secret, and neither operators nor regulators may be familiar with these provisions, they should be quoted in the chemical disclosure requirement in this section. See 1783.1(a)(26).
994	0055-1 The provisions in PRC 3160(j)(2) and 3160(j)(4)(C), which specify what information shall not be claimed as trade secrets, need to be quoted in the regulations, not just cited. The regulations, in 1783.1(a)(26) and 1788(d), should include the exact\ wording of, or accurately paraphrase, these subsections on what information cannot be trade secrets.

995	0010-020 It is important that the regulations reflect the fact that it is the responsibility of the service company, not the producer, to provide accurate information relative to the applicability of trade secrets.
996	4069-13 Regarding Section 1783.1(a)(26), in order to prevent abuse of this exemption, companies should be prohibited from claiming trade secret protection for a product or chemical which has previously been made public through any means, including FracFocus, even if a different company is responsible for the public disclosure. DOGGR should be responsible for cross-referencing (with EPA, FracFocus, or other industry databases as necessary) any constituent for which a trade secret exemption is being claimed to ensure that the constituent in question is in fact new or unpublished.
	Response to comments 993-996: Rejected. The limitations on claims of trade secret protection and the procedures for handling claims of secret protection are clearly stated in Public Resources Code section 3160, subdivision (j). It is not necessary to quote those statutory provisions in regulation.
	1783.2 Copy of Well Stimulation Permit; Notice of Availability for Water Testing, Sampling
997	0045-62, 0045-63 The Division should require the notice of availability of water sampling and testing to be translated into Spanish for communities that are reasonably known to be primarily Spanish-speaking, or other languages where it is reasonably known that English is not spoken as the primary language in that community or locale. In addition, in order to provide clarity for operators as well as the public, the Division may wish to offer a list of appropriate and acceptable methods of notification – such as personal service, certified mail, or the like – rather than leaving it to the discretion of the operator or its designee.
998	0008-7 The interim regulations section 1783.2(4)(b) requires that operators provide the public with information about how to request water sampling and testing. This provision has been removed from the proposed final regulations, and needs to be reincorporated to ensure that members of the public understand the steps they need to take to request water sampling and testing.
999	0015-3 Section 1783.2 includes “Notice of the availability for water sampling and testing of any surface water suitable for drinking or irrigation purposes.” This section should be clarified to describe the scope, reporting frequency, and the entity that will assume responsibility and cost obligations for this testing and reporting.
1000	0002-41 The Division, in consultation with the State Water Resources Control Board (“Board”) must develop and implement formats and systems to disseminate information to neighbors regarding the availability of water testing. A template for neighbor notification is needed to ensure that landowners and tenants within the specified radius receive all required information in an easy to read format, in English and other appropriate languages, and have a standardized method to request monitoring, such as a pre-paid and addressed postcard with a check box. Such a template should also ask neighbors to provide information about active or abandoned wells and surface water located on their property, in order to provide information to operators that is required in the water management plan. Clean Water Action request the Division develop such a

	template in consultation with the State Water Resources Control Board and make the template publicly available for review prior to approval of the permit.
1001	0047-28 Contents of the notice (including payment responsibility, how to request water sampling, etc.) should be clearly spelled out, and a standard form should be provided to ensure consistency and clarity of notifications to property owners and tenants.
	Response to comments 997-1001: Accepted. Section 1783.3 details the procedures implementing the water testing requirements of Public Resources Code section 3160, subdivision (d). Section 1783.2(a)(2)(B) requires that the notification include a completed Well Stimulation Treatment Neighbor Notification Form. That form includes information about the proposed well stimulation treatment and the right to water testing, and it is in both English and Spanish.
1002	0275-1 Neighbors should be notified shortly after the application for a permit is submitted, and BEFORE a permit is granted. Also, 30 days is insufficient, neighbors should be notified 90 prior to the well stimulation treatment.
1002	4121-2 The permit notification process really needs to be re-examined and strengthened. It's kind of a de facto kind of approval process right now. This sounds much more like a rubber stamp the way you guys have it set up, where there's no one notified until the permit is approved and then they're notified, so they get 30 days to come and talk to someone. It's kind of difficult for any productive complaints to be really listened to, so that's another complaint or concern I have.
1003	0045-59 The well stimulation treatment radius analysis defines the minimum area in which groundwater may be endangered by injected fluids. As such, this is the appropriate radius within which to notify surface owners and tenants and to perform baseline water testing. The area around a stimulated well in which groundwater may be impacted depends on site-specific factors including the local geology and details of the stimulation treatment. Consequently, a fixed radius, including the proposed 1500 and 500 foot radii, is not appropriate. The radii in the statute have no scientific basis and do not sufficiently address endangerment of protected water by well stimulation.
1004	4070-6 All wells and the chemicals that they use within a 25 mile radius should be considered by the Department before approving any new well stimulation. The concept of notifying persons within 1,500 feet of a new well that will be stimulated is woefully inadequate.
1005	0008-6, 4158-4, 4122-1 The 1500 foot radius and 500 foot horizontal projection thresholds are arbitrary and inadequate. This is especially a concern where public supply aquifers are impacted. Public supply aquifers provide water utilizing distribution systems that can move water miles from the source. In these cases, all customers of public water sources should be notified, regardless of proximity since the entire distribution system can be impacted.
1006	0275-2 The proposal to notify neighboring properties that are within 1500 foot radius of the wellhead of any such well, or within 500 feet of the horizontal projection of the well is very inadequate. In

	many places where oil/gas drilling is taking place, the leased properties are hundreds or thousands of acre ranches. The requirement should be that neighboring properties, within 1500 ft radius of the PROPERTY LINE where well stimulation is taking place, be notified.
1007	0292-7 Disclosure for those living near the well. This should include landowners and also local residents (Who might be renters and not the land owners). I saw some numbers like 1500ft and 500ft regarding notification boundaries near well operations. That is way too small. It should be at least 1/2 mile. Because of the possible large effects (water and air pollution, increased traffic and noise, etc.), more people should know if a well is going to move into their area. This should also be posted in local newspapers in addition to direct mailings.
1008	0011-19 This radius will oversee well stimulation isolation which poses the same risks to property owners that need the availability for water sampling. 1783.2 should be revised to state " ... required to provide to surface property owners and tenants of legally recognized parcels of land situated within a radius of twice the anticipated well stimulation treatment length from each point of well stimulation treatment, or 1500 foot, whichever is greater."
1009	0048-1 This comment/suggestion relates to the 30 day notice requirement that operators are to send to surface/mineral owners within 1500 feet of a proposed well stimulation activity. The Division should allow surface/mineral owners to sign a general waiver, upon request from an operator, which would be filed in the local the Division office and would allow the surface/mineral owner to approve an operator's well stimulation projects all at one time. There are many instances in oil & gas fields where a surface/mineral owner may own large tracts of land with dozens, if not hundreds, of wells on those tracts. The surface/mineral owner may already know ahead of time that he/she would approve the well stimulation activities. This waiver is simply an option to those land owners and would result in less paperwork and less waste of time, money and effort. As an example, in a field where there are 100 wells and all of those wells sit on land owned by a common owner(s). Instead of the operator having to send 100 separate 30 day notices for each of the wells, the operator would send one notice with all the same required data which would cover all 100 wells, and the landowner would have the option to sign a letter which waives the need to receive separate notices for each well. Imagine the amount of paper saved and the backlog avoided at the Division offices.
1010	0018-20 Notification Requirements (§1783.2(a)): This section of the rules requires the operator to notify landowners and tenants within a 1500-foot radius of the wellhead regarding the proposed stimulation treatment and to provide additional information and/or testing services upon request. The "narrative description" of the rules issued by The Department further indicates that these persons must be provided a copy of the approved treatment permit. These provisions are unique in our experience, as they require the operator to notify persons who are at no risk and have no financial or contractual involvement in the proposed operations. Indeed, California Code of Regulations Title 14, Division 2, Chapter 4,Subchapter 3 Unit Operations §1854 describes "affected" persons as "all persons listed in the records of the county tax assessor as having an interest in the lands affected by the proposed modification." Consistent with other states, we would encourage the CDOC to require notification to those parties who have a direct interest in the operations (surface rights and mineral rights owners) and to persons who own water wells in the vicinity of the proposed oil and gas well. Providing notifications to parties who are not stakeholders in the operation undermines the efforts of the operator and the agency to address the concerns of affected persons as defined under existing rules. In addition, the rule language suggests that this notification must be repeated for every treatment, which is unnecessary and burdensome to all parties. Recommended Change: Revise this section to require notification of

	only property owners and water well owners within the specified radius and only for the initial well drilling and development process, not every subsequent treatment operation.
1011	0018-8 Proposed Notification Requirements Involve Parties Who Are Not Stakeholders to the Operation: The proposed rules require repeat notifications to landowners and other persons within a 1500-foot radius of the oil and gas well where stimulation is to be conducted. In many cases, these notifications will involve parties with no direct stake in the proposed drilling operations, such as persons who do not own overlying land and/or do not use groundwater within the proposed treatment area. Involving parties with no potential impact from the well development operations undermines the ability of the operator and the regulatory agency to address the concerns of true stakeholders. We recommend the Department revise these notification requirements to address the true stakeholders to the well development activity and to avoid repeat notifications at the same well location.
1012	0018-20 Notification Requirements (§1783.2(a)): This section of the rules requires the operator to notify landowners and tenants within a 1500-foot radius of the wellhead regarding the proposed stimulation treatment and to provide additional information and/or testing services upon request. The “narrative description” of the rules issued by The Department further indicates that these persons must be provided a copy of the approved treatment permit. These provisions are unique in our experience, as they require the operator to notify persons who are at no risk and have no financial or contractual involvement in the proposed operations. Indeed, California Code of Regulations Title 14, Division 2, Chapter 4,Subchapter 3 Unit Operations §1854 describes “affected” persons as “all persons listed in the records of the county tax assessor as having an interest in the lands affected by the proposed modification.” Consistent with other states, we would encourage the CDOC to require notification to those parties who have a direct interest in the operations (surface rights and mineral rights owners) and to persons who own water wells in the vicinity of the proposed oil and gas well. Providing notifications to parties who are not stakeholders in the operation undermines the efforts of the operator and the agency to address the concerns of affected persons as defined under existing rules. In addition, the rule language suggests that this notification must be repeated for every treatment, which is unnecessary and burdensome to all parties. Recommended Change: Revise this section to require notification of only property owners and water well owners within the specified radius and only for the initial well drilling and development process, not every subsequent treatment operation.
1013	0045-60 A recent study has reported the maximum vertical height of induced hydraulic fractures as ~588 m (~1929 ft), with the probability of a fracture extending vertically more than 500 m (~1640 ft) being ~1%. VI In wells deeper than approximately 2000 ft, the maximum stress (overburden stress) is in the vertical direction and the least stress is in the horizontal direction. Induced fractures propagate perpendicular to least stress, meaning that they will be oriented vertically. Due to this stress regime, growth is constrained in the vertical direction and fractures tend to grow longer horizontally. This means that in deep wells, fracture length tends to be greater than fracture height.
1014	0045-58 The Division should revise the radius within which surface property owners and tenants of legally recognized parcels of land must be notified to ensure that it is at least that specified by Section 1784(a)(2)(ii) (twice the anticipated well stimulation treatment radius). We recognize that the currently proposed radii of 1500 feet from the wellhead and 500 feet from the horizontal projection of the well were specified by SB 4, but the Division can and should go beyond these

	radii.
1015	0045-61 A safety advisory from the British Columbia Oil and Gas Commission reports that communication has occurred between horizontal wellbores separated by up to 710m (~2345ft) and recommends coordination and monitoring of all drilling and completion activities in wellbores separated by 1000m (~3280 ft) or less.
1016	0017-5 Section 1783(2)(a) Should include local municipalities and water agencies along with surface property owners and tenants in the requirement for being provided a copy of the permit application and other specified information.
1017	4244-1, 4241-7, 4193-2 Prior to drilling every water body (river, pond, groundwater) in the vicinity should have extensive testing done to fingerprint it. If a fracking spill occurs or there is reason to believe that fracking has caused the water body to be contaminated in some way there will be solid baseline data on the water body, thereby making it easier to reliably determine if the contamination is the result of a fracking operation.
1018	0002-42, 0002-43 Clean Water Action notes that other states (e.g. Alaska) require notice for 0.5 miles (2640 feet) from the wellhead and trajectory/path of the Well. Proper implementation by the third party is very important and should be expanded to include subsurface property owners, lessees and occupants.
1019	0127-6, 0046-16, 0025-25, 0280-3, 0280-4 Operators should be required to automatically do baseline testing of both water wells and surface waters and provide those results to tenants, and it should be clear that operators pay for the testing. Also, the company testing the water should be licensed and experienced.
1020	0003-13, 0025-15, 0103-6, 4237-11, 4121-3 This limited radius is insufficient to protect people from the risks from hydraulic fracturing and other well stimulation techniques. There should be notification given to people at least within a one-mile radius for both.
1021	0003-14, 0046-15, 0025-16, 0251-8, 4214-7 The potential harm from water and air pollution extends far beyond 1500 feet.
1022	0051-5 All other active water wells within one mile must be identified and each one tested for all contaminants before the drilling can commence. This must be made mandatory in areas of prime farmland and protected groundwater.
1023	0003-15, 0037-3, 0025-18, 4214-4 Limitation to tenants does not protect those who work, but do not live, within the radius. Under the proposed regulations, there is no requirement that such persons receive notice that their health and safety may be at risk. Providing specifically for notice to workers is congruous with the Division's duty to inform the public to the furthest extent possible pursuant to SB4 and other California law.
1024	0037-8 How does 1783.2 and the regulations address downstream and watershed-wide concerns for water safety and quality, as well as recharge and water availability throughout the watershed?

	Response: Section 3160(d)(6) of the Public Resources Code is very clear as to whom is to be contacted and whom at what distance from the well stimulation treatment is to be notified. The proposed regulations mirror the statute. Although the Division has broad authority, the Air Resources Control Board will enforce those statutes and regulations necessary to ensure compliance with air emission standards. To ensure a seamless regulatory system, the Division is entering into a Memorandum of Agreement with the State Water Board and Air Resources Control Board.
1025	0046-17 More complete follow-up testing and monitoring should be required.
1026	0046-18 Regulations should require proactive testing of all identified aquifers located in the vicinity of fracking operations.
1027	0049-16, 0049-17 Remove the provision on notification of the availability of water sampling and testing (*see* Section 1783.2(a)(2), (3)) and instead require water testing of any groundwater and surface water which has assigned beneficial uses pursuant to a Regional Water Board Basin Plan and State Water Board Water Quality Plans. Revise to expand the radius of property owners and tenants that should be provided with a copy of the issued Permit to 5,000 feet (or one mile) radius from the wellhead of the well where well stimulation will occur *and* 1,500 feet of the horizontal projection of the subsurface parts of the well.
1028	0049-18 Water testing should be required for the duration of the well stimulation treatment and for five years after well treatment completion to ensure the well treatment is not impacting surface water and ground water resources.
1029	0056-9 The local jurisdiction should be notified in a timely manner.
1030	0025-26 It is critically important to understanding the full scope of the risk to groundwater that the Division collect and make available a comprehensive data set of groundwater information before and after well stimulation occurs. Also, notably absent is any requirement for baseline groundwater samples to be taken for drinking water or irrigation uses.
1031	0103-3 What is the time frame for notifying the Division and the public about proposed fracking?
1032	0103-5, 0153-1 There needs to be a longer window of opportunity for the public to be notified in advance of the permit approval. Additionally, notification of a permit application (not after the granting of approval of a permit) should be targeted appropriately. All properties that overlay that aquifer or use the water from that aquifer should be noticed before any permits are granted.
1033	0112-2, 0102-2, 0115-2, 0070-2 Notification to the public that Fracking will commence should have a 30 - 60 day window, in the

	event that the permit was issued incorrectly to allow time for mediation or court injunction.
1034	0133-2 Notification should extend to any interested parties that have made such a request. A list serve for permits, applications, etc. The notifications can be published on a website, such as other agencies post agendas, legal actions, etc.
1035	0230-1 Property owners and tenants living near wells will be given very short notice before fracking or acidization takes place. They may not have time to have the tests done.
1036	0071-6 The regulations place the burden on nearby residents of stimulated wells to request baseline water testing and attempt to improperly and unjustly restrict the right to obtain baseline water testing to property owners and tenants with a written lease.
1037	0011-12 Provide more than a 10-day period for notice. Provide notice to the property owner if they are not the applicant. At minimum, require posting of the notice in public areas in the vicinity of the site.
1038	0041-3 Regarding public notification in 1783.2, it is not enough to notify “surface property owners and tenants of legally recognized parcels of land ….” When so many of the oil operations are conducted on property owned wholly by the oil company or farther away than the referenced distances. Oil companies who own the land on which they drill will also be unlikely to order water testing for possible public review, as spelled out in 1783.3.
1039	0041-4 There must be public notification and water testing of all areas drilled. Also, public notification must not just be filed in a DOGGR office. It must be in a general circulation newspaper and the information e-mailed directly to those who request direct e-mail notification.
1040	4069-14 Public notification should take place well BEFORE a permit is granted, as well as after, and should not be limited in scope but extend to any and all communities which may be impacted. Potential impacts go far beyond adjacent properties: traffic, pollution, release of volatile organic carbons and other air pollutants, seismic activity, migration of radioactive materials, and especially freshwater draw downs and risk of water contamination. The public should be given adequate opportunity to be informed about the risks, weigh in, or take actions which may be necessary to protect themselves. They may know things that were not included on the permit application that could affect the decision over whether or not to grant the permit.
1041	4069-15 All public notification and disclosures, including content on the Division website, must be in both Spanish and English, given that the majority of California’s population is Spanish-speaking; these populations tend to be particularly high in areas where well stimulation treatments are occurring or anticipated to occur.
1042	4069-5 Disclosure should include but not be limited to: MSDS on the well pad for every chemical that is being brought on-site MSDS for every chemical provided to emergency responders and healthcare workers in surrounding communities, including communities through which these substances will be transported or stored. Additionally, DOGGR is responsible for ensuring a clear chain of communication between the well operator, every service company that is going to be on-

	site, and emergency and healthcare workers (as referenced above), in addition to any state-required spill reporting notifications.
1043	4069-7 Operators should also be required to disclose where produced water will go after separation (from oil) once the well is in production.
1044	4070-2 Section 1783.2 would require operators to disclose to nearby property owners detailed information about water quality, both as regards surface water and ground water. However, there is no mention about possible airborne silica exposure that bystanders at nearby properties might experience. WOEMA suggests that operators be required to add disclosures about measured airborne silica levels to the above disclosure requirements, when appropriate to a specific site.
	Response to comments 1002-1044: Rejected. Public Resources Code section 3160, subdivision (d), requires operators to hire an independent entity to provide notification to every tenant and owner of neighboring property within 1500 feet of the wellhead or 500 feet of the surface representation of a well that will have a well stimulation treatment performed on it. The statute requires operators to provide neighbor notification at least 30 days prior to commencing the well stimulation treatment, and the notice must consist of the approved permit and notification that the property owners may request water quality testing at the operator's expense. Public Resources Code section 3160, subdivision (b)(1)(B) expressly requires the Division to adopt regulations implementing the statutory neighbor notification requirement. The purpose of Section 1783.2 is to establish procedures implementing the neighbor notification requirement of Public Resources Code section 3160, subdivision (d), and the suggested revisions to Section 1783.2 would be a departure from the statutory requirements. Although testing of neighbors' water wells and surface water is optional at the election of the surface property owner, all wells that have well stimulation treatment performed on them are subject to groundwater monitoring requirements under Water Code section 10783. Wells that have well stimulation treatment performed on them must be covered by a regional, area-specific, or well-specific groundwater monitoring plan and the State Water Resources Control Board is currently developing the model groundwater monitoring criteria required under Water Code section 10783.
1045	0010-021, 0032-27 Revise Section 1783.2(a)(3) to read "Notice of the availability for water sampling and testing of any *existing* well suitable for drinking and irrigation purposes;" Rationale: Provides clarifying language consistent with the Division's stated intent.
1046	4211-5**,** 4094-7, 0032-9, 0010-05 The regulations should specify that the notice of the availability for water sampling and testing should apply to *existing* wells used for either of these purposes and not imply new wells be drilled by the well stimulation operator to conduct this sampling and testing. This removes the ambiguity and ensures that operators will not be responsible for needlessly drilling monitoring wells that surface landowners may not want or support.
	Response to comments 1045-1046: Accepted.

