

PRE-RULEMAKING DISCUSSION DRAFT

CHAPTER 4. DEVELOPMENT, REGULATION, AND CONSERVATION OF OIL AND GAS RESOURCES

Subchapter 2. Environmental Protection

THE FOLLOWING ARTICLE IS ADDED:

Article 4. Hydraulic Fracturing

1780. Definitions.

The following definition shall govern this article:

(a) "**Chemical Disclosure Registry**" means the chemical registry Internet Web site known as fracfocus.org developed by the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission. If that Internet Web site becomes permanently inoperable, then "Chemical Disclosure Registry" shall mean another publicly accessible information Internet Web site that is designated by the Division.

(b) "**Health professional**" means a physician, physician assistant, nurse practitioner, registered nurse, or emergency medical technician licensed by the State of California.

(c) "**Hydraulic fracture**" means a technique used in stimulating a formation or zone that involves the pressurized injection of hydraulic fracturing fluid and proppant into an underground geologic formation in order to fracture the formation, thereby causing or enhancing, for the purposes of this division, the production of oil or gas from a well.

(d) "**Protected water**" means 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.

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code.

1781. Well stimulation not an injection project.

Well stimulation operations, including hydraulic fracturing, are not underground injection or disposal projects and are not subject to Sections 1724.6 through 1724.10.

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code.

1782. General Hydraulic Fracturing Requirements.

(a) When hydraulic fracturing operations are conducted the operator shall ensure that all of the following occurs:

- (1) Casing be sufficiently cemented or otherwise anchored in the hole in order to effectively control the well at all times;
- (2) All protected water zones be isolated and sealed off to effectively prevent contamination or harm to any water therein;

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(3) All potentially productive zones, zones capable of over-pressurizing the surface casing annulus, or corrosive zones be isolated and sealed off to the extent that such isolation is necessary to prevent vertical migration of fluids or gases behind the casing;

(4) All hydraulic fracturing fluids are directed into the zone(s) of interest;

(5) The wellbore's mechanical integrity be tested and maintained;

(6) The hydraulic fracturing fluids and proppants used are of known quantity and description for reporting and disclosure as required pursuant to this Article;

(b) In addition to specific methods set forth in these regulations, to achieve the objectives of this section, the operator shall follow the intent of all applicable well construction requirements, use good engineering practices, and employ best industry standards.

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code.

1783. Required Data Prior to Hydraulic Fracturing.

(a) The following data shall be submitted to the Division, and the appropriate regional water quality control board or boards with jurisdiction over the location of the well on a Form DOGGR HF1 at least 10 days prior to commencing hydraulic fracturing operations:

(1) Operator's name;

(2) Name of person filing the form;

(3) Telephone number of person filing notice;

(4) Name of person to contact with technical questions regarding operations;

(5) Telephone number and email address of person to contact with technical questions regarding operations;

(6) Name of the well;

(7) API number assigned to the well by the Division;

(8) Name of the oil field;

(9) County the well is located in;

(10) For directionally drilled wells, the proposed coordinates (from surface location) and the true vertical depth at total depth;

(11) Estimated true vertical depth;

(12) The name of the productive horizon to be hydraulically fractured;

(13) Anticipated volume and pressures of fluid to be injected;

(14) Anticipated distance of the fracture;

(15) The cement evaluation required under Section 1784(a)(3);

(16) The fracture radius analysis required under Section 1784(a)(4); and

(17) The hydraulic fracture treatment design required under Section 1784(a)(5).

(b) When hydraulic fracturing operations are performed in conjunction with the drilling, deepening, or redrilling of a well, the completed Form DOGGR HF1 shall be submitted together with the notice of intent to commence drilling.

(c) The operator shall notify the Division at least 24 hours prior to commencing hydraulic fracturing operations. In no event shall hydraulic fracturing operations commence prior to the expiration of the 10 day period specified in subdivision (a) of this regulation.

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(d) Within 7 days of receipt of a Form DOGGR HF1, the Division will post on its public website information about the well subject to hydraulic fracturing operations.

(e) Records submitted to the Division pursuant to this section will be presumed to be public records for the purposes of the California Public Records Act (Chapter 3.5 (commencing with Section 6250) of Division 7 of Title 1 of the Government Code), unless the Public Resources Code section 3234 is applicable.

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code.

1784. Evaluation Prior to Hydraulic Fracture.

(a) The operator shall do all of the following prior to commencing hydraulic fracturing operations:

(1) All cemented casing strings and all tubing strings to be utilized in the hydraulic fracturing operations shall be pressure tested for at least 30 minutes at a pressure not less than 500 psi greater than the maximum surface pressure anticipated during the hydraulic fracture operations. 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.

(2) All surface equipment to be utilized by operator for hydraulic fracturing treatment shall be rigged up as designed. The pump, and all equipment downstream from the pump, shall be pressure tested to at least 110% of the maximum allowable surface treating pressure.

(3) Allowing at least 48 hours to elapse after cement placement, the operator shall run a radial cement evaluation log or other cement evaluation method that is approved by the Division and capable of demonstrating adequate cementing. If the quality of the cement outside of the production casing is not sufficient to isolate strata containing protected water, then the operator must develop a remediation plan and obtain approval from the Division for the remediation plan prior to proceeding. The operator is only required to evaluate the cement that