	Section 1783.3(a) clarifies that requests for water testing are limited to existing water wells or surface waters suitable for drinking or irrigation purposes.
1047	0053-6 Stimulation Treatment "applications" are isolated from the other permits to drill, rework, and abandon even though stimulation was previously included in the Notices-of-Intent. Although neighbors may receive notices (announcement) of stimulations to come, they would not know when the applications would be submitted for such operations and the permits were granted up to a year before the notice/announcement would be delivered.
	Response to comment 1047: The neighbor notification is required to include the approved well stimulation treatment permit, which, under Section 183.1(a)(11), will include the estimated two-week period during which the treatment will occur.
1048	4214-6 The speed of which the south air coast – South Coast Air Quality Management District has established online forms, notices reporting and database for their well stimulation regulations demonstrates the capability to act to notify the public quickly.
	Response to comment 1048: Thank you for your comment.
1049	0042-3 Waste Management (WM) request clarification as to whether provision of such notification services under Section 1783.2 would jeopardize WM's ability to provide "independent third party" well notice and sampling pursuant to subsequent section 1783.3. Again, WM notes that the terms "owner", "operator" and "independent third party" do not appear to be defined in the proposed regulations. WM requests clarification that provision of well services does not jeopardize WM ability to provide "independent third party" services.
1050	0042-4 In Section 1783.3 it is not clear, from the proposed regulations, what the standard is for being an "independent third party." With respect to the requirements of Sections 1783.2 and 1783.3, Waste Management (WM) has the capability of performing the services of an independent third party to well owners and operators to provide copies of permits, notices of water testing and to conduct sampling necessary to comply with this section. However, the regulations are not clear with respect to whether any services delivered to well owners or operators would compromise WM's ability to be considered an "independent third party" pursuant to this section. WM requests confirmation that any services provided to well owners or operators would not jeopardize WM's standing as an independent third party pursuant to this section.
	Response to comments 1049-1050: Accepted in part. Section 1781(m) was added to provide a definition of the term "independent third party." The term "operator" is defined by statute in Public Resources Code section 3009, and the term "owner" is commonly understood.
1051	0002-42 A system is needed that will allow the Division to verify that all required information and notification has been properly distributed to the appropriate recipients. This verification process needs to be part of the permit approval process and must include communication with the Board.

	This will allow the Board to track requests for monitoring and ensure that appropriate follow-up and all requested monitoring has occurred.
	Response to comment 1051: Accepted in part. Section 1783.2 details documentation and reporting requirements for third-party entities performing neighbor notification, and Section 1783.3(b)(7) requires notice to be provided to the Regional Water Quality Control Board in advance of sampling so that their staff may witness the sampling.
1052	0127-7 Tenants should be allowed to choose the testing party of their choice so as not to rely totally on an operator who may not be trustworthy.
	Response to comment 1052: Accepted. In accordance with Public Resources Code section 3160, subdivision (d)(7)(C), Section 1783.3(d) states that a tenant who has lawful access to a water well or surface water may independently contract with a designated contractor, but is not entitled to reimbursement from the operator.
1053	0127-8 A full chain of custody for the sampling and testing should be used to assure tenants that the water tested is in fact from the identified source and the results are in fact tied to that particular sample. This should not be an optional activity but should be required and paid for by the operator. Information on "availability" of testing cannot be relied upon to be understood nor seen by tenants, especially in the case of senior citizens or others who may be inadequately able to understand and assess the details of the permit provided to them.
	Response to comment 1053: Accepted in part. In accordance with Public Resources Code section 3160(d)(7)(B), Section 1783.3(b)(2) specifies that water quality testing must be done in accordance with standards and protocols specified by the State Water Resources Control Board. Section 1783.3(b)(7) requires notice to be provided to the Regional Water Quality Control Board in advance of sampling so that their staff may witness the sampling.
1054	0021-14, 0046-19 The Division can improve transparency by making well stimulation permits broadly available. In addition to sharing well stimulation permits to property owners and tenants within 1,500 feet of a regulated wellhead, the Division should post well stimulation permits online on a daily basis, as done with notices for drilling and reworking wells. We request making the website easily to view and search as the SCAQMD's site does by allowing searches based on characteristics like address, zip code, city, and county.
	Response to comment 1054: The Division is working to develop and implement business processes and information technology to make information about all aspects of well stimulation treatment operations available on its public website in formats that can be easily searched and aggregated.
1055	0025-17 Because written rental and lease agreements are not publicly recorded, it is unclear how a third party notification service would even distinguish between those who have a written agreement and those who do not.

1056	0047-29 The notification should not be limited to tenants with written agreements. Oral lease agreements are recognized in California and should not be excluded from the protections of this law.
1057	0003-14, 0046-15, 0025-16, 0251-8, 4214-7 The potential risks do not threaten only "tenants," as defined in the proposed regulations. The Division proposes to limit notices to those residents with a "valid written agreement." The requirement that a nearby resident have a written agreement in order to receive notice about nearby dangers is completely arbitrary.
	Response to comments 1055-1057: Accepted. The term “tenant” is defined in Section 1781(r), and a written agreement is not a part of the definition.
1058	0011-20 Proposed regulations should be revised to notify and provide a copy of the approved permit to the RWQCB and the local planning entity as referenced in PRC Section 3160(d)(5).
	Response to comment 1058: Rejected. This requirement is expressly stated in statute and it is not necessary to quote the requirement in the regulations.
1059	0011-21 Section 1783.2 does not reference the property owners’ right to request baseline AND follow up testing after well stimulation treatment. Language needs to be revised to reflect PRC Section 3160 (7)(A)(i&ii).
1060	0047-30 The regulations should clarify the availability of baseline and follow-up measurements for the property owner and tenant as allowed in the law, and should include a process for ensuring that the follow-up measurements are actually conducted.
1061	0047-31 The regulations do not provide a process for ensuring that the baseline water sampling is completed prior to the commencement of well stimulation treatment operations. A requirement placing that obligation on the operator should be included in section 1784.
	Response to comments 1059-1061: Accepted. Section 1783.3(b)(3) states that water quality testing shall include baseline measurements prior to commencement of well stimulation treatment and follow-up measurements after the well stimulation treatment is completed.
1062	4273-2 I want to encourage that the use of economy field personnel can be used for water testing with certification or training and proper compliance with lab standards, so that guys out in the field can grab the samples as we need be.
	Response to comment 1062: Thank you for your comment.

1063	4070-2 It should be sufficient to use USPS Certified Mail with Return Receipt to ensure notification. It would seem quite unnecessary to hire a third party to notify DOGGR or to send the required materials out to surface owners or tenants.
1064	4273-1 We need some clarification on the surface-owner, land-owner notification policy and particularly whether or not some details there are on whether or not the post office certified mail suffices as a third-party entity, what do we do about missing owners that we can't locate? I believe that that is listed in there as let's resolve this. And those are a couple of things there.
	Response to comments 1063-1064: Accepted in part. Section 1783.2(d) was revised to specify acceptable methods for providing neighbor notification and the list includes registered, certified, or express mail. Public Resources Code section 3160, subdivision (d)(6)(B), specifies that an independent entity must be responsible for performing neighbor notification. If an operator mails neighbor notifications themselves, then neighbor notification has not been performed by an independent entity.
1065	0003-16 The proposed regulations do not explain what information must be a part of the notice. Currently, the proposed regulations only require a copy of the permit. In contrast, the interim regulations include a list of specific information that must be included in the notification.
	Response to comment 1065: Accepted. Section 1783.2(a)(2) specifies what must be included in the neighbor notification.
1066	4068-13 The initial notice period should be extended to allow the Division, the appropriate boards, and other interested persons sufficient time to review the proposal and respond. The current ten days is insufficient for a water board to reasonably review a proposal and respond, and 3 days is impossible for most individuals to find the notice, review the proposal, and respond. To ensure due process, the initial notice period should be extended to 60 or 90 days. The Division's posting time in Subparagraph (d) should be extended to 10 days or longer after receipt of the initial notice.
1067	4068-14 Subparagraph (c) should also include a provision that in no circumstances should the operator commence operations prior to some reasonable time, such as 30 or 60 days, after the Division has posted information about the well pursuant to Subparagraph (d). This would provide interested individuals time to respond to the initial public notice.
	Response to comments 1066-1067: Rejected. Public Resources Code section 3160, subdivision (d), requires operators to hire an independent entity to provide notification to every tenant and owner of neighboring property within 1500 feet of the wellhead or 500 feet of the surface representation of a well that will have a well stimulation treatment performed on it. The statute requires operators to provide neighbor notification at least 30 days prior to commencing the well stimulation treatment, and the notice must consist of the approved permit and notification that the property owners may request water quality testing at the operator's expense. Public Resources Code section 3160, subdivision (b)(1)(B) expressly requires the Division to adopt regulations implementing the statutory neighbor notification

	requirement. The purpose of Section 1783.2 is to establish procedures implementing the neighbor notification requirement of Public Resources Code section 3160, subdivision (d), and the suggested revisions to Section 1783.2 would be a departure from the statutory requirements.
1068	4068-15 The contents of the data provided to the Division and water boards should be more thorough, and should include, at a minimum, the same types of disclosures required by Paragraph 1788. The data reported prior to hydraulic fracturing should include: • The identity and quantity of any radiological components or tracers injected into the well as part of the hydraulic fracturing process, a description of the recovery method, if any, for those components or tracers, the recovery rate and the disposal method for recovered components or tracers. • The source(s) of water to be used during the process. • The location where storage of any hydraulic fracture fluid flowback, or other materials anticipated to come out of the well will occur. • The nature of storage that will be employed for hydraulic fracture fluid flowback, or other materials anticipated to come out of the well. • A complete list of the names, CAS numbers, and maximum concentration, in percent by mass, of each chemical that will be added to the hydraulic fracturing fluid. Where the CAS umber does not exist for a chemical, the operator may provide another unique identifier where available. • The trade name, supplier, and a brief description of the intended purpose of each additive contained in the hydraulic fracturing fluid.
	Response to comment 1068: Accepted. As specified in Section 1783.1, this information is required as part of the application for a well stimulation treatment permit.
	1783.3. Duty to Hire Independent Third Party to Provide Copy of Permit, Notice of Water Testing, Sampling
1069	0010-35 Water quality testing is important to us for a number of reasons. One, not only does it protect groundwater for drinking water, irrigation, everyone else; if the program is designed correctly, it is actually going to protect the oil companies from false claims made by second and third parties who don't have our best interests at heart.
1070	4237-10 Well monitoring is inadequate.
1071	4068-15 The contents of the data provided to the Division and water boards should be more thorough, and should include, at a minimum, the same types of disclosures required by Paragraph 1788.
1072	0003-17 The Division should require that baseline groundwater samples to be taken for all cases, not just where a resident has requested water testing. Notably absent is any requirement for baseline groundwater samples to be taken for drinking water or irrigation uses.
1073	0025-21, 0017-6 The proposed regulations fail to establish necessary requirements for groundwater sampling, monitoring, and testing, instead deferring to regional water board to approve groundwater

	monitoring plans on a discretionary basis. The proposed regulations should be amended to mandate essential elements of groundwater monitoring and testing, to ensure that the regulations are sufficiently protective of human health and the environment. The monitoring should include testing for constituents that may result from the well stimulation treatment, including chemicals in the fluids, hydrocarbons that may be produced, and general minerals that be dissolved by the actions. This baseline information will be important if any contamination is subsequently detected in groundwater wells.
1074	0025-22 Section 10783 of the Water Code, enacted by SB 4, requires the State Water Resources Control Board (SWRCB) to develop model groundwater monitoring criteria for wells subject to stimulation treatments by July 1, 2015. These criteria must establish the constituents to measure and assess water quality, the distribution of monitoring wells necessary to detect groundwater contamination, the frequency and duration of the monitoring, and public access to data collected, among other things.
1075	0025-23 Though the proposed interim regulations provide interim groundwater monitoring criteria to be used before the SWRCB finalizes its model criteria, the proposed permanent regulations defer entirely to hose yet-to-be-developed model criteria, and fail to mandate elements of a groundwater monitoring plan that are essential to protect public health. Because of the potential harmful impacts of the well stimulation activities encompassed by the proposed regulations, it is critical to make clear what criteria are mandatory in groundwater sampling.
1076	0025-24 Additionally, though the proposed interim regulations provide interim model groundwater monitoring criteria, the proposed permanent regulations make no mention of interim criteria, instead relying on the final criteria to be developed by the SWRCB. However, the proposed interim regulations would expire by January 1, 2015, and the model monitoring criteria may not be finalized until July 1, 2015. This means that there could be a six month period when no model criteria are in effect. The proposed regulations must address this potential gap to ensure that groundwater monitoring is preformed consistently and effectively to protect the groundwater and drinking water supplies of people living in proximity to wells undergoing well stimulation treatments.
1077	0011-17 The proposed regulations do not specify where in the process groundwater sampling should take place for baseline and follow up testing. This should be mandatory as part of the groundwater monitoring plan, not just when requested by property owners.
	Response to comments 1069-1077: Rejected. Public Resources Code section 3160, subdivision (d)(7) requires operators to pay for testing of water wells or surface water suitable for drinking located on neighboring parcels within 1500 feet of the wellhead or 500 feet of the surface representation of a well, if the neighboring surface property owner requests the water testing. The statute specifies testing is to consist of baseline testing prior to well stimulation treatment and follow-up testing after well stimulation, testing must be conducted in accordance with standards and protocols specified by the State Water Resources Control Board, and testing must be conducted by a qualified independent third-party contractor designated by the State Water Resources Control Board. The statute further specifies that results of the water testing must be reported to the Division, the appropriate Regional Water Quality Control Board, and the surface property owner. Public Resources Code section 3160, subdivision (b)(1)(B) expressly requires the Division to

	adopt regulations this statutory neighbor water requirement. The purpose of Section 1783.3 is to establish procedures implementing the water testing requirement of Public Resources Code section 3160, subdivision (d), and the suggested revisions to Section 1783.3 would be a departure from the statutory requirements. Although testing of neighbors' water wells and surface water is optional at the election of the surface property owner, all wells that have well stimulation treatment performed on them are subject to groundwater monitoring requirements under Water Code section 10783. Wells that have well stimulation treatment performed on them must be covered by a regional, area-specific, or well-specific groundwater monitoring plan and the State Water Resources Control Board is currently developing the model groundwater monitoring criteria required under Water Code section 10783.
1078	0010-022, 0032-28 The stated intent of drinking water sampling and testing is to "enable neighbors to request baseline and follow-up testing of qualifying agricultural and drinking water wells" presumably to determine whether oil well treatment projects are impacting drinking water quality. The Division states that "the test results will be provided to the requesting party, well operator, the Division, and the State Water Resources Control Board." However, the proposed regulations only speak generally about the operator's obligation to provide "notice of the availability for water sampling and testing" of drinking water wells and surface waters without providing details about the timing of the sampling, distribution of water testing data to regulatory agencies, and the subsequent interpretation of the data. The Division should specify how and when the sampling is to be conducted and to whom the data should be delivered. Additionally, it is imperative that the regulations are clear that only land owners can request water testing and only when they have legal access to an existing water well.
	Response to comment 1078: Accepted. Section 1783.3 specifies that surface property owners may request testing of existing water wells or surface water suitable for drinking.
1079	0120-2 Section 1783.3(c) should have stronger wording than 'may be' and 'may reference.'
1080	0008-8 The words "may" as used in Section 1783.3(c) seems to imply that information about availability of water quality testing is not required to be provided in the notification but simply "may" be provided. This language is inconsistent with Sections 1783.2(a)(2)(3), which require that such information to be incorporated in the notification. We recommend that the words "may" be replaced with the words "shall" to provide clarification and consistency.
1081	0045-64 The Division should provide guidance as to what type of information about the availability of water quality testing can be included in the notification, and provide a Division-run website or webpage where additional information can be found. This will help ensure that landowners and tenants have access to consistent information about the purpose and availability of water quality testing, and what the law and regulations require. Leaving the content entirely to the discretion of the operator may result in confusion, particularly if a landowner or tenant receives notices from multiple operators.
	Response to comments 1079-1081: Accepted.

	Sections 1783.2 and 1783.3 are revised and Section 1783.2(a)(2)(B) requires neighbor notification to include a completed Well Stimulation Treatment Notification Form, which includes information about the availability of water testing. The required form also includes contact information for the Division and the State Water Resources Control Board, should the recipient have questions about available water testing or the meaning of the form.
	1784. Evaluation Prior to Well Stimulation Treatment
1082	4193-3 Best available practices to ensure the maximum level of reliability in wellhead and wellbore casing design and integrity. The cement testing and integrity monitoring and pressure gradient loss testing during fracking operations to detect the presence of frack water leakage regulations need to provide for a full comprehensive risk assessment in each geologic setting.· The precautionary principal must be applied in all phases of fracking to prevent communication obviously between fracked wells and groundwater aquifers that can detect it when it occurs. This includes strict implementation of state of the art.
	Response to comment 1082: Section 1784.2 requires a radial cement evaluation log or an alternative method to ensure wells are adequately cemented without running a cement evaluation tool. Existing well construction regulations require that surface casing is cemented to surface, and Section 1784.1 requires that production casing be pressure tested prior to a well stimulation. These requirements are in place to ensure mechanical integrity. In addition, Section 1785 requires that pressure is closely monitored during the well stimulation activity and well stimulation activity is required to cease if the pressure exceeds either 80 or 90 % of the tested pressure, depending on if the pressure test was performed up to 100% of the API rating for the casing. These requirements will effectively demonstrate the integrity of the well.
1083	0028-1 We believe the geologic analysis called for in Section 1784, Evaluation Prior to Well Stimulation Treatment, should include an evaluation of the risk of seismic activity that might be induced either by the well treatment itself or the disposal of wastes in injection wells.
	Response to comment 1083: Accepted in part. Identification of faults in the area is required under Section 1784(a)(3). Section 1785.1 has been added requiring monitoring of the California Integrated Seismic Network during and after hydraulic fracturing. If an earthquake of magnitude 2.7 or greater occurs within a specified area around the well, then further hydraulic fracturing in the area are suspended until the Division, in consultation with the California Geological Survey, determines that there is no indication of a heightened risk of seismic activity from hydraulic fracturing.
1084	0002-44 1784(a)(1). Clean Water Action supports the Division's proposed requirement that operators must evaluate cement integrity prior to well stimulation, but suggest changes to the proposed requirements.
1085	0002-46 Clean Water Action request the Division's proposal to allow the requirement to do a cement evaluation to be waived be deleted. Verifying the integrity of the cement job is crucial to ensure mechanical integrity and isolation of fluids and should be performed on every well.

1086	0047-32 There is concern that the proposed rules grant the Division Supervisor the authority to waive the requirement that an operator run a radial cement evaluation prior to performing well stimulation treatments. This authority should not be included in the final regulations.
1087	0002-47, 0002-49 Clean Water Action request a requirement to run cement bond evaluation logs (CELs) on production, intermediate, and surface casings. CELs must be obtained for all strings of cemented casing that isolate waters of beneficial uses, potential flow zones, or through which stimulation will be performed.
1088	0047-32 There is concern that the proposed rules grant the Division Supervisor the authority to waive the requirement that an operator run a radial cement evaluation prior to performing well stimulation treatments. This authority should not be included in the final regulations.
1089	4193-5 Cementing integrity is key to any successful fracking operation; therefore, a cement evaluation log, CEL, needs to be submitted prior to fracking operations for each casing including intermediate casings to help ensure increase protection of usable water.
1090	20021-6 We request additional information on why Section 1784(a)(1) allows the Division to waive the requirement of doing a cement evaluation. Although controversy exists over cement casing failure rates, casing failures occur in approximately .01% to 3% of wells. This is disconcerting since casing failures can allow fluids to escape the well and contaminate surrounding soil and groundwater. Given the controversy over failure rates and the causes of poor casing integrity, testing all wells' cement casing is the safest approach.
1091	0045-67, 0056-10, 0008-9, 4203 We object to the Division's proposal to allow the requirement to do a cement evaluation to be waived. A poor cement job, in which the cement contains air pockets or otherwise does not form a complete bond between the rock and casing or between casings strings, can compromise mechanical integrity, potentially leading well failure, or allow fluids to move behind casing from the reservoir into protected water. Verifying the placement of cement and cement bond is important and should be performed on every well.
1092	0045-68 We support the proposed requirement to run cement evaluation logs (CELs) on production casing but it is also crucial to verify the cement bond on other casing strings. CELs should be obtained for all strings of cemented casing that isolate protected water, potential flow zones, or through which stimulation will be performed (which can include production and intermediate casing).
1093	0184-4 Cement Bond Logs: Regular monitoring of fracked wells using these logs needs to become part of standard practice in the fracking process that is concerned with the environmental impacts it could have.
	Response to comments 1084-1093: Rejected. Section 1784.2(c) allows the operator to propose a plan to ensure wells are adequately cemented without running a cement evaluation tool. An alternative will not be approved by the State Oil and Gas Supervisor unless the operator can conclusively prove that the plan will ensure zonal isolation.

	Existing well construction regulations require that surface casing is cemented to surface, and Section 1784.1 requires that production casing be pressure tested prior to a well stimulation. These requirements are in place to ensure mechanical integrity. In addition, Section 1785 requires that pressure is closely monitored during the well stimulation activity and well stimulation activity is required to cease if the pressure exceeds either 80 or 90 % of the tested pressure, depending on if the pressure test was performed up to 100% of the API rating for the casing. These requirements will effectively demonstrate the integrity of the well.
1094	0032-15 The proposed regulation promotes the technical concept that a single evaluation tool or method can be a clear measurement of cement integrity. Cement integrity is an integrated process that links well design, cement installation, and process monitoring. When parameters are determined to be outside of range (such as cement not returning to surface), then a diagnostic evaluation tool is used to aid in the determination of the integrity of the cement and to determine a remedial treatment. This is the current method that has satisfactorily created zonal isolation in tens of thousands of wells in California. WSPA recommends that the evaluation provision in the regulation be revised to require the operator to present a cementing plan, complete with parameter monitoring, as part of a drilling permit and allow the current process of conducting that plan and addressing any abnormal condition suffice for well to be stimulated.
	Response to comment 1094: Accepted. Section 1784.2(c) allows the operator to propose a plan to ensure wells are adequately cemented without running a cement evaluation tool. An alternative will not be approved by the State Oil and Gas Supervisor unless the operator can conclusively prove that the plan will ensure zonal isolation.
1095	0002-48 Clean Water Action support the Division's proposed requirement that the cement evaluation must be submitted with the well stimulation application. This information is necessary to help the Division determine if the casing was cemented properly, so that any additional analysis or remedial operations that may be necessary to protect groundwater can be identified and implemented prior to stimulation.
1096	0045-69 We support the Division's proposed requirement that the cement evaluation must be submitted with the well stimulation application. This information is necessary to help the Division determine if the casing was cemented properly, so that any additional analysis or remedial operations that may be necessary to protect groundwater can be identified and implemented prior to stimulation.
	Response to comments 1095-1096: Rejected. This requirement was revised. Requiring completion of cement evaluation prior to application for a permit for well stimulation treatment would mean significant and unnecessary delays between completion of drilling operations and commencement of well stimulation treatment. It would also make it impossible to apply for well stimulation treatment permit concurrent with notice of intent to drill, which would be contrary to Public Resources Code section 3160, subdivision (d)(2). The cement evaluation requirements are now in Section 1784.2, and Section 1784.2(b) requires that cement evaluation results be provided to the Division at least 72 hours before commencement of well stimulation treatment and that the treatment may not proceed if the

	Division identifies concerns with the cement evaluation. Section 1783.1(a)(20) now requires that a permit application need only include a plan for completion of the cement evaluation. However, if the operator is proposing an alternative cement evaluation method under Section 1784.2(c), then the proposal must be included in the application for a well stimulation treatment permit.
1097	0045-66 The Division's current cementing requirements are not sufficient and therefore we object to the Division's proposal that the operator is only required to evaluate the cement that is required to be in place under Section 1722.4.
	Response to comment 1097: Rejected. If the well has cement in place beyond what is required under the applicable well construction regulation, then the operator is not required to evaluate the additional cement. Requiring evaluation of cement that is not required under the Division's well construction requirements would create a disincentive for operator cement wells beyond the minimum requirements.
1098	0002-45, 0002-49 In order to ensure reliable measurements, the cement must be sufficiently hard before running a cement evaluation tool (CET), among other factors. In practice the amount of time needed to ensure an accurate reading varies by site, and depends on many factors including the cement formulation and the characteristics of the CET used. A general rule of thumb is to allow the cement to harden for 72 hours, however, so Clean Water Action recommend revising the minimum wait time from 48 to 72 hours.
1099	0045-65 We support the Division's proposed requirement that operators must evaluate cement integrity prior to well stimulation, but suggest the following changes to the proposed requirements. In order to ensure reliable measurements, the cement must be sufficiently hard before running a cement evaluation tool (CET), among other factors. In practice, the amount of time needed to ensure an accurate reading varies by site and depends on many factors including the cement formulation and the characteristics of the CET used. We recommend revising the minimum wait time from 48 to 72 hours unless an ultrasonic cement analyzer (UCA) is used to more accurately determine the appropriate waiting-on-cement time.
	Response to comments 1098-1099: Rejected. The well-established standard for the wait time for cement to cure is 48 hours. This time will allow the cement to harden sufficiently prior to run a cement evaluation tool. The cement evaluation is only required on the string of casing that will be subjected to pressure associated to the well stimulation. The need to evaluate the other strings is beyond the scope of the well stimulation but will be considered in future rulemaking packages focusing on well construction standards. Existing well construction regulations require that all surface casing are cemented from the casing shoe to the surface and production casing must isolate oil and gas zones, as well as freshwater zones. Under Section 1784.2(c), the Division will allow the cement evaluation waiver only after the operator has demonstrated that another method will provide the necessary evidence of adequate cementing.
1100	0010-022, 0032-28 For better syntax, Section 1784(a)(1) should be revise to read "After allowing 48 hours…."
	Response to comment 1100: Accepted. This requirement is moved to Section 1784.2(a), which reads, "In advance of conducting well

	stimulation treatment, but at least 48 hours after cement placement, … .”
1101	0032-29 Revise Section 1784(a)(1) to read, “The operator shall do all of the following not less than 24 hours prior to commencing or recommencing well stimulation treatment:” Rationale: Provide the operator flexibility and meets the same intent.
1102	0004-5 The cement evaluation requirement as proposed creates an unnecessary delay time in the well permitting and completion schedule. This delay arises because under the proposed rule the well stimulation permit and drilling permit cannot be applied for simultaneously. In order to avoid this unnecessary time lag, Chevron recommends, similar to other j jurisdictions, that the results of the cementing process be simply recorded in the well history and submitted with the well completion report. There is no justification ion for treating the cementing process administratively different than the already rigorous method conducted to assure isolation of hydrocarbons in all production wells.
1103	0004-6 Section 1784(a)(1) should be revised to recognize cement integrity is an integrated process that is based on several factors involving well design, cement installation, and process monitoring. Only, when primary parameters are determined to be outside of range (such as cement not returning to surface), then a diagnostic evaluation toot(s) should be used to aid in the determination of the integrity of the cement and to determine a remedial treatment. This is the current method as specified in Section 1722.4 of the Division regulation, which has satisfactorily created zonal isolation in tens of thousands of wells in California.
1104	0004-7 The evaluation provision in the Regulation should be revised to require the operator to present a cementing plan, complete with parameter monitoring, as part of a drilling permit and allow the current process of conducting that plan and addressing any abnormal condition suffice for a well to be stimulated.
	Response to comments 1101-1104: Accepted in part. The cement evaluation requirements are now in Section 1784.2, and Section 1784.2(b) requires that cement evaluation results be provided to the Division at least 72 hours before commencement of well stimulation treatment and that the treatment may not proceed if the Division identifies concerns with the cement evaluation. Section 1783.1(a)(20) now requires that a permit application need only include a plan for completion of the cement evaluation. However, if the operator is proposing an alternative cement evaluation method under Section 1784.2(c), then the proposal must be included in the application for a well stimulation treatment permit.
1105	0011-23 Monterey County supports 1784(a)(1) if the division intends to be present for other evaluations and testing prior to well stimulation treatments, i.e. no well stimulation treatments should be performed on a well that has not physically been inspected by the Division.
	Response to comment 1105: The primary concern for the Division is to ensure well mechanical integrity before a well stimulation activity. The pressure test of the casing and the cement evaluation must be performed and evaluated prior to any well stimulation. This will also ensure hydraulic and geologic isolation prior to well stimulation and not rely on an evaluation after the well stimulation.

	If an operator can provide a cementing plan that ensures zonal isolation, the Division will consider modifying the testing requirements.
1106	4310-5 We support the requirement for operators to conduct a well stimulation radius analysis to look for pathways that injected fluids could get to groundwater or the surface.
1107	0045-70 We support the Division's proposed requirement to perform a well stimulation radius analysis.
1108	0002-50 Regarding section 1784(a)(2), we support the Division's proposed requirement to perform a well stimulation radius analysis. This analysis is crucial to ensure that any potential pathways by which injected or displaced fluids could reach groundwater are identified and remediated, if necessary.
	Response to comments 1106-1108: Thank you for your comments.
1109	4068-8 The base fluid for injection into hydraulic fracture wells can be, and frequently is, water. Therefore the associated chemicals must be presumed to be water soluble. Therefore any stratum that contains water would provide a medium in which the chemicals injected during hydraulic fracturing could readily migrate away from the intended target zone. Therefore any water, in any stratum, including water with any concentration of dissolved solids, should be protected from contamination by fracturing fluids. This would be the wise and prudent approach to prevent as far as possible, damage to life, health, property, and natural resources.
1110	4068-16 Section 1784(a)(4) states that an "operator shall conduct a fracture radius analysis to verify that no fracturing fluids or hydrocarbons will migrate into a strata or zone that contains protected water." This language is too broad. It fails to protect strata or zones other than those that contain protected water. This language should be amended to require that the fracture radius analysis should verify that "no fracturing fluids or hydrocarbons will migrate into any strata or zone other than the intended zone or zones of the hydraulic fracturing operations."
1111	0045-74 Communication between offset wells during stimulation is a serious problem, risking blow outs in adjacent wells and/or aquifer contamination during well stimulation. A New Mexico oil well recently experienced a blowout, resulting in a spill of more than 8,400 gallons of fracturing fluid, oil, and water. The blowout occurred when a nearby well was being hydraulically fractured and the fracturing fluids intersected this offset well. The incident led the New Mexico Oil Conservation Division to request information about other instances of communication between wells during drilling, completion, stimulation or production operations. Incidents of communication between wells during stimulation have been documented in British Columbia, Pennsylvania, Texas, and other states across the country. The Alberta Energy Regulator (AER), the oil and gas regulator in Alberta, Canada, recognized that communication between wells during fracturing is a serious risk to well integrity and groundwater after a number of spills and blowouts resulted from communication between wells during fracturing. As a result, AER created requirements to address the risk of communication and reduce the likelihood of occurrence. Similarly, Enform, a Canadian oil and gas industry safety association, published recommended practices to manage the risk of communication. We recommend that the Division review these rules and incorporate similar requirements.

1112	0026-8 Either through these regulations or by another legal vehicle, the Department of Conservation must address the issue of abandoned wells that have not been shut-in in accordance with the Division requirements. These abandoned wells constitute significant health and safety hazards, visual blight and are a public nuisance. For purposes of these regulations, the term “abandoned well” should be defined.
1113	0041-10 There is a huge problem in unknown abandoned wells of which there are hundreds in the old oil fields in Upper Ojai and Santa Paula. The 1913 California State Mining Bureau Bulletin explains how more than 100 years ago, state mining officials could not identify the location of thousands of abandoned wells in California.
1114	0002-55 Communication between offset wells during stimulation is a serious problem, risking blowouts in adjacent wells and/or aquifer contamination during well stimulation.
1115	0051-4 Another issue is nearby water wells that can carry contaminants from well stimulation activities directly down to our water table. Some water wells are abandoned and their locations are difficult to pin point. All abandoned wells within one mile of a well stimulation activity must be located by the oil company using the latest equipment available for such purposes. These wells must be properly cemented in and abandoned at the expense of the oil companies before any drilling or well stimulation can proceed.
	Response to comments 1109-1115: Consistent with the mandate of Public Resources Code section 3160, subdivision (b), Section 1784 requires modeling and analysis to evaluate wells and geologic features within the area of a proposed well stimulation treatment in order to ensure geologic and hydrologic isolation of the treated hydrocarbon formation.
1116	0018-17 A detailed evaluation of the treatment radius for each well is not necessary, as monitoring of thousands of hydraulic fracturing operations has shown the fractures to migrate only a limited distance (< 1000 feet) beyond the reach of the horizontal well extension. Recommended Change: Revise this provision to require only information regarding the proposed horizontal reach of the well and the commonly observed extent of fracture propagation beyond that distance (<1000 feet).
1117	0018-22 Detailed evaluation of the well stimulation treatment radius is not necessary for environmental protection. As demonstrated by micro-seismic monitoring, hydraulic fracturing pressures are typically sufficient to fracture rock no more than 1,000 feet above the production zone, and cannot create fractures extending upward several thousand feet to the depth of overlying groundwater units. Consequently, the radial influence of the horizontal well can be reasonably anticipated without need for extensive analysis over the large distances suggested by this rule section. Therefore, detailed evaluation of this condition should be reserved for special conditions. Recommended Change: Revise proposed Section 1784 to remove the duplicative requirement for cement evaluation and to reserve detailed evaluation of isolation of the production horizon only for those cases where known faults interconnecting the production zone with overlying

	groundwater units are present within close proximity of the horizontal well.
1118	0018-21 Section 1784 of the proposed regulations requires operators to run a radial cement evaluation log and a “well stimulation treatment radius analysis” prior to conducting stimulation treatment. Section §1722.4 in the current Subchapter 1 Onshore Well Regulations addresses distribution and bonding of cement, and provides requirements for submittal of cement bond logs and other surveys, if requested by DOGGR. Consequently, the need for the additional information requested in the proposed Section §1784 is unclear.
	Response to comments 1116-1118: Rejected. Public Resources Code section 3160, subdivision (b), mandates regulations that will ensure well integrity and geologic and hydrologic isolation of the treated hydrocarbon formation during and after well stimulation treatment. The purpose of Section 1784.2 is to verify that a well subject to well stimulation treatment does is in fact constructed in accordance with well construction requirements, and that the cement quality of cement is adequate. Section 1784 requires modeling and analysis to evaluate wells and geologic features within the area of a proposed well stimulation treatment in order to ensure geologic and hydrologic isolation of the treated hydrocarbon formation.
1119	0047-33 The final regulations should also explicitly state that an operator shall not perform a well stimulation treatment if it cannot ensure geologic and hydrologic isolation of hydrocarbons or well stimulation treatment fluids, regardless of results of the required radial analysis.
	Response to comment 1119: Accepted. Section 1784(b) states that the well stimulation treatment design must ensure that the well stimulation treatment fluids or hydrocarbons do not migrate and remain geologically and hydrologically isolated to the hydrocarbon formation.
1120	0004-3, 0032-12 The proposed Regulation requires operators to perform two radius analyses, but does not specify any criteria of what is an acceptable outcome. This concept, initially presented in the Division's December 2012 Discussion Draft Hydraulic Fracturing Regulations, now is also being applied to acid matrix stimulation without any justification that acid matrix work, done below the fracture pressure, would in fact present any of the risks being attributed to hydraulic fracturing. Chevron and WSPA asks the Department to redefine the required radius analyses as "fracture radius analyses", thus excluding acid matrix stimulation, and that definitive criteria be based on what constitutes this review and acceptable criteria.
1121	0004-4 Chevron requests that appropriate criteria can be developed to address what is acceptable for overlying strata, faults and adjacent well bores. For example, we believe that providing a well log to identify low permeable zones above the target formation is adequate for the overlying seal. For faults, USGS map determination showing no intersections with faults of concern within a fracture zone can provide clear criteria. Finally, for any adjacent well within a fracture zone, the operator should only need to show a valid operating permit or that a proper well abandonment has been conducted. Having such definitive criteria will provide the operator and public with clear assurances that adequate safety margins exist for these risks.
1122	0032-13, 0032-14 Criteria should be developed to define what is acceptable for overlying strata, faults and adjacent

	wellbores. Providing a well log to identify low permeable zones above the target formation suffices for the overlying seal. For faults, a simple map determination showing no intersections with faults of concern within a fracture zone provide clear criteria. For any adjacent well within a fracture zone, the operator should only need to show a valid operating permit or a proper well abandonment. Having such definitive criteria will provide the operator and public with clear assurances that adequate safety margins exist for these risks.
	Response to comments 1120-1122: Consistent with the mandate of Public Resources Code section 3160, subdivision (b), Section 1784 requires modeling and analysis to evaluate wells and geologic features within the area of a proposed well stimulation treatment in order to ensure geologic and hydrologic isolation of the treated hydrocarbon formation. Section 1784 provides a flexible framework for making this demonstration and does not prescribe analytical or modeling technology. However, showing a permit or a record of well abandonment may not be sufficient. Many wells that were plugged and abandoned may be to standards that would not ensure geologic and hydrologic isolation. These wells will be evaluated to ensure zonal isolation. Consistent with the mandate of Public Resources Code section 3160, subdivision (b), Section 1784 applies to all forms of well stimulation treatments, not only hydraulic fracturing. If the type of well stimulation treatment has a smaller treatment area than what is typical of hydraulic fracturing, then the area review will be easier.
1123	0045-71 The rules should specify that operators are required to model the length, height, and orientation of fractures (in the case of fracture stimulation), horizontal and vertical penetration of stimulation fluids and proppant (if used), and horizontal and vertical extent of any displaced formation fluids. Operators should also model the volume of rock in which chemical reactions between the formation, hydrocarbons, formation fluids, or injected fluids may occur, and should take into account potential migration of fluids and chemical reaction byproducts over time. The model must take into account all relevant geologic and engineering information including but not limited to: (1) Rock mechanical properties, geochemistry of the producing and confining zone, and anticipated stimulation pressures, rates, and volumes; (2) Geologic and engineering heterogeneities; (3) Potential for migration of injected and formation fluids through faults, fractures, and manmade penetrations; and (4) Cumulative impacts over the life of the project. These standards are achievable with current technology and methods. Petroleum engineers routinely employ advanced computer modeling to simulate stimulation treatments.
1124	0045-71 The rules should specify that operators are required to model the length, height, and orientation of fractures (in the case of fracture stimulation), horizontal and vertical penetration of stimulation fluids and proppant (if used), and horizontal and vertical extent of any displaced formation fluids. Operators should also model the volume of rock in which chemical reactions between the formation, hydrocarbons, formation fluids, or injected fluids may occur, and should take into account potential migration of fluids and chemical reaction byproducts over time. The model must take into account all relevant geologic and engineering information.
1125	0045-72 We support the requirement to identify potential migration pathways within the well stimulation treatment radius plus a safety factor. However, the safety factor should be twice the largest dimension anticipated by the AOI modeling, rather than twice the well stimulation treatment

	length. Depending on the specifics of the stimulation treatment, depth of the well, and other geologic and engineering factors, the length may not always be the greatest dimension of the AOI.
1126	0002-51 1784(a)(2)(i). Support the requirement to perform appropriate modeling to determine the well stimulation treatment area of influence (AOI), but request additional clarifications about what constitutes an “appropriate model.” Regulations must specify that operators are required to model the lengths, heights, widths, and orientations of fractures (in the case of fracture stimulation), horizontal and vertical penetration of stimulation fluids and additives, and the horizontal and vertical extent of any displaced formation fluids.
1127	0002-53 1784(a)(2)(ii). Clean Water Action support the requirement to identify potential migration pathways within the well stimulation treatment radius, plus a safety factor. However, the safety factor should be twice the largest dimension anticipated by the AOI modeling, rather than twice the well stimulation treatment length. Depending on the specifics of the stimulation treatment, depth of the well, and other geologic and engineering factors, the length may not always be the greatest dimension of the AOI.
1128	0002-52 Operators should model the volume of rock in which chemical reactions between the formation, hydrocarbons, formation fluids, or injected fluids may occur and should consider and account for potential migration of fluids and chemical reaction byproducts over time. The model must take into account all relevant geologic and engineering information. This requirement is achievable with current technology and methods. Petroleum engineers routinely employ advanced computer modeling to simulate stimulation treatments.
1129	0002-54, 0045-73 Support the proposed requirement to review all offset wells and faults within the well stimulation treatment radius, plus a safety factor. However, the rules should require the operator to provide the Division with additional information about any such features identified and take additional steps to prevent communication with such features, including: 1. A list of all such wells, including but not limited to wells permitted but not yet drilled, drilling, awaiting completion, active, inactive, shut-in, temporarily abandoned, plugged, and orphaned. 2. A description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Division may require. 3. An assessment of the integrity of each well identified. 4. A plan for performing corrective action if any of the wells identified are improperly plugged, completed, or abandoned. 5. An assessment to determine the risk that the stimulation treatment will communicate with each well identified. 6. For each well identified as at-risk for communication, a plan for well control, including but not limited to: (a) A method to monitor for communication. (b) A determination of the maximum pressure which the at-risk well can withstand. (c) Actions to maintain well control. (d) d. If the at-risk well is not owned or operated by the owner/operator of the well to be stimulated, a plan for coordinating with the offset well operator to prevent loss of well control. 7. The location, orientation, and properties of known or suspected faults, fractures, and joint sets. 8. An evaluation of whether such features may act as migration pathways for injected fluids or displaced formation fluids to reach protected water or the surface. 9. An assessment to determine the risk that the stimulation treatment will communicate with such features. 10. If such features may act as migration pathways and are at-risk for communication, the

	stimulation design must be revised to ensure that the treatment will not communicate with such features or the well must be re-sited.
1130	0052-1 The Department's proposed 1784(a)(2)(ii) does not adequately addresses the possible migration of stimulation and flowback liquids through existing wells and/or containment zone fractures. A better, safer, approach would be to model 1784(a)(2)(ii)'s requirements to reflect Steps 5 and 6 of the Division's Well Review Program. These steps require that, before any development in the vicinity of an existing well occurs, an applicant examine the existing well's past plugging standards and then compare the abandonment status with current abandonment standards. Once that review occurs, the applicant must: 1) verify the well has a competent surface plug; and, 2) verify the well is not leaking any fluids or gas. Any metal plates attached to the top of casings must be removed prior to the evaluation of a well. After the evaluation, a metal ID plate needs to be attached to the top of the well casing.
	Response to comments 1123-1130: Accepted in part. The requirements for identifying wells within the area of a proposed well stimulation treatment are now addressed in Section 1784(a)(2), which provides, "The well stimulation treatment analysis shall include identification and review of all well bores located completely or partially within two times the ADSA to ensure the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation." The "ADSA" is defined in Section 1781(f) as the "estimated axial dimensions, expressed as maximum length, width, height, and azimuth, of the area(s) stimulated by a well stimulation treatment." Section 1784(a)(1) requires the operator to submit for review the modeling and analysis supporting the ADSA, and Section 1784(a)(2) provides that the Division may allow modification of the review area based on modeling and analysis provided by the operator that demonstrates geologic and hydrologic isolation of the oil and gas formation during and following well stimulation treatment. Section 1784(a)(2)(A) details information that must be provided for each well within the approved review area.
1131	0032-30 Section 1784(a)(2)(i) should be revised to read, "The operator shall conduct a well stimulation treatment radius analysis to evaluate the geologic and hydraulic isolation <u>from protected waters</u> of the oil and gas formation during and after the well stimulation treatment." Rationale: Maintain consistency with Section 1784(a)(2)(ii) and recognize that the analysis only evaluates the ability to isolate the well.
1132	0010-024 Revise Section 1784(a)(2)(i) to read, "The operator shall conduct a well stimulation treatment radius analysis to ensure the geologic and hydraulic isolation <u>from protected waters</u> of the oil and gas formation during and after the well stimulation treatment." This revision will maintain consistency with Section 1784(a)(2)(ii).
1133	0010-025, 0032-31 Revise Section 1784(a)(2)(ii) to read, "The well stimulation treatment radius analysis shall include a review of all wells and known faults (active or inactive <u>as identified by the California Geological Survey</u>) within a radius of twice the anticipated well stimulation treatment length from each point of the well stimulation treatment to ensure the geologic and hydraulic isolation <u>from protected waters</u> of the oil and gas formation during and following well stimulation." The Division and the California Geological Survey have maps showing known active and inactive

	faults. Without this limitation, one could argue that the operator must run seismic surveys prior to any well stimulation treatment which is infeasible from cost and logistics perspective. This change also provides clarification as to the intent of the regulations to apply only to "protected waters."
1134	0056-11 The review of all faults (active or inactive) should be more carefully spelled out. The faults to be reviewed should include any faults that are known, mapped or with reasonable diligence can be identified. Operators that have conducted any subsurface seismic testing should be required to provide any data suggesting or demonstrating such faults.
	Response to comments 1131-1134: Rejected. Consistent with the mandate of Public Resources Code section 3160, subdivision (b), Section 1784 requires modeling and analysis to evaluate wells and geologic features within the area of a proposed well stimulation treatment in order to ensure geologic and hydrologic isolation of the treated hydrocarbon formation. This standard must be met regardless of groundwater quality in the area. In addition to California Geological Survey maps, there are other sources of information available to operators regarding the location of faults, and all available data should be consulted when identifying "known faults."
1135	0045-75 Regarding Section 1784(a)(2)(iii), we object to the proposed requirement to exempt operators from reviewing the properties of geological formations adjacent to the productive horizon unless a radius of five times the anticipated well stimulation treatment length from a point of treatment extends beyond the productive horizon. This proposed rule appears to be a misinterpretation of the requirements of SB4 at 3160(i)(1)-(2). This section requires the operator to define a radius at least five times the fracture radius (for fracture stimulation treatments), and identify geologic features within that radius that may act as pathways or barriers for fluids to migrate outside the fractured zone. In other words, SB4 requires *all wells* that are fracture stimulated to have such an analysis performed. The operator shall assess the mechanical rock properties, including permeability, relative hardness (using Young's Modulus), relative elasticity (using Poisson's Ratio), and other relevant characteristics of the geological formations to determine whether the geological formations will ensure the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation. The results of this analysis should be submitted with the well stimulation application.
1136	0045-76 It is important to assess the characteristics of rocks adjacent to the formation targeted for stimulation for all wells. Most crucial is to evaluate what can be termed the "confining zone," defined as a geological formation, group of formations, or part of a formation above a zone that will be stimulated that is capable of limiting fluid movement above the stimulated zone. Operators should be required to demonstrate the presence of a suitable confining zone for all wells that will be stimulated, not only for fracture stimulated wells and not only for those wells where a radius of five times the anticipated well stimulation treatment length extends beyond the productive horizon. The operator shall assess the mechanical rock properties, including permeability, relative hardness (using Young's Modulus), relative elasticity (using Poisson's Ratio), and other relevant characteristics of the geological formations to determine whether the geological formations will ensure the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation. The results of this analysis should be submitted with the well stimulation application.

	Response to comments 1135-1136: Accepted in part. Consistent with Public Resources Code section 3160, subdivision (i), Section 1784(a)(3) states, "The well stimulation treatment area analysis shall include a review of all geologic features, including known faults (active or inactive), within five times the ADSA to ensure the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation. For all such geologic features, the operator shall provide: (A) An evaluation of whether the geologic feature may act as a migration pathway for injected fluids or displaced formation fluids; and (B) An assessment of the risk that the well stimulation treatment will communicate with the geologic feature." The more specific analyses of Section 1784(a)(4) are only expressly required where the modeling indicates the possibility that the treatment will interact with an adjacent formation. Public Resources Code section 3160, subdivision (i), is specific to geologic features, and therefore the statutorily specified safety factor does not apply to the evaluation of wells in the area. A default safety factor of two is used for the analysis of wells within the treatment area because it provides an ample margin of error without requiring a review that extends well beyond the area influenced by the well stimulation treatment.
1137	0026-11 The operator's design of a well stimulation treatment should be reviewed and approved by the Division prior to implementation.
	Response to comments 1137: Accepted. Section 1783.1(a)(22) requires that the well stimulation treatment design is included in an application for a well stimulation treatment permit.
1138	0002-59, 0045-77 Revise Section 1784(a)(3) to add more detail to "elements of the well stimulation treatment"; (1) the type and source of base fluid(s) to be used; (2) the estimated total volume of fluid and, if applicable, proppant to be used; (3) the anticipated surface treating pressure range; (4) the maximum anticipated pumping pressure; (5) the operating procedure; and (6) the estimated or calculated fracture gradient of the producing and confining zone(s).
1139	4068-17 Section 1784(a)(3) is too broad. It states that an "operator shall design the hydraulic fracturing treatment so as to ensure that the fracturing fluids or hydrocarbons do not migrate and come in contact with a strata or zone that contains protected water." A literal interpretation of this language would permit an operator to design a treatment that would allow migration to non-target strata or zones if they do not contain protected water. The operator should not be permitted to release fracturing fluids into any strata other than the targeted strata. The language of Section 1784 should therefore be amended to require that treatments during any hydraulic fracturing process should be planned so that any injection fluid will be confined to the permitted zone of injection.
	Response to comments 1138-1139: Accepted in part. Consistent with the mandate of Public Resources Code section 3160, subdivision (b), Section 1784 requires modeling and analysis to evaluate wells and geologic features within the area of a proposed well stimulation treatment in order to ensure geologic and hydrologic isolation of the

	treated hydrocarbon formation. This standard must be met regardless of groundwater quality in the area. Section 1783.1 requires that an application for a well stimulation treatment permit include estimated volumes of fluid and identity and concentration of chemical constituents of the fluid.
1140	0032-32, 0056-12 There is an incorrect reference in Section 1784(a)(3): "Utilizing the well stimulation treatment radius analysis conducted pursuant to subsection ~~(a)(4)~~ *(a)(2)*.
	Response to comment 1140: Accepted.
	1784.1. Pressure Testing Prior to Well Stimulation Treatment
1141	0045-78, 0045-79 Pressure testing prior to well stimulation is critically important and we support the intent of the proposed requirements.
	Response to comment 1141: Thank you for your comment.
1142	0018-23 Casing and cement integrity issues are not only very rare, as discussed previously, but, when they occur, these conditions will be apparent upon the first testing of the well. Apart from corrosion effects occurring over the period of decades, there is no common mechanism whereby an active producing well, for which the casing and cement had been demonstrated to be in sound condition upon well completion, would develop over pressurized conditions between well stimulation treatments. Consequently, this repeat testing appears to be unnecessary. Recommended Change: Revise text to require casing integrity testing only one time following completion of the well, unless a problem is observed in this initial testing and subsequent repairs or modifications are performed.
1143	0010-023 Revise Section 1784.1(a) to read, "The operator shall do all of the following not less than 24 hours prior to commencing or recommencing well stimulation treatment:" This provides operators flexibility and while meeting the same intent.
	Response to comment 1142-1143: Accepted in part. The purpose of Section 1784.1 is to ensure the integrity of the well and equipment at the time that the well stimulation treatment is conducted. Although a well may be pressure tested upon completion of drilling, events may occur between that time and the time of well stimulation treatment that could affect the integrity of the well. Section 1784.1(a) has been revised to allow that the pressure testing may done as much as 30 days before well stimulation treatment, provided that no operation is subsequently performed that could affect well or equipment integrity.
1144	0002-60 Pressure testing prior to well stimulation is critically important, and Clean Water Action support the intent of the proposed requirements but request the amendments below.

	Clean Water Action support the proposed test pressure for new wells, including the incorporation of a safety factor – the test time and acceptable pressure loss. However, stimulation treatment will be applied to all existing wells up to maybe ten times in the life of the well. The proposed rules fail to include testing and bond logging standards for uncemented and deeper completions of existing wells subject to rework during the expected 25+ years of production.
1145	0045-80 The proposed rules fail to include testing standards for non-cemented completions. Recommend the following addition: “Non-cemented production completions shall be tested to a minimum of (i) 70% of the lowest activating pressure for pressure actuated sleeve completions or (ii) 70% of formation integrity for open-hole completions, as determined by a formation integrity test.”
1146	0002-61 Request Section 1784.1 be revised to read as follows (a) The operator shall do and report all of the following not more than 24 hours prior to commencing or recommencing well stimulation treatment: (1) All cemented and uncemented casing strings and all tubing strings to be utilized in the well stimulation treatment operations shall be pressure tested for at least 30 minutes at a pressure equal to 125% of the maximum pressure anticipated during the Well stimulation treatment. If during testing there is a pressure drop of 10% or more from the original test pressure, then the tested casing or tubing shall not be used until the cause of the pressure drop is identified and corrected. No casing or tubing shall be used unless it has been successfully tested pursuant to this section. Non-cemented production completions shall be tested to a minimum of (i) 70% of the lowest activating pressure for pressure actuated sleeve completions or (ii) 70% of formation integrity for open-hole completions, as determined by a formation integrity test. (2) All surface equipment to be utilized for Well stimulation treatment shall be rigged up as designed and the design must be submitted with the permit application. The pump(s), and all equipment downstream from the pump, shall be pressure tested at a pressure equal to 125% of the maximum surface pressure anticipated during the Well stimulation treatment or 2000psiG whichever greater. (b) The operator shall notify the Division at least 72 hours prior to conducting the pressure testing or logging required under this section, 1784.1 so that Division staff may witness. (c) In the event of a failed test, the operator shall orally notify the authorized officer as soon as practicable but no later than 12 hours following the failed test. The operator shall conduct a cement evaluation or other appropriate tests to determine the source of failure. Stimulation operations may not begin until a successful pressure test is performed, and the results are submitted to the Division. If mechanical integrity cannot be restored, the Well must be cement-plugged 100% and abandoned.
	Response to comments 1144-1146: If a well stimulation is to occur in an uncemented casing it must be verified that the well stimulation is confined to the intended zone. Well stimulation into an uncemented casing should only occur in a production liner. Under existing regulation Section 1722.4, a production string of casing must be cemented across the top of the zone with at least 500 feet of cement above the zone. No matter what the age of the well is, the well must still have zonal isolation. A pressure test of the casing would be conducted on the cemented production string of casing and/or the tubing used in the well stimulation, and te uncemented liner would not be pressure tested.
1147	0042-6 It is unclear as to the meaning of the verb “do” within the context of the introductory sentence to Section 1784.1(a). Does this verb mean that the operator is required to directly “do” these activities or may the well operator contract with an independent third party to perform these activities? If a third party conducts these activities, does that adversely affect their

	"independence" within the meaning of Section 1783.3. WM recommends that this section be amended to change the word "do" to "arrange" within the first sentence of this section as follows: (a) The operator shall ~~do~~ ensure all of the…
1148	0042-7 WM is unclear as to the meaning of the verb "do" within the context of the introductory sentence to this section. Does this mean that the operator is required to directly "do" these activities or may the well operator contract with an independent third party to perform these activities. If a third party conducts these activities, does that adversely affect their "independence" within the meaning of Section 1783.3. WM recommends that this section be amended to change the word "do" to "ensure" within the first sentence of Section 1784.1(a) as follows: "(a) The operator shall ensure all of the following not more than 24 hours prior to commencing or recommencing well stimulation treatment operations."
	Response to comments 1147-1148: Rejected. Operators are responsible for effective and timely compliance with the Division's regulations, and it is well understood by the Division and the regulated public that operators can do and do employ contractors to accomplish this.
1149	0011-24 Please provide comments and documentation to explain why a pressure drop of up to 10% is protective of the public health and environment. Specifically, address protection of the aquifers from both well stimulation fluids and oil and gas. We want to understand why the value of 10 percent is chosen. For example, was it based on a study that we can review?
	Response to comment 1149: Data shows that pressure gauges may show a slight variance and the Division is looking for a sharp change in pressure which would be indicative of a well failure or potential breach. A 10% variance threshold is a conservative indicator of potential integrity issues.
1150	0045-82 The proposed regulations do not include a requirement to report the results of the pressure test. The Division should include the following additional requirements: "(c) The results of the pressure test must be submitted to the Division prior to well stimulation. In the event of a failed test, the operator must orally notify the authorized officer as soon as practicable but no later than 24 hours following the failed test. Stimulation operations may not begin until a successful pressure test is performed and the results are submitted to the Division. If mechanical integrity cannot be restored, the well must be plugged and abandoned."
	Response to comment 1150: Accepted. Section 1784.1(a) provides that the operator must immediately notify the Division and provide pressure test charting if there is a pressure change of 10% or more. If pressure testing is successful, then Section 1784.1(b) states that charting of pressure testing must be provided to the Division not less than 12 hours before commencing well stimulation treatment.
1151	0045-81 We support the proposed rule to test surface equipment and the proposed test pressure.
	Response to comment 1151: Thank you for your comment.

1152	0047-34 In subsection 1784.1(a)(2), an explicit statement is needed that surface equipment cannot be used for well stimulation treatments should it fail the required pressure test.
	Response to comment 1152: Accepted. Section 1784.1(a)(2) states, "If during testing there is a pressure change of 10% or more from the original test pressure, then the operator shall immediately notify the Division, and the tested equipment shall not be used until the cause of the pressure change is identified and corrected to the Division's satisfaction."
1153	4069-16 Regarding 1784.1(b), notification alone is inadequate. State personnel should be required to be on-site to inspect the pressure testing, and testing must not be allowed to proceed unless and until this requirement is fulfilled.
1154	0011-9, 0280-5 Sections 1784 and 1784.1 require testing and evaluation to be completed by the Operator. The Division should be supervising these actions. Section 1784.1(a)(b) says, "The operator shall notify the Division at least 24 hours prior to conducting the pressure testing required under this section so that Division staff may witness." Revise to state "shall witness."
	Response to comments 1153-1154: The Division will be notified of the pressure testing. Staff will make every effort to witness all pressure testing, yet there are times when more pressing tests or emergencies will dictate that the Division waive a pressure test. For these times, the operator is required to record and provide charts of all pressure tests and certify that the pressure test was completed and showed mechanical integrity.
	1785. Monitoring During Well Stimulation Treatment Operations
1155	0045-84, 0045-85 We support the proposed requirements of Section 1785.
	Response to comment 1155: Thank you for your comment.
1156	0026-12 All of the activities set forth in this section should be periodically monitored and inspected by the Division.
1157	4069-17 1785(c) it is imperative that State regulators be the ones to ensure that these requirements are met. The regulations as written provide no oversight or process for independent verification. The operator/company should be responsible for underwriting the expense of the State inspections, and operations should be prohibited from going forward unless and until State inspectors are on-site.
1158	0056-14 Relying entirely on the operator to self-report the problems described in subsection (b) provides

	too much room for potential underreporting and does not give the Division the opportunity to enforce such underreporting.
1159	0177-1, 0294-1 Monitoring must be done not only by the fracking company but by the government agency overseeing the project. Unfortunately, self-policing by energy companies has proven to be highly unreliable. And even if a company does have good intentions in monitoring correctly, careful monitoring is SO essential that a double set of separate monitoring processes is an excellent added security and should become standard policy.
1160	0056-13 The operator should log and provide to the Division all data collected pursuant to this section regardless of whether any of the events in subsection (b) occur.
	Response to comments 1156-1160: Accepted in part. Section 1783(d) requires 72-hour and 3-hour notice to the Division so that the Division will have an opportunity to witness well stimulation treatment operations. Section 1785(a) requires operators to record monitoring parameters during well stimulation treatment, so if Division staff are unable to witness a treatment there will be a record of the treatment for the Division to review. If there is any indication of a well breach during well stimulation treatment, Section 1785(c) requires the operator to notify the Division and allow the Division to witness the diagnostics performed. If diagnostics indicate that a well breach did occur, Section 1785(d) and (e) require that the well be shut-in and that operation of the well cannot resume without approval from the Division. Although the regulations provide for extensive oversight by the Division, well stimulation treatment is conducted by the operator, and it is the operator's responsibility to comply with all applicable requirements.
1161	4120-1 Few wells have failed, but in this situation [fracking], when one fails, the failure is catastrophic, and nowhere in the document does it address the responsibility for a catastrophe that might occur if there is a failure.
1162	4069-18 1785(d). Operators must be held fully accountable and bear 100% of the risk.
	Response to comments 1161-1162: Financial liability for environmental contamination is outside the scope of this rulemaking.
1163	0003-24, 0025-42 During well stimulation, indications of a breach in the production casing must be reported to the Division. Yet there is no requirement that operators report such potential breaches to nearby residents who are most likely to be harmed by the breach. Similarly, if well monitoring indicates that a well failure has occurred, an operator must report this information only to the Division. This would leave nearby residents without any notification that a breach has occurred.
1164	0017-7 This section should include a requirement to also notify local municipalities and water agencies when a "breach" occurs.

	Response to comments 1163-1164: Rejected. In the event of a well breach, the Division and the Regional Water Quality Control Board would notify appropriate federal, state, and local agencies based on the nature of the incident.
1165	0177-2, 0294-2 Monitoring should include toxins spreading into the soil, toxic vapors rising from the soil into the air and atmosphere, interiors of public and private buildings in the greater vicinity of the project, for vapor intrusion, quantities of ground water being used for each well, location tracing, quantities and quality of waste water and other substances disposed of in the fracking process, quality of remaining water not used for fracking, secondary release of ground radioactivity, gases released by the fracking dissolving in the water both via the air and via soil, and earth fault generation and seismic movement caused by the fracking.
1166	0177-3, 0294-3 Monitoring must take place before, during, and after a project.
1167	0053-12 We support these proposed requirements, but we request the following addition following to 1785 (f): "(g) Microseismicity (tremors of -3 to +2 Richter Magnitude) shall be monitored from at least three days prior to the stimulation treatment, throughout the treatment phases and for at least seven days after the last pressurized injection or until tremor events distributions return to levels experienced prior to the treatment for the area and depths of five times the greatest dimension of the stimulation envelope."
1168	0011-7 The Division should consider adding an article to Sub-Chapter 2 that references the procedures for long term reclamation and monitoring in the case of a breach and need for environmental remediation. If this is already written into Chapter 4 or other California Code, it should be referenced in Subchapter 2.
1169	0002-63 Clean Water Action request Section 1785 be strengthened with regards to requirements for Spill Contingency Plans.
1170	0127-9 Monitoring should also include detection of any methane leakage throughout the process. If methane is detected it should be captured and not allowed to be released into the atmosphere since this is a more potent greenhouse gas than CO2. This leakage detection should occur continuously until the well is shut down permanently.
	Response to comments 1165-1170: Rejected. Public Resources Code section 3160, subdivision (b), requires the Division to adopt regulations to ensure integrity of wells, well casings, and the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation treatments. The purpose of Section 1785 is to require the operator to monitor during well stimulation treatment for indications that a well breach may have occurred or that fluid is not confined to the intended zone, and to require appropriate diagnostics and response if there is such an indicator. The suggested additions are outside of the scope of Section 1785. Section 1785 requires the operator to monitor the surface injection pressure, the slurry rate, the proppant concentration, the fluid rate, and the pressure of each annuli of the well. Section

	1785(b) specifies two thresholds at which the operator must terminate the well stimulation treatment, report the incident to the Division, and conduct diagnostics. For wells that do not have the surface casing annulus open to atmospheric pressure, Section 1785 requires a gauge and pressure relief device, and specifies maximum pressure relief settings. Each of the thresholds specified in Section 1785 is based upon established best practices and precautionary principles of the industry. Regardless of whether one of the specified monitoring thresholds is surpassed, if the operator has any indication of well breach or a breach of geologic and hydrologic isolation, then the operator must terminate the well stimulation treatment, report the incident to the Division, and conduct diagnostics.
1171	0056-22 In addition to the continuous monitoring requirements of Section 1785, the operator should continuously monitor for any seismic activity and if any seismic activity exceeds a magnitude of 2.0 (or other safe threshold to be established by the Division), then the well stimulation should be immediately terminated and the Division and the applicable city and county jurisdictions notified immediately.
	Response to comment 1171: Accepted in part. Section 1785.1 has been added requiring monitoring of the California Integrated Seismic Network during and after hydraulic fracturing. If an earthquake of magnitude 2.7 or greater occurs within a specified area around the well, then further hydraulic fracturing in the area are suspended until the Division, in consultation with the California Geological Survey, determines that there is no indication of a heightened risk of seismic activity from hydraulic fracturing.
1172	0002-62, 0045-83, 0053-11 Monitoring during Well stimulation is crucial and Clean Water Action supports the intent of proposed requirements but request that this section be expanded with regard to reasons for terminating well stimulation treatment and the mechanical integrity of a well.
	Response to comment 1172: Rejected. The required monitoring and monitoring thresholds in Section 1785(b)(1) have been revised for clarity and specificity, but no new types of mechanical integrity monitoring have been specified. Section 1785(b)(4) broadly provides that the operator must terminate treatment and conduct diagnostics if there is any reason to suspect a potential well breach.
1173	0047-35 In the event that a breach in the production casing, production casing cement, or isolation of any sources of protected water occurs, the operator should be required to cease operations until the problem is remedied and to conduct water quality testing of any protected water sources within a 1500 foot radius of the well head, and disclose the results to the Division and Regional Water Quality Control Board with jurisdiction.
1174	0017-8 Should require that groundwater monitoring of nearby wells be conducted following a “breach.” The monitoring should include testing for constituents that may result from the well stimulation treatment, including chemicals in the fluids, hydrocarbons that may be produced, and general minerals that be dissolved by the actions.
1175	0032-33 Revise Section 1785(d)(5) to read, “If available, groundwater quality data for the protected water within 1.500 feet of the well head or 500 feet of the horizontal projection of the well to the well

	failure." Rationale: As stated the requirement of proximity to the well of any protected water is undefined.
1176	4069-19 Regarding 1785(d)(5), operators should be required to obtain and provide groundwater quality data for any protected waters which could be affected.
	Response to comments 1173-1176: Accepted in part. In the event of a well breach, Section 1785(d) requires the operator to cease operations and notify the Regional Water Quality Control Board. The Regional Water Quality Control Board would take the lead in the groundwater investigation and would specify what water quality testing is necessary.
1177	0015-9 Section 1785(d)(3)(B) draft text incorrectly references Title 14 §64431 and §64444 for the tables of inorganic and organic chemicals to be monitored in well stimulation treatment fluids. The correct reference should be Title 22 §64431 and §64444.
	Response to comment 1177: The referenced text has been removed.
1178	0026-13 Groundwater data should be required in all cases. A baseline water quality analysis should be conducted prior to well stimulation treatment so that the extent of contamination resulting from the treatment can be measured. Water quality monitoring should be required often and regularly during the entire well stimulation treatment process.
1179	4128-1 A questions I have, if it's available, if the source of the water is available, I'm wondering if we can require it to be available.· That's just a thought, given -- I don't know if we can ask them to make - drill a well to figure out if "protected ground waters" are available.
	Response to comments 1178-1179: Rejected. All wells that have well stimulation treatment performed on them are subject to groundwater monitoring requirements under Water Code section 10783. Wells that have well stimulation treatment performed on them must be covered by a regional, area-specific, or well-specific groundwater monitoring plan and the State Water Resources Control Board is currently developing the model groundwater monitoring criteria required under Water Code section 10783. Baseline water quality analysis and the public availability of that data will be addressed in the implementation of Water Code section 10783.
	1786. Storage and Handling of Well Stimulation Treatment Fluids
1180	0045-86 We support the intent of the proposed 1786(a) requirements.
	Response to comment 1180:

	Thank you for your comment.
1181	0018-24, 0018-25 Oilfield waste management provisions are thoroughly addressed in provisions Section 1775 of the Onshore Well Regulations, and requirements specific to well stimulation treatment fluids in proposed Section 1786 appear to be duplicative and unnecessary.
	Response to comment 1181: Rejected. Each of the provisions of Section 1786 is necessary to ensure proper storage and handling of fluids associated with well stimulation treatment. There is widespread public concern that environmental contamination and other health and safety impacts will result from improper handling of fluids associated with hydraulic fracturing. Expressly stating that existing laws and regulations regarding storage and handling of fluids apply in the context of well stimulation treatment in order will assure concerned members of the public of this fact and dispel any confusion that may exist for operators. Expressly requiring compliance with other federal, state, and local laws and regulations also allows the Division to intervene and take independent enforcement action should an operator disregard requirements administered by other regulatory agencies. It is necessary to require the use of containers for storage of fluids associated with well stimulation treatment because that is the most effective way to prevent the fluids from contaminating air, soil, or water, or otherwise posing a health and safety risk.
1182	4143-3 Operators pull the toxic fluids back up out of the drill casings and leave that toxic fluid in open disposal pools, killing fields for wildlife and children.
1183	0057-3 All stimulation treatments must use closed loop systems for all liquids and gases, to prevent pollution of air and water resources.
1184	0003-2, 0025-3 Drilling muds, like hydraulic fracturing fluid, contain a mix of harmful chemicals. The disposal of these chemicals into unlined pits poses an additional threat to surface water and groundwater. In California, there are already instances in which these dangerous fracturing fluids have been dumped into unlined pits. The Central Valley Regional Water Quality Control Board discovered at least two instances in which hydraulic fracturing fluid from a two wells in Shafter, California were dumped into unlined pits over a period of approximately twelve days. The fluid contained several toxic chemicals including chloride, boron, benzene, toluene, ethyl benzene, xylenes, and extremely high levels total petroleum hydrocarbons in both gasoline and diesel ranges. This discharge was found only because it was brought to the attention of the regional water board by a private citizen. It is uncertain how often these dangerous dumping practices occur at other sites.
	Response to comments 1182-1184: Accepted. Section 1786(a)(4) requires that well stimulation treatment fluid, additives, and produced water from a well that has had a well stimulation treatment must all be stored in containers and cannot be stored in sumps or pits.
1185	0021-10 Request specifying the containers be airtight and enclosed. Without such specificity, fluids may be stored in open air containers as occurred at a problematic oil drilling site in Los Angeles' University Park. DOGGR should protect against this since open containers are more likely to emit noxious odors and result in spills.

1186	4128-2 Section 1786(a)(4) says they won't be stored in sumps or in pits, but it would be stored in containers. I know that a lot of the areas in the valley are in potential flood plains, and one of my concerns is that if those are in containers and they're in flood plains, where are the emissions -- I'm thinking of Monterey County, but also regarding the State of California.
1187	0103-7 The regulations do not address fluid storage in containers in floodplains.
1188	0045-86 The proposed rules should explicitly state that these requirements cover flowback fluid. We support the requirement to store all fluids within secondary containment but the requirements of Section 1773.1 are not sufficient. Numerous studies have identified flowback and produced water pits as one of the most common sources of environmental pollution from oil and gas operations. These pits pose a great risk to health and the environment even when they are lined. They can endanger surface water, groundwater, air, soil and wildlife. We therefore fully support the requirement to store fluids in tanks rather than sumps or pits. The rules should specify, however, that the tanks must be closed and watertight.
1189	0051-9. There are lots of violations of oil companies dumping into pits. More needs to be done about preventing spills and protect groundwater than what is in the proposed regulations.
	Response to comments 1185-1189: Rejected. Point-source emissions issues are addressed by local air districts, which generally have vapor recovery requirements that apply to oil and gas production facilities. Siting of oil and gas production operations in a floodplain is a local land use decision, and the Division's regulations do not include a general prohibition against it. Under Section 1786(a)(4), fluids associated with well stimulation treatment must be stored in containers and cannot be stored in pits or sumps Construction, testing, inspection, and maintenance of production facilities, including tanks and pipelines, are addressed in existing regulations, in particular Sections 1773 through 1779. The Division believes that the existing production facility regulations are effective. If specific issues with the production facility regulations, then those issues would be addressed on a program-wide basis in a separate rulemaking.
1190	0280-6 Section 1786 covering storage and handling of fracking fluids and wastes seems weak on oversight. Oversight, inspection, and accountability must be made stronger. This means a major role for the state that must be paid for by fees the oil companies will pay.
	Response to comment 1190: Division staff routinely inspect oil and gas production operations to ensure compliance with environmental requirements and the Division's administrative costs are covered by assessments on oil and gas production.

1191	4092-5 The other comment, 1786, was on secondary containment, which, again, dealt with storing water on-site before you do something with it, and the regulation proposes that for any portable or temporary treatment -- or facilities, that secondary containment is not required, but I truly believe that most of these operations will be classified as either portable or temporary, so, really, you just say we don't need to, you know, contain that water as adequate as we can.
1192	0026-14, 0049-19 Secondary containment should be required for all well stimulation treatment fluids, whether permanent or portable. All containers should be closed.
1193	0047-36 Section (a)(1) exempts “temporary production facilities” from secondary containment. However, well stimulation treatment is by definition temporary, which potentially exempts any associated production facilities from secondary containment requirements.
1194	0056-15 Define the term "temporary production facilities" in the regulations.
1195	0025-44 The provision of the proposed regulations requiring secondary containment contains an exemption for “portable or temporary production facilities.” The Division has not defined those terms and it is unclear what specific facilities would be exempt from secondary storage. In the interest of public and worker safety, the regulations should require secondary containment for all production facilities that store or handle chemicals.
	Response to comments 1191-1195: Accepted in part. Construction of effective secondary containment may not be cost effective for facilities that will only be on site for a short period of time. Section 1786(a)(1) provides that production facilities that are in place for less than 30 days are not required to have secondary containment, but a specific spill response plan for those facilities must be detailed in the operator’s Spill Contingency Plan.
1196	4152-7, 4211-6, 4094-8 WSPA does not support applying AB 1960 measures to temporary equipment normally associated with well stimulation activities. WSPA believes that the storage and handling for well stimulation treatment should be consistent with the current requirements for drilling and completion operations.
1197	0010-06 The storage and handling requirements for well stimulation treatments should be consistent with current drilling and completion requirements for containment in accordance with Sections 1722(a) and 1722(b). Portable equipment does not present the same leak potential as stationary tanks. Use of portable tanks in a drilling and completion setting is also bound by the known volumes being managed, and as such, they do not pose the same kind of risks as production tanks which handling throughput volumes.
1198	0032-10 WSPA seeks to clarify that the secondary containment requirements of AB1960 is not intended to be applied to temporary or portable equipment normally associated with well stimulation activities. This is not the intent of AB 1960. WSPA believes that the storage and handling requirements for well stimulation treatments should be consistent with current drilling and completion requirements for containment in accordance with Sections 1722(a) and 1722(b).

1199	0032-11 Good industry practice already entails the use of portable tanks for drilling and completion activities. Portable equipment does not present the same leak potential as stationary tanks. Use of portable tanks in a drilling and completion setting is also bound by the known volumes being managed, and as such, they do not pose the same kind of risks as production tanks which handling throughput volumes. Overall, the use of portable equipment has resulted in the environmental benefit of enabling industry to move away from the use of pits in these circumstances. Burdening the use of portable equipment with stationary equipment risk mitigation may yield unintended consequences.
1200	0010-026, 0032-34 Revise Section 1786(a)(1) to read, “Fluids shall be stored in compliance with the secondary containment requirement of Section 1773.1, except that secondary containment is not required for portable or temporary production facilities or well stimulation equipment.” The change acknowledges the infeasibility of installing secondary containment for portable facilities and equipment.
	Response to comments 1196-1200: Accepted in part. If facilities will be in place for a significant length of time, then they must be within secondary containment. However, Section 1786(a)(1) provides that production facilities that are in place for less than 30 days are not required to have secondary containment, but a specific spill response plan for those facilities must be detailed in the operator’s Spill Contingency Plan.
1201	0046-20, 0025-5 The regulations should ban injection of fracking flowback fluids into underground due to the risk of induced seismic activity and the potential, long term risk to ground water supplies from the heavily-contaminated flowback fluid.
	Response to comment 1201: Rejected. Underground injection projects are regulated under existing regulations, in particular Sections 1724.6 through 1724.10 and Sections 1748 through 1748.3. Conditions of approval for an underground injection project are outside the scope of this rulemaking.
1202	0018-25 Conservation efforts of water used in well stimulation operations may be enhanced by recycling flowback and produced waters. We recommend that the Department adjust the proposed regulations to facilitate such recycling efforts, which are not mentioned at the present time. As noted in the STRONGER 2013 guidelines for hydraulic fracturing, "the use of alternative water sources, including recycled water ... should be encouraged." (STRONGER, 2013). Recommended Change: Consider adding language to proposed Section 1786 that facilitates recycling efforts for water conservation.
	Response to comment 1202: Rejected. The suggested revision is outside the scope of this rulemaking.
1203	0042-9 Waste Management (WM) understands that all fluids must be stored in containers with secondary containment as prescribed by existing section 1773.1 (except for temporary or portable production facilities). No fluids may be stored in pits or sumps onsite. However, WM requests

	confirmation that fluids may be transported offsite to surface impoundments subject to regulation by a RWQCB. WM recommends that paragraph (4) of subdivision (a) be amended as follows: (4) Fluids shall be storied in containers and shall not be stored in sumps or pits onsite. Fluids may be stored offsite in tanks, containers or surface impoundments regulated and permitted by the applicable Regional Water Quality Control Board, as appropriate. If fluids are determined to be hazardous pursuant to paragraph (8) below, they shall be managed as hazardous waste pursuant to the regulations and permitting of the Department of Toxic Substances Control.
	Response to comment 1203: Rejected. It is not clear what clarification the commenter is seeking. The jurisdictional scope of the Division's regulation is defined in statute.
1204	0026-15 Regarding Section 1786(a)(2), the testing, inspection and maintenance requirements for production facilities containing well stimulation treatment fluids should be specified.
	Response to comment 1204: Rejected. The purpose of Section 1786(a)(2) is to make a general admonition that operators must comply with the Division's existing and applicable requirements. It would be confusing and unnecessary to list all potentially applicable requirements in this section.
1205	4070-3 Section 1786(a)(3) should be removed as it would require constant updating of the Spill Contingency Plan and resubmittal of the plan (as understood by Termo).
	Response to comment 1205: Rejected. Existing regulation Section 1722.9 requires a Spill Contingency Plan that is designed to prevent and respond to unauthorized releases and that contains specific information about facilities and fluids on-site. If fluids on-site are not accounted for in the operator's Spill Contingency Plan, then the plan is inadequate.
1206	0003-25 The proposed regulations, operators must report an unauthorized release immediately to "appropriate response entities." The regulations are unclear as to what entities this refers to.
1207	0003-26, 4241-10 The regulations should specify the procedures for spill reporting. There is no requirement that nearby residents be provided notice that the "unauthorized release" has occurred. The immediate notification should include all persons that could be harmed by the release.
1208	0049-20 Section 1786 should be revised to require well operators to collect a sample of any well treatment fluid spill and provide information on the fate of the spill, including whether the fluid reached a storm drain, municipal or private road or surface water, the quantity of the spill and the amount that was contained and/or otherwise recovered before it reached a storm drains, road or water bodies.
1209	0025-43 Under the proposed regulations, operators must report an unauthorized release immediately to "appropriate response entities." The regulations are unclear as to what entities this refers to. But importantly, there is no requirement that nearby residents be provided notice that the

	"unauthorized release" has occurred. The immediate notification should include all persons that could be harmed by the release.
1210	0011-25 These applicable standards in Section 1786 should be referenced, as in section numbers.
1211	0087-6, 0310-7, 0255-6 The regulations should specify the procedures for spill reporting, and should require immediate and direct reporting to nearby residents.
1212	0045-86 In the event of unauthorized releases, operators should also provide the location of the release, chemical composition of the release, fate of the released materials, and a description of any impacts or damages caused. Spill reports should also be made publicly available through the Division's website.
1213	0026-16 Regarding Section 1786(a)(5), the Division should be listed as a response entity and coordinate clean-up of an unauthorized release. Clean-up of ground-water contaminated by an unauthorized release should be included in the clean-up and remediation requirements.
1214	0032-35 Revise Section 1786(a)(5) to read, "In the event of an unauthorized release above minimum threshold level identified in the Spill Contingency Plan, the operator shall immediately notify the appropriate response entities for the location and the type of fluids involved, as required by all applicable federal, state, and local laws and regulations; and shall perform clean up and remediation of the area, as required by all applicable federal, state, and local laws and regulations." Rationale: reporting must be based upon established minimum release thresholds.
1215	0056-16, 0017-9 The Division and local jurisdictions and water agencies should be notified within twenty-four (24) hours of any unauthorized release of fluids containing hazardous substances, if not earlier notified pursuant to this subsection.
	Response to comments 1206-1215: Rejected. There are numerous federal, state, and local requirements for reporting and responding to unauthorized releases. The exact requirements that apply depend on various factors including what substances are in involved, the volume of the release, and the setting of the incident. It would be impractical and confusing to attempt to iterate all of those requirements in the Division's regulations and it is not the Division's intent to modify those requirements. The purpose of Section 1786(a)(2) is to make a general admonition that operators must be familiar with and comply with those requirements.
1216	0056-17 Regarding Section 1786(a)(7), in addition to applicable requirements of the Regional Water Board, Department of Toxic Substances Control and Air Quality Management District, the operators should also be in compliance with applicable city or county requirements as well.
1217	0036-6 1786(7) As local air pollution control requirements in California are governed by Air Quality

	Management District or Air Pollution Control Districts, we believe that the Section1786(7) should be revised to reflect Air Pollution Control Districts as well, as follows: Operators shall be in compliance with all applicable requirements of the Regional Water Board, the Department of Toxic Substances Control, and the Air Quality Management District/Air Pollution Control District with jurisdiction over the location of the well.
1218	0011-26 The Local Certified Unified Program Agency is responsible to assure compliance with a variety of local, state and federal regulations and must be listed in the referenced section. Local agencies maintain Business Response Plans, Hazardous Materials and Waste inventories, etc. on file, which are immediately available to first responders in the event of emergency.
	Response to comments 1216-1218: Accepted. Section 1786(a)(7) states, "Operators shall conduct all activities that relate to storage and management of fluids in compliance with all applicable requirements of the Regional Water Board, the Department of Toxic Substances Control, the Air Resources Board, the Air Quality Management District or Air Pollution Control District, the Certified Unified Program Agency, and any other state or local agencies with jurisdiction over the location of the well stimulation activities."
1219	0026-17 Regarding Section 1786(a)(8), all fluids used in the well stimulation treatment process should be transported offsite and disposed of in a landfill in accordance with all federal, state and local laws, ordinances and regulations.
1220	0032-36 Revise this section to read "If flowback fluids will be transported offsite and not injected into a well regulated by the Division under Sections 1724.6 through 1724.10, then the fluids shall be evaluated to determine if they are hazardous waste, as defined by Department of Toxic Substances Control in its regulations. Rationale: Waste stream of concern is flowback fluid and the only one that can be disposed of via the sections referenced.
1221	0161-3 Lots of chemicals, some of which are trade secrets, maybe not as innocuous as somebody was indicating a few minutes ago. Where would those chemicals go? I would think that disposal in storage would be an important part of those regulations, but I couldn't find that section – disposal and storage.
1221	0123-1 Concerns regarding the logistical packaging, handling, storage and transportation (PHS&T)/safety concerns posed by the higher volatility of the fracked/acidized (HF) crude that is being severed and transported within CA via train tanker cars and pipelines which normally transit through major population centers.
1222	0130-2 A number of the chemicals used in fracking are difficult to remove from water. In addition others, including HF, are relatively nontoxic or removable, but are hazardous and could present hazards during transport to the drilling site. In any case, long-term effects on the water supply and potential hazards of increased manufacturing and transportation of certain fracking chemicals need also to taken into account by regulations.

1223	0042-10 Paragraph (8) of subdivision (a) of this section does state that fluids transported offsite (not injected in to a well regulated by the Division) must be evaluated for the presence of hazardous constituents regulated by the DTSC. It appears that this section does not require such testing if the wastewaters are transported to an injection well regulated by the Division. WM is not clear why such testing is required for offsite fluids not going to underground injection, but is not required when transported for underground injection. WM requests clarification of this point.
1224	0047-37 For fluids transported offsite, the regulations should require disclosure of the intended destination, and should also require fluid measurements at both the departure and arrival sites, with any losses accounted for.
1225	0045-86 A manifest system should be used to track the transportation and ultimate disposition of all waste. Chemical composition of waste should also be determined in order to help guide the most appropriate method of disposal and in case of a release.
1226	4092-3 From everything I've understood, and the regulations make it quite clear there's a question there when you recycle water whether, if you spill it, it may be a hazardous waste, and if you inject it back into the ground, it's a hazardous waste that's very deep in the ground.
1227	0090-1 What happens to this left over waste water?
	Response to comments 1219-1227: Accepted in part. The vast majority of produced water is reinjected into a class II well regulated by the Division as part of an underground injection project. A portion of produced water is treated and used or disposed by a means other than injection. Section 1786(a)(8) makes a detailed admonition that all fluids associated with well stimulation treatment must be evaluated and managed in accordance with the existing waste management requirements of the Department of Toxic Substances Control.
	<u>1787. Well Monitoring After Well Stimulation Treatment.</u>
1228	0026-18 This proposed Section 1787 is too little, and potentially too late. In the event of a well failure, the probability of contamination is high. The Division should be notified immediately in the event of a well failure and coordinate an appropriate response. The Division or the Regional Water Quality Control Board should be assigned the responsibility to undertaking the required water quality testing. This proposed regulation points up the need for a baseline water quality analysis prior to initiation of well stimulation treatment activities.
1229	4280-3 DOC must demand continual well pressure monitoring throughout the functional life of the well. How do we know they're leaking unless we do this? It seems like, gee, that's what they do in all other industries.
1230	4594-3 It should be added in 1787 that there should be monitoring for mercury, lead and radon after well

	stimulation because none of these entities are remediable.
1231	4241-8 More complete follow up and testing and monitoring should be required.
1232	0042-11 To allow for flexibility in compliance we requests the following amendments to Section 1787: (a) Operators shall monitor or arrange for the monitoring of each producing well that has had a well stimulation treatment to identify any potential problems with a well that could endanger any underground source of protected water or hydrocarbon zone.
	Response to comments 1228-1232: Accepted in part. Public Resources Code section 3160, subdivision (b), requires the Division to adopt regulations to ensure integrity of wells, well casings, and the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation treatments. The purpose of Section 1787 is to require ongoing monitoring of a well that has had a well stimulation treatment and to specify minimum standards for that monitoring. Once a well has had a well stimulation treatment, the operator has an ongoing obligation to monitor the well for any indication of a well breach and, if there is such indication, immediately inform the Division and the local Regional Water Quality Control Board, conduct diagnostics, and take all appropriate measures to prevent contamination of protected water or loss of hydrocarbon resources. Section 1787(a) and (b) are revised to add more specific response procedures in the event that there is indication of a possible well breach. In the event of a well breach, the Regional Water Quality Control Board would direct the operator as to specific testing, monitoring, and remediation to be done, based on the specifics of the situation. The revised response procedures are consistent with the response procedures specified under Section 1785 for monitoring during well stimulation treatment.
1233	0002-64 The Division's requirements for an approved oil spill/leak plan must be used for all levels of actions for breaches, leakage, or other failures for the Well and related facilities and piping above and below ground. Similarly, all activities must be documented and reported/reports submitted to the Division and to the Water Board and such should be done in a matter of hours, not days, or as practical or reasonable. Continued confusion of leaks, breaches, and failures must be simplified down to leaks and included in definition.
	Response to comment 1233: Accepted in part. The purpose of the Spill Contingency Plan required under existing regulation Sections 1722(a) and 1722.9 is to respond to unauthorized releases at the surface. Appropriate response to indication of possible well breach is situation-specific. Section 1722(a) does require documentation and submission of diagnostic testing results and Section 1722(b) requires notification of the Regional Water Quality Control Board if a well breach is identified. For consistency, “well failure” has been replaced with “well breach” throughout the regulations.
1234	0045-87 Ongoing monitoring and testing for mechanical integrity are critical to protecting the environment and we support the intent of the proposed Section 1787 and would like it strengthened to read, “ (a) Operators shall monitor each producing well that has had a well stimulation treatment at least weekly for any corrosion, equipment deterioration, hydrocarbon release or changes in well characteristics that could potentially indicate a deficiency in the wellhead, tree and related surface control equipment, production casing, intermediate casing, surface casing, tubing,

	cement, packers or any other aspect of well integrity necessary to ensure isolation of any underground sources of protected water and prevent any other health, safety or environmental issue. If there is any indication of a lack of mechanical integrity of any well component the operator shall immediately notify the Division and the Regional Water Board and perform diagnostic testing on the well to determine whether a deficiency does exist and the best method of repair. If the testing indicates that a loss of mechanical integrity has occurred, then the operator shall immediately: (1) Take all appropriate measures to prevent contamination of all underground sources of protected water, hydrocarbon zones, and all surface waters in the area of the well and (2) Commence remedial operations to restore mechanical integrity, and (3) Provide the Division and the Regional Water Board with the information described in section 1785(d). If the operator is not able to effectively restore mechanical integrity and/or implement a pressure maintenance plan to ensure the protection of all underground sources of protected water and the environment, the operator shall be required to immediately plug and abandon the well.
	Response to comment 1234: Rejected. Continuing well integrity is demonstrated by ongoing monitoring of annular pressures or demonstration that there are no voids in the annular space, as required under Section 1787(d). Section 1787(a) does state that operators do have a general obligation to monitor a well that has had a well stimulation treatment for any indication of a potential well breach. Section 1787(a) and (b) are revised to add more specific response procedures in the event that there is indication of a possible well breach. The revised response procedures are consistent with the response procedures specified under Section 1785 for monitoring during well stimulation treatment.
1235	0053-13 The following should be added to Section 1787: (1) As indicated for both pre-treatment and during treatment, microseismicity monitoring shall be continued after the cessation of pressurized injection for each stage and for the duration of all stages, until monitoring results demonstrate statistically the return to pre-treatment conditions. If during the post-treatment monitoring period, any tremor of greater than 2.0 Richter magnitude occurs the monitoring shall be continued for an additional 30 days. (2) The operator within 30 days of cessation of stimulation shall review all operations and select randomly at least two water wells that have been sampled and samples tested for water quality from an area within one mile (5280 feet) of the stimulated well, shall conduct sampling and in-place testing, and shall compare the before and after stimulation compositions for any changes. If any changes have occurred, the operator shall immediately notify the Division and provide explanations for such changes. Any inexplicable changes of more than 10 percent of the original test results shall warrant a Division order to sample and re-test all previously tested water wells and request permission to test those wells within a one mile (5280 feet) distance of the well head and path which were not originally sampled and tested. Based on these tests, public review/comments, and operator's explanations, the Division shall decide on whether additional sampling, testing, and works are required for up to one year.
	Response to comment 1235: Accepted in part. Section 1785.1 has been added requiring monitoring of the California Integrated Seismic Network during and after hydraulic fracturing. If an earthquake of magnitude 2.7 or greater occurs within a specified area around the well, then further hydraulic fracturing in the area are suspended until the Division, in consultation with the California Geological Survey, determines that there is no indication of a heightened risk of seismic activity from hydraulic fracturing.

	All wells that have well stimulation treatment performed on them are subject to groundwater monitoring requirements under Water Code section 10783. Wells that have well stimulation treatment performed on them must be covered by a regional, area-specific, or well-specific groundwater monitoring plan and the State Water Resources Control Board is currently developing the model groundwater monitoring criteria required under Water Code section 10783. Baseline water quality analysis and the public availability of that data will be addressed in the implementation of Water Code section 10783.
1236	4259-2 What do the words "immediate" and "appropriate measures" mean in this section? There needs to be specificities in terms of what constitutes an appropriate measure.
	Response to comment 1236: Rejected. The term “immediate” is commonly understood and does not require definition. The meaning of “appropriate measures” in the context of monitoring that indicates a possible well breach will depend entirely on the specifics of the situation. Section 1787(a) requires that the Division be notified and have an opportunity to witness diagnostics, and therefore the Division will also have an opportunity to work with the operator to identify an appropriate course of action.
1237	0047-38 Monitoring should not be limited to just “producing” wells as stated in the first sentence.
	Response to comment 1237: Accepted. The word “producing” was deleted and Section 1787(a) now states, “Operators shall monitor each well ….”
1238	0017-10 Should also require notification to municipalities and water agencies when a well failure occurs.
	Response to comment 1238: Rejected. In the event of a well breach, the Division and the Regional Water Quality Control Board would notify appropriate federal, state, and local agencies based on the nature of the incident.
1239	0010-027, 0032-37 Revise Section 1787(b) to read, “Operators shall adhere to the following requirements for a well that has had a well stimulation treatment if not done as part of the normal production reporting process” Rationale: Eliminates double production reporting.
1240	0010-028, 0032-38 Revise Section 1787(b)(2) to read, “The well shall be monitored at least once every two days for the first thirty days after the well stimulation treatment and on a monthly basis thereafter the amount of produced fluid gas.” Rationale: Provides a realistic way to ensure post stimulation well production, acknowledges it is impracticable to measure well flowback fluid volumes if the well is piped directly into the production stream, and acknowledges that there is no realistic way to measure when 95% of all well stimulation fluids have been recovered.

	Response to comments 1239-1240: Section 1787(b)(2) has been removed.
1241	0056-17 The Division should not waive the requirement for a pressure relief device under Section 1787(b)(5). Such device should be included in all wells.
	Response to comment 1241: Rejected. As stated in Section 1785(a)(4) (formerly Section 1785(a)(5)), the pressure relief device requirement would only be waived if the Division is satisfied that the equipment is unnecessary.
	1788. Required Public Disclosures
1242	0045-94 Section 1788 should be revised to include the following type of information: (1) Each water source should be reported separately and should include information on source type, source location, volume, supplier, whether the water has been treated or recycled, and, for groundwater, TDS content. (2) An updated estimate of the well stimulation treatment radius including the estimated true vertical depth to the top of the stimulated zone; (3) Initial well test information recording daily gas, oil and water rate, and tubing and casing pressure; (4) Until the Division has completed development of its own reporting website, the Division should download all data related to well stimulation treatments in California and post the data on the Division's public website.
1243	4193-4 Radioactive components and spent frack water and boil back from geologic formations must be fully monitored and disclosed, particularly since radionuclides are not fully mitigated by any known conventional water treatment process available at this time.
1244	4237-9, 4138-1 There should be better public disclosures specific -- what specific toxins and poisons are being putting into the lake and what are coming out of the wells and where it's going.
1245	0056-19 In addition to the matters included in the section, the following should also be subject to public disclosure: the unauthorized release of any well stimulation treatment fluids, the matters set forth in section 1785 (b)-(e) indicating breach or other significant problems, or indication of problems arising from the well stimulation treatment.
1246	4069-6 Operators must be required to disclose what percentage of flowback is expected to return and over what period of time.
1247	0025-28, 0003-18 The proposed regulations contain several provisions that, if adopted, would provide inadequate disclosure to the general public.
1248	0187-1 Chemical composition of well stimulation treatment fluid, proppants, acid stimulation treatment fluid, and hydraulic fracturing fluid, must be fully disclosed in the Chemical Disclosure Registry, and all components must be certified as non-hazardous by the Regional Water Board, and under

	OSHA, and the Comprehensive Environmental Response, Cleanup, and Liability Act (CERCLA). Full disclosure is mandatory and complete, including proprietary ingredients.
1249	0041-9 The public must have access to information on what chemicals and acids are being carried by oil vehicles that traverse narrow and rough rural public roads and “oil” roads for when there is a collision or a spill.
1250	0049-22 Section 1788 should be revised to provide the complete and accurate results of the well stimulation treatment, including the exact amount and source of all water used for the treatment, the exact amount and chemical composition of well stimulation flowback fluid and the exact amount of oil and gas that recovered as a result of well stimulation treatment.
1251	4070-5 There must be a mechanism to identify currently used toxic chemicals that will be removed from the list of acceptable chemicals for well stimulation. That same mechanism will approve any new chemicals proposed by industry and should take notice of the EU REACH classification of chemicals. The state should appoint a commission, half of whose members are faculty from the University of California, one quarter of who are from the oil and gas industry and the remainder from the general public, excluding those who now work or have worked for the oil and gas industry or UC. Oil and gas representatives should have a voice but not the ability to block the exclusion of a compound when other members agree on its harmfulness. There are many chemicals which can do the job and no reason to allow use of the most dangerous ones.
	Response to comment 1241-1251: Rejected. The purpose of Section 1788 is to implement the public disclosure requirements mandated by Public Resources Code section 3160, subdivision (b). Section 1788 reiterates the disclosures specified in the statute, with specification added where necessary to implement the purpose of Public Resources Code section 3160, subdivision (b). Some of the suggested public disclosures are already required under Public Resources Code section 3160, subdivision (b), as implemented in Section 1788. Other suggested public disclosure are beyond the scope of Public Resources Code section 3160, subdivision (b) and are therefore inconsistent with the purpose of Section 1788.
1252	4152-3, 4152-2, 4211-2, 4094-3 WSPA members support provisions to supply pertinent information related to well stimulation operations that are relevant to develop the determination in compliance with regulations, standard practices, and prudent operations. Our members have been committed to this and have proven so through their voluntary disclosure of fracturing operations, the chemicals included for their fracturing fluid through their participation in the Groundwater Protection Council's FracFocus Website since 2012.
1253	0010-34 We support disclosure of hydraulic fracturing fluid. Our members have been voluntarily reporting the information since 2011 when DOC asked us to do it.
	Response to comments 1252-1253: Thank you for your comments.
1254	0045-89 FracFocus.org, which the Department proposes to use as a temporary reporting site, is not bound by government requirements for records management, including protections against

	unauthorized alteration or deletion, and assurance that records will be available years in the future when problems arise. Additionally, the site erects needless hurdles to the usability of the data on the site. Data should be provided to the public in a format that is searchable and can be aggregated to allow researchers' and the public's to find, interpret and analyze information reported to the site. FracFocus provides no way for users to download its database in aggregate but only allows access to a single pdf document at a time. The FracFocus site's official Terms of Use also put unnecessary restrictions on public use, sharing, and aggregation of the data, purporting to prevent any copying, distribution, or transmission of public data.
1255	0045-90 The Division should ensure that it takes possession of all information provided to FracFocus in order to ensure that the information is available in the future, even if FracFocus is no longer operable.
1256	0045-91 Additionally, the Division could easily make aggregate, searchable, machine-readable data available to the public itself by providing for regular download of FracFocus data and posting of the data on a public website. Significant concerns have also been raised with compliance and accuracy of data posted to.
1257	0045-92 Significant concerns have also been raised with compliance and accuracy of data posted to FracFocus.org. The Division should include in its regulations a procedure for reviewing all information posted to the site to check submissions for accuracy and compliance with all rules.
1258	0021-15 To enhance transparency, we urge DOGGR to post the Required Public Disclosures and Post-Well Stimulation Treatment Report on user-friendly website upon report receipt.
1259	0021-16 Request linking these reports to the initially filed well stimulation treatment application. DOGGR could follow SCAQMD's process by providing each well stimulation application with an event ID and using that event ID on each subsequent report.
1260	0025-38 The Division, not the operators or an independent website, should collect and maintain all information related to chemical use in well stimulation.
1261	0047-5 Accelerating the establishment of the state's Chemical Disclosure Registry and requiring operators to disclose information to the Registry promptly once well stimulation operations are completed (Section 1788) will go a long way towards achieving this transparency and accountability.
1262	0002-65 This section must ensure that all information is easily accessible to the public in a timely manner. All data submitted to the chemical disclosure registry must be verified by the Division and in a sortable/searchable and easy to use electronic format. In the period prior to the Division developing its own website as the chemical disclosure registry, all information must be submitted to the Division as well as an independent site such as FracFocus.org as compliance with any state required submissions. All information submitted during this period must also be added to the state-run registry upon its operation. All submissions to any non-state organization must include provisions to assure accuracy, correctness, and lack of purposeful errors as if the submission were directly to a state agency with implied penalties for errors and omissions.

1263	0002-66 The Division must publish public disclosure indexes, similar to the well stimulation applications and notices indexes currently published on a weekly basis. The Division should also post to the chemical disclosure registry and to a suitable Division webpage, additional data and map layers, including groundwater basins, exempt aquifers, surface waterways and nonattainment air quality areas, and boundaries of state- and federally-owned lands (including but not limited to national forests, national wildlife refuges, national monuments, and state ecological reserves) in order for the public and other agencies to identify surrounding conditions and contexts and risks and threats to health and the environment.
1264	0002-67 Section 1788(a)(19) correctly states that the names and CAS numbers of all chemical constituents must be disclosed on the Chemical Disclosure registry, or to the Division, if the registry is unavailable. All disclosures must be required even if the registry is unavailable, and DOGGR must make this information available to the public.
1265	0025-31 In order to ensure that operators are reporting truthful, accurate information, the regulations to be amended to make clear that operators must submit all information to the Division under penalty of perjury. Under the proposed regulations, operators need only submit post-well stimulation chemical information to an independent website (Fracfocus.org or another alternative website), not to the Division. The Division then has the obligation to obtain the information from the website. Requiring operators to submit all information directly to the Division will lessen the Division's administrative burden.
	Response to 1254-1265: Accepted in part. Section 1788(b) requires operators to submit all of the required public disclosures directly to the Division on a spreadsheet developed by the Division for that purpose. Among the required public disclosures is the identity and concentration of each chemical constituent and additive in the well stimulation treatment fluid. The Division will organize the public disclosures submitted by the operators and make them publicly available in a format that is easily searched and aggregated, to the extent practicable. In addition to submitting the required public disclosures directly to the Division, operators are required to post the required public disclosures to the public internet website known as FracFocus.org maintained by the Ground Water Protection Counsel and Interstate Oil and Gas Compact Commission (the "Chemical Disclosure Registry"). The additional disclosure to the Chemical Disclosure Registry is necessary so that activities in California are accounted for in the national disclosure registry.
1266	4285-2 The draft regulations are confusing on the trade secrets question, and they don't conform to the law on the acid matrix exemption. The provisions in SB 4 in the Public Resources Code which specify what information shall not be claimed as trade secrets need to be quoted in the regulations, not just cited. We've already seen that not only the operators, the oil companies, but even DOGGR staff may be unfamiliar with these provisions; and in fact, the frequently asked questions and the narrative descriptions for the permanent regulations as well as for the interim regulations incorrectly state that chemical names may be claimed as trade secrets, and thus they invite the operators to flout the law. We urge that the regulations should include the exact wording of or accurately paraphrase these subsections of the law on what information cannot be trade secrets.
1267	0011-27 The Division's regulations governing trade secret refers to a code, which refers to three other

	codes. This is not consistent with the plain English requirement. What governs should be written and then referenced.
1268	0011-29 Public Resources Code Section 31600(5-7) describes the process to substantiate trade secret. This section does not penalize applicants for making invalid claims, there needs to be some restraint otherwise many companies will take advantage of this process. Additionally, substantiating trade secret as described in Section 3160(j) is not reflected in the Division's proposed regulations, which should be along with the procedures for public request of trade secret information (Public Resources Code Section 31600(9&10).
1269	0112-6, 0102-6, 0115-6, 0070-6 Fracking fluids need to be completely disclosed, with complete transparency. This must include the exact chemical name and not the chemical group or family name which has been suggested in the past. Each chemical may have its own signature and toxicity level. The citizens of California deserve to know what chemicals are being pumped into the ground that may or may not adversely affect their health.
1270	0127-5, 0127-11, 0290-1, 0290-2, 0283-1, 0283-2, 0056-8 There should be no trade secret protection in any way, shape or form. But it should be completely declared in advance and totally transparent to regulatory authorities so that in the event of an environmental or health disaster there can be immediate scientifically driven responses taken to protect public health and the environment.
1271	0026-10, 0197-1, 0232-1, 0288-1, 0056-8 No chemical constituents used in a well stimulation process should be protected from disclosure, as the proposed regulations authorize. Without full disclosure of all of the chemical constituents used, it will not be possible to ascertain the source of water quality degradation or well contamination in the event of a leak, spill or breach of the well stimulation infrastructure of other mishap.
1272	0026-20, 0049-22, 0025-35, 4280-3 All chemical constituents utilized in the well stimulation treatment process should be publicly disclosed as required by SB4. A notification is incomplete unless an operator submits a complete list of the names of “each and every chemical constituent of the well stimulation fluids.
1273	0130-1 In the case of drilling on public lands, it seems clear that any chemicals used must be either divulged or certified to be within verifiable safe limits.
1274	0133-1 All chemicals used in CA be listed and available for public information. It does not have to be published in any formula, but itemized and not directly attributed to particular users. We need to know the extent of chemical additives for drilling. Toxicity levels need to be included.
1275	4158-8 I wish to address DOC and ask you to get rid of all language that shields and protects trade secrets. I think that it is fucking outrageous. Make sure that you put that in there. Fucking outrageous that you are more worried about protecting trade secrets than you are worried ·about protecting people.
1276	0046-23, 4241-11 Regulations need to be clear that chemical identities may NOT be withheld under a trade secret claim. Already, companies are attempting to hide information from the public.

1277	4288-5, 0204-1 Protecting information under trade secrets really doesn't make sense. It seems that everybody should be sharing what the best practices are and going forward with that. They're not all competing out of the same well. They own the space where they're going to be extracting. Why not get the best, the best process for that by sharing information.
1278	0002-69 None of the following information should be protected as a trade secret: (1) The identities of the chemical constituents of additives, including CAS identification numbers. (2) The concentrations of the additives in the well stimulation treatment fluids. (3) Any air or other pollution monitoring data. (4) Health and safety data associated with well stimulation treatment fluids. (5) The chemical composition of the flowback fluid.
1279	0032-41 Comment: Delete the sentence related to trade secrets. Rationale: The operator does not make the claim of trade secrets. Only the supplier can make the claim of a trade secret.
	Response to comments 1266-1279: Rejected. Public Resources Code section 3160, subdivision (j), imposes strict limitations on the ability to claim trade secret protection as a basis for not making required public disclosures required under SB 4, and it is therefore unlikely that a claim of trade secret protection will be made in the context of these regulations. In the event that a claim of trade secret protection is asserted, Public Resources Code section 3160, subdivision (j), provides detailed procedures for the Division's handling of that claim. Section 1788(d) indicates where those procedures can be found and it is not necessary to quote those statutory provisions in the regulations.
1280	0045-93 The proposed regulations fail to fulfill the Division's statutory mandate under Cal. Pub. Resources Code § 3160(j)(10) to "develop a timely procedure" for the provision of trade secret information to health professionals and other parties. The Division should ensure, in developing these regulations, that each claim of trade secret is accompanied by a notice of a 24-hour telephone number where the information can be obtained. It is essential that parties such as health professionals, who may need trade secret information urgently, immediately know how to obtain the information and be able to request it without delay. The regulations should also set a specific time limit for providing the information to the requestor of at most one hour.
1281	0025-37 SB 4 requires DOGGR to develop procedures for providing such information to other government agencies, health professionals, toxicologists, epidemiologists, and others. Under the proposed regulations, there is no process by which health professionals, first responders, and others can obtain this information from DOGGR, even in emergency situations. It is critical that such persons be granted comprehensive and immediate access to all chemical information in order to facilitate protection of the public's health.
1282	4070-4 Trade secrets deserve some protection, but less protection than citizen safety. I don't say consumer safety because all citizens may be impacted by toxic chemicals released into the air, drinking water and the ocean. Well operators should be required to submit a list of all chemicals used in the well and their quantity. If they wish to designate some chemicals as proprietary, those chemicals can be kept off the publicly available list of chemicals that should be available for every well. It can include a list of chemicals plus the phrase proprietary chemicals.

1283	4068-18 Trade Secrets / Confidentiality: (1) Any release to a person is a waiver of trade secrets or confidentiality with respect to that person. (2) Any release to any non-target stratum is a release and constitutes a waiver of confidentiality or trade secrets.
1284	0065-1 If operators are unwilling to reveal “secret” ingredients, they should be required to prove that fracking is safe.
1285	4070-3 Section 3160(j)(10)(B) of SB 4 of would provide that trade secret information be released to health professionals in emergency or other situations where there is a need to know for reasons of patient care. However, the interpretation of this in regulation should clarify that such release of information must be provided as promptly as possible to such health professionals in urgent or emergency situations.
1286	4070-4 WOEMA is pleased to note that the regulations intend to assure that regulatory agencies are given full and transparent disclosure of the chemical composition of fluids used for hydraulic fracturing, acid stimulation, and other well stimulation operations. It is important, in WOEMA’s view, that hazard communication regulations (California Code of Regulations, Title 8, Section 5194) for workers and other key stakeholders not be weakened.
1287	0056-20 Any hazardous substances used in well stimulation fluids should be disclosed to the public regardless of any claim of trade secret.
	Response to comments 1280-1287: Rejected. Public Resources Code section 3160, subdivision (j), imposes strict limitations on the ability to claim trade secret protection as a basis for not making required public disclosures required under SB 4, and it is therefore unlikely that a claim of trade secret protection will be made in the context of these regulations. In the event that the Division does receive required disclosures subject to a claim of trade secret protection, the Division will inform local environmental and public health agency of the fact and ensure that they are aware of who to contact if they need access to that information. Public Resources Code section 3160, subdivision (c), requires the Division to enter into formal agreement with other state regulatory agencies for the purposes of coordinating regulation of well stimulation agreement. Each of the required formal agreements will address confidential information sharing.
1288	0025-36 The Division appears to have already approved multiple well stimulation notices that withhold chemical identities based on a claim of trade secret protection. The Division’s practice of allowing fracking to occur without first requiring full disclosure of the chemicals used is a violation of Public Resources Code Section 3161(b), and is inimical to the purpose of Senate Bill 4. the Division must force operators to adhere to Senate Bill 4’s disclosure provisions and should adopt regulations that clearly state that trade secret claims are invalid when used to try to withhold chemical information from the public.
1289	0003-22 Senate Bill 4 is absolutely clear that trade secret protection does not apply to (I) the identities of chemical constituents of additives, including Chemical Abstract Service identification numbers and (2) the concentrations of the additives in the well stimulation treatment fluids. A notification is

	incomplete unless an operator submits a complete list of the names of "each and every chemical constituent of the well stimulation fluids." rd. § 3160(d)(l)(D) (a prerequisite to approval under § 3161 (b). Yet DOGGR appears to be approving notices that do not comply with public disclosure provisions. In spite of Senate Bill4's clear direction, DOGGR appears to have already approved multiple well stimulation notices that withhold chemical identities based on a claim of trade secret protection. The Division's practice of allowing fracking to occur without first requiring full disclosure of the chemicals used is a violation of Public Resources Code Sec. 3161(b), and is inimical to the purpose of Senate Bill 4. The Division must force operators to adhere to Senate Bill 4's disclosure provisions and should adopt regulations that clearly state that trade secret claims are invalid when used to try to withhold chemical information from the public.
	Response to comments 1288-1289: The Division has not received a claim of trade secret protection and the Division has not approved any well stimulation treatments with information withheld under a claim of trade secret protection. When the requirements of SB 4 first went into effect, the Division received a handful of Interim Well Stimulation Treatment Notices from an operator that indicated that certain chemicals in the intended well stimulation treatment fluid were trade secret. However, the Division did not approve those IWSTN's as complete, and the operator withdrew and revised them upon learning that the supplier had no intention of claiming trade secret protection.
1290	0025-33 Public Resources Code Section 3160(k), as enacted by SB 4, provides that wells granted confidential status under Section 3234 are exempt from the public disclosure requirements of Section 3160(g) until the well's confidential status expires, and thus will not be required to post the composition and disposition of well stimulation treatment fluid on a website designated by the Division. Section 3160(k) further provides that "notwithstanding the confidential status of a well, it is public information that a well will be or has been subject to a well stimulation treatment." Despite this clear guidance relating to the intended parameters of disclosure, the proposed regulations sketch a far broader exemption. Of the nineteen public disclosures required of operators in the proposed regulations, only six disclosures are required of Section 3234 confidential wells.
1291	0002-15, 0079-2 Require complete compliance with all notification, disclosure, and monitoring for confidential wells that receive well stimulation treatments.
1292	0003-21 Despite this clear guidance relating to the intended parameters of disclosure, the proposed interim regulations sketch a far broader exemption. Of the nineteen public disclosures required of operators in the proposed interim regulations, only six disclosures are required of § 3234 confidential wells. The only exemption that applies to confidential wells under SB 4 is for the composition and disposition of well stimulation treatment fluids. Section 1788(c) of the proposed Interim Regulations, therefore, should be amended to require operators of confidential wells to disclose *all* other information to the public.
1293	0251-11 The loophole that allows operators to avoid posting chemical disclosure if the well is not a public record must be removed. The regulations refer to section 3234 of the public resources code which seems to state that owners can keep their wells confidential if they make a request in writing and get approval to do so. SB4 calls for regulating all well stimulation projects so it is a violation of the law to allow certain "confidential" wells to opt out.

1294	0053-14 1788 (c) must be amended to clearly require that much more information for confidential wells be disclosed to the public, the Division and other applicable agencies, including the Water Boards and CUPAs, and health professionals.
1295	0030-17 Stimulation of confidential exploratory wells should be prohibited.
1296	0002-68 1788(c) must be amended to clearly require that all information for confidential wells be disclosed to the public, the Division and other applicable agencies, including the Water Boards and CUPAs, and health professionals.
1297	0025-34 Confidential wells are required to disclose the operator's name, the API number of the well, the lease name of the well, the location of the well, the county in which the well is located, and the date that the well stimulation occurred. Confidential wells are not required to disclose the depth of the well, the volume of base fluid used and recovered, or the radioactivity of recovered fluids, among other essential information. The only exemption that applies to confidential wells under SB 4 is for the composition and disposition of well stimulation treatment fluids. Section 1788(c) of the proposed regulations, therefore, should be amended to require operators of confidential wells to disclose all other information to the public.
1298	0055-4 Any confidential information that would normally be required in reports, and that might be important to protection of public health and safety and the environment, should be reported to DOGGR, and be available to emergency response and public health agencies, as well as to medical personnel when needed, with the same rules as trade secret information. Since wells may be considered confidential for up to 4-7 years, it is important that this information be available in a timely manner.
1299	0087-5, 0046-06, 0310-6, 0255-5, 4158-5, 4241-9 The regulations should not create a reporting loophole for so-called "exploratory wells."
1300	0002-69 Delete Section 1788(c).
	Response to 1290-1300: Rejected. Public Resources Code section 3234 states that well records that are required to be filed with the Division are not public record and shall be maintained as confidential information if the well is an exploratory well or if other extenuating circumstances warrant confidential treatment. Public Resources Code section 3160, subdivision (k), specifies that a well granted confidential status pursuant to Public Resources Code section 3234 is not be required to disclose well stimulation treatment fluid information until the confidential status of the well ceases. Public Resources Code section 3160, subdivision (k), also provides that, notwithstanding the confidential status of a well, it is public information that a well will be or has been subject to a well stimulation treatment, but does not otherwise expressly invalidate confidential treatment of well records under Public Resources Code section 3234. Accordingly, Section 1788(c) provides that an operator is not required to disclose information found in well records subject to confidential treatment under Public Resources Code section 3234. Public Resources Code section 3160, subdivision (c), requires the Division to enter into formal agreement with other state regulatory agencies for the purposes of coordinating regulation of well

	stimulation agreement. Each of the required formal agreements will address confidential information sharing.
1301	0055-3, 4285-6 The commonly-used term "confidential well" is not used in these draft regulations. Instead, the reference, in 1788(c), is to "a well record that the Division has determined not to be public record." Does this mean that the Division anticipates broadening their determinations that well records are not public records, to wells that are not "confidential"? And if so, what are the extenuating circumstances that you anticipate?
	Response to comment 1301: Because “confidential well” is a term of art not found in statute, Section 1788(c) does not use the term but instead references the language actually used in Public Resources Code section 3234. The Division does not anticipate broadening its determinations of what well records are subject to confidential treatment under Public Resources Code section 3234.
1302	0127-10, 0046-22, 0049-21, 0226-4, 4237-8, 0056-18 The report required should be done prior to well stimulation, not 60 days after. It should disclose the full intended stimulation components then updated to reflect the actual details within 30 days after the cessation of a well stimulation treatment.
1303	0251-9 Public disclosure is inadequate; after the fact is not sufficient. Advance notice should be made public.
1304	0103-4 Where does it state when the Division is required to post the application to its website?
1305	0251-10 All notices to stimulate a well must be incorporated into the current Notice/Permit process for drilling and reworking/re-drilling and be posted immediately to the Division's website on a daily basis in an easy-to-view format.
1306	0025-30, 4241-5 Public notice must be explicitly required before the decision to allow drilling is made to enable the public to more effectively review and monitor well stimulation treatments, participate in the approval process, and to ensure that operations are compliant with the Division’s regulations. Public notice *ex ante* also puts operators on notice that their disclosures are being monitored by multiple parties, and as such, encourages a culture of compliance.
1307	4069-20 1788. See earlier comments regarding Public Disclosure and notifications. The public should be notified once a permit application has been received, as soon as it is approved, as soon as the Division has been notified of a planned stimulation treatment, and as soon as possible after cessation of treatment. Notification and disclosure must be in both Spanish and English and easily accessible on the Division’s website.
1308	0045-88, 0287-4 The proposed requirements in Section 1788 are insufficient to ensure public access to comprehensive information about each well stimulation treatment, the chemicals needs to be include in the application in advance of the treatment.

1309	4241-6 Requiring a disclosure of chemical information to the public 60 days after fracking has occurred is grossly insufficient.
1310	0003-19, 0025-29 The proposed regulations appear to contemplate that the public at large will not receive any of the information required to be disclosed under Section 1788(a) of the regulations until *after* the well stimulation treatment has ceased. This would mean that communities living outside of the l5OO-foot radius for neighbor notification and public interest groups with an interest in environmental health may not know about drilling operations in their communities ahead of time.
1311	0003-20 Public notice must be explicitly required before the decision to allow drilling is made to enable the public to more effectively review and monitor well stimulation treatments, participate in the approval process, and to ensure that operations are compliant with DOGGR's regulations. Public notice *ex ante* also puts operators on notice that their disclosures are being monitored by multiple parties, and as such, encourages a culture of compliance.
1312	0026-19 The specific composition of well stimulation treatment fluids, including water associated with well stimulation treatment should be disclosed prior to initiation of well stimulation treatment activities as mandated by SB4. Only in this manner can a reliable contamination analysis, including groundwater contamination analysis, be conducted.
	Response to comments 1302-1312: Accepted in part. The required contents of an application for a well stimulation treatment permit are specified in Public Resources Code section 3160, subdivision (d)(1), and Section 1783.1, and include the identity and estimated maximum concentration of the chemical constituents of the anticipated well stimulation treatment fluid. Public Resources Code section 3160, subdivision (d)(5), requires that the Division post an approved well stimulation treatment permit application on its public website within five business days of approval. The Division is working to develop and implement business processes and information technology to make information about all aspects of well stimulation treatment operations available on its public website in formats that can be easily searched and aggregated.
1313	0025-32 The Division should make clear in the regulations that it will review applications, reports, and other submissions for accuracy. As the agency in charge of oversight, it is important for the Division to check submissions to ensure that operators are reporting truthful information.
1314	0103-8 Who checks to be sure that the stated water used during well stimulation actually came from the stated source?
	Response to comments 1313-1314: Rejected. Public Resources Code sections 3013 and 3106 make clear that the Division, through the State Oil and Gas Supervisor, is responsible for implementing Public Resources Code, Division 3, relating to oil and gas production. Public Resources Code, Division 3, includes various enforcement and investigative authorities.
1315	4092-2 The part about recycling the water, fracking processes and enhanced processes use millions of gallons of water, and does recycling -- does it mean I can drink it, does it mean I can bathe in it,

	does it mean that my children can run in the sprinkler through it?
	Response to comment 1315: Sections 1831.1(a)(23) and 1788(a)(13) relate to produced water recycled or reused for subsequent well stimulation treatment.
1316	0043-05 Regarding Section 1788(a)(15), why are radioactive makers included in the regulations?
1317	0010-029, 0032-39 Revise Section 1788(a)(16) to read, "If radioactive material or tracers are used in the well stimulation treatment, the radioactivity of the recovered well stimulation fluids:" Rationale: Testing is not required if radioactive material is not introduced into the well.
1318	0123-9 SB 4 entirely neglects to mention either the terms "NORM" or "shale", in regard to the Required Public Disclosures section and it only refers to "recovered well stimulation fluids."
	Response to comments 1316-18: Rejected. Public Resources Code section 3160, subdivision (b), specifies that required public disclosures after well stimulation treatment must include any radiological components or tracers injected into the well as part of, or in order to evaluate, the well stimulation treatment, a description of the recovery method, if any, for those components or tracers, the recovery rate, and specific disposal information for recovered components or tracers; and the radioactivity of the recovered well stimulation fluids.
1319	0010-030, 00332-40 Revise Section 1788(b) to read, "If the Chemical Disclosure Registry is unable to receive information required to be reported under this section, then the operator shall provide the information directly to the Division in an electronic format provided by the Division." Rationale: Provides consistency with the Division's stated intentions.
	Response to comment 1319: Accepted. Section 1788(b) is revised to state that the all required public disclosures must be submitted to the Division in a specified format.
1320	0032-42 What specific data is required in Section 1788(e)?
	Response to comment 1320: Section 1788(e) applies to the extent that information submitted under Section 1788(a)(11), (12), or (14) includes groundwater quality data.
	1789. Post-Well Stimulation Treatment Report
1321	0047-6 The Division should make the "Post-well Stimulation Treatment Report" (Section 1789) available

	to the public via its internet site.
132	0002-71 All information eventually must be submitted to and integrated with the other records for any specific well, e.g., History of Well. Historic hardcopy files are being replaced with online and digital files and archives. Hardcopy submittal must be replaced with near-real time reporting to the Division and simple copying (cc/bcc) of the same to other agencies and subscribers.
1323	0002-72 The post-event reporting must be linked to all other records related to the same well, usually through the American Petroleum Institute's numbering system – the API No. – including all records and histories of the same well resulting from the Notices of Intent and Permits processed through a currently separate system. Such isolation will lead to errors and required revisions of these and other regulations.
	Response to comments 1321-1323: The Division is working to develop and implement business processes and information technology to make information about all aspects of well stimulation treatment operations available on its public website in formats that can be easily searched and aggregated.
1324	0002-70 We note an apparent error in this section. The reference to 1784(a)(4) appears to be incorrect, as there is no such section and must be replaced with 1784(a)(2).
1325	0010-031 Section 1789 (a)(1), (a)(2) Comment: It appears this section is numbered incorrectly. Suggest revising to read: (a) Within 60 days after the cessation of a well stimulation treatment, the operator shall submit a report to the Division describing the results of the well stimulation treatment to include: (1) The pressures encountered during the well stimulation treatment; and (2) How the actual well stimulation treatment differs from what was anticipated in the well stimulation treatment design that was prepared under Section 1484(a)(5).
1326	0008-10 Section 1789(a)(3)states that the post-well stimulation treatment report should include a description of how the actual well stimulation treatment differs from what was anticipated in the well stimulation treatment design that was prepared under Section 1784(a)(5), however Section 1784(a)(5) does not exist. Specific language needs to be added describing precisely what the well stimulation treatment design includes. In any case, the post-well stimulation treatment report should include a description of the exact amount of water used for well stimulation, the source of water.
	Response to comments 1324-1326: Accepted. Section 1789(a) is revised to include additional specifications as to the contents of the post-well stimulation treatment report, and the erroneous reference to Section 1784(a)(5) is replaced with a reference to Section 1784(b).
1327	0002-73 Clean Water Action request changes to this section that include: (a) Within 60 days after the cessation of a well stimulation treatment, the operator shall submit a report to the Division describing: (1) History, all conditions, and results of and during the well stimulation treatment and all previous stimulation treatments; (2) Pressures and flows

	encountered before, during, and following the well stimulation treatment; and previous such treatments; (3) Difference between-actual and planned/designed well stimulation treatments and all related conditions (Section 1784(a)(5)); and (4) Records of all microsiesmicity tremors during the monitoring period for the subject treatment and any prior treatments and comparisons and differences for subject and prior envelopes.
1328	0045-95 In Section 1789(a) add the information monitored and recorded under Section 1785(a), be included in the information that an operator must submit to the Division after cessation of a well stimulation treatment.
1329	0032-43 What specific results are required to be included? What specific pressures are required?
	Response to comments 1327-1329: Accepted in part. Section 1789(a) is revised to require that the post-well stimulation treatment report include pressures recorded during and after well stimulation under Section 1785(a) and 1787(d)(1). The date and time that each stage of the treatment was preformed is also required. Other suggested requirements are duplicative or do not relate to the requirements of these regulations.
1330	0045-96 The proposed requirements are not sufficient to address the potential for induced seismicity related to well stimulation. Hydraulic fracturing has been confirmed or is suspected as the cause induced seismicity strong enough to be felt at the surface in a number of incidents. • In a report commissioned by United Kingdom-based Cuadrilla Resources, researchers concluded that a series of earthquakes in Lancashire, UK were likely caused by hydraulic fracturing. Two relatively large earthquakes, with magnitudes 2.3 and 1.5, and 48 smaller events occurred in the hours after several stages of the Preese Hall 1 well were fracture stimulated. • A report written by a seismologist at the Oklahoma Geological Survey concluded that a swarm of about 50 earthquakes in Garvin County, Oklahoma, ranging in magnitude from 1.0 to 2.8, could have been induced by hydraulic fracturing. • A total of 38 seismic events were recorded by the Canadian National Seismograph Network (CNSN) in the Etsho and Tattoo areas of the Horn River Basin between 2009 and 2011, ranging in magnitude from 2.2 to 3.8. After reviewing the locations, depths, and magnitudes of the earthquakes and comparing to the timing and location of hydraulic fracturing, the researchers concluded that fracturing resulted in slippage along preexisting faults, which caused the earthquakes. In all but one case, the earthquakes occurred along faults that had not previously been mapped.
1331	0045-97 Induced seismicity can result in serious environmental and human health impacts identical to those caused by natural earthquakes, including property damage and injury.
1332	0045-98 Fault movement may potentially endanger groundwater by creating or enhancing migration pathways between the zone being stimulated and underground sources of drinking water. Seismicity can also compromise wellbore integrity.
1334	0045-99 The induced seismicity event in the UK caused ovalization of the production casing over hundreds of feet, with more than a half-inch of ovalization occurring over an approximately 250 foot length.xxi Such damage could compromise the cement bond, allowing fluids to migrate up the back side of the casing to groundwater.

1335	0045-100 Subsidence-induced earthquakes in California's Wilmington Oil Field damaged the casing of hundreds of wells.
1336	0045-101 Even in the absence of actual damage, induced seismic events will have financial and manpower costs associated with the investigation of the causes and effects of the earthquake and from the suspension of operations until such studies are completed.
1337	0045-102, 4203 We recommend that the Division, in consultation with the California Geological Survey, develop regulations to address induced seismicity. Elements of the regulation should include: A requirement for the operator to evaluate the potential for induced seismicity. This should include an analysis of background seismicity, local geology including faults and tectonically active features, local and regional stress state, proposed stimulation practices, and nearby instances of induced seismicity. The results of this evaluation should be provided with the well stimulation treatment permit application. Requirements for operators to develop and implement a protocol for addressing induced seismicity, based on the results of the evaluation of the potential for induced seismicity. The Division should review chapter 6, 'Steps Toward A "Best Practices" Protocol,' of the National Academy of Sciences 2013 report on induced seismicity, "Induced Seismicity Potential in Energy Technologies." An appropriate "traffic light" control system for responding to an instance of induced seismicity associated with well stimulation. This traffic light control system should be a required element of the protocol to address induced seismicity.
1338	0056-23 Reporting any significant seismic activity within 60 days after the fact, as presently contemplated in Section 1789, is not enough. All relevant seismic activity should be included in the public disclosure requirements of Section 1788.
1339	0043-12, 0056-25 Seismic activity needs to be monitored not just on a well-by-well basis but for cumulative impacts if the Division is to make informed decisions about the geological effects of well stimulation treatment and deep well waste water injection. Absent such a plan, and with no mention of any form of coordination of monitoring or action efforts with the US Geological Survey, we do not see how the Division can proceed.
	Response to comments 1330-1339: Accepted in part. Section 1785.1 has been added requiring monitoring of the California Integrated Seismic Network during and after hydraulic fracturing. If an earthquake of magnitude 2.7 or greater occurs within a specified area around the well, then further hydraulic fracturing in the area are suspended until the Division, in consultation with the California Geological Survey, determines that there is no indication of a heightened risk of seismic activity from hydraulic fracturing.
1340	4120-2 Section 1789 addresses things after the well has been abandoned or no longer pumping. I would assume they would stop once they had a failure and were flooding the countryside with dangerous chemicals and oils, but nowhere does it say they have financial responsibility to clean

	up the damages that occurred as a result of what they engaged in.
	Response to comment 1340: Well abandonment, site remediation, and financial responsibility are addressed in other existing statutes and regulations and are outside the scope of this rulemaking.
	<u>Other Comments</u>
1341	0045-103, 0045-104, 0045-105 The technology used in oil and gas production has evolved rapidly but, unfortunately, regulation has not kept pace. California's current rules are outdated and insufficient to protect human health and the environment. Proper well design and construction are crucial first step to ensuring long-term mechanical integrity. California's current well construction rules are outdated and inadequate and must be updated to reflect technological advancements in oil and gas extraction techniques. Operators must demonstrate that wells will be designed and constructed to ensure both internal and external mechanical integrity. Public Resources Code section 3160, subdivision (b), requires the Division to adopt regulations to ensure integrity of wells, well casings, and the geologic and hydrologic isolation of the oil and gas formation during and following well stimulation treatments. Given the paramount importance of proper well construction in preventing potential impacts from well stimulation operations the following existing well construction rules should be modified as part of the current rulemaking: section 1722.2. Casing Program; 1723.3. Casing Requirements; 1722.4. Cementing Casing; and 1744.6. Drilling Fluid Program—General.
	Response to comment 1341: Thank you for your comments.
1342	0251-12 Water monitoring proposal won't protect water adequately. The regulations only require that water be monitored if it is within the 1500 foot radius from the well head and 500 foot radius from the vertical projection of a horizontal well. Dispersion of pollutants can and does reach much further than that—up to a mile in the cases of some pollutants.
1343	0184-1 Underground storage needs to be ruled out as part of the standard practice of the fracking process concerned with the environmental impact it could have. To do this in a scientifically sound manner, we must monitor groundwater PRIOR to any tracking activity to establish a baseline of its contents and this is IMPERATIVE when we are talking about isotopes of methane. Once a baseline is clearly established and tracking takes place, then groundwater MUST be regularly monitored as part of standard practice in a fracking process concerned with the environmental impacts it could have.
1344	0046-21 Results from all water monitoring and testing should be made publicly available as it becomes available.
	Response to comments 1342-1344: All wells that have well stimulation treatment performed on them are subject to groundwater

	monitoring requirements under Water Code section 10783. Wells that have well stimulation treatment performed on them must be covered by a regional, area-specific, or well-specific groundwater monitoring plan and the State Water Resources Control Board is currently developing the model groundwater monitoring criteria required under Water Code section 10783. Baseline water quality analysis and the public availability of that data will be addressed in the implementation of Water Code section 10783.
1345	0141-3 Notice needs to include the exact location in lat/long coordinates, the date, or date range of the proposed stimulation, and the amount of water used, and should be easy to reference.
1346	0141-4 The PDFs of the Well Stimulation Notices are non computer parsable. Instead of scanned image files this should all be digital files. Pertinent data should not be in an image file. SCAQMD has done this so we know it works. Use AQMD as a successful reference to what's possible.
	Response to comments 1345-1346: The Division is working to develop and implement business processes and information technology to make information about all aspects of well stimulation treatment operations available on its public website in formats that can be easily searched and aggregated.
1347	0132, 0083, 0094, 0121, 0080, 0098 Comments not directed at the regulations.
1348	4232-3 The word "toxic" should be added before the word "chemicals."
	Response to comment 1348: Rejected. SB 4 requires public disclosure of each every chemical constituent of the well stimulation treatment fluids used. Limiting disclosure to only toxic chemicals would be inconsistent with that statutory requirement.
1349	"Please Ban Fracking" binder, vol. 1, comment nos. 650-1643, comment from Food & Water Watch comment dated 11/20/2013: If operators must post full disclosure of stimulation wells 60 days after cessation of stimulation, how is cessation determined? Operators may say that they plan to stimulate repeatedly over a period of a year. There is no reason why public disclosure of the approved permit should not be required as part of the permitting process and before stimulation occurs.
	Response to comment 1349: Section 1780(c) identifies the end point of a well stimulation treatment as the time "when the well stimulation treatment equipment is disconnected from the well." If serial treatments are done, then all operations must have been approved by the Division, and each treatment is subject to the public disclosure requirements of Section 1788. Public Resources Code section 3160, subdivision (d)(5), already requires public disclosure of a well stimulation treatment permit within five days of the Division's approval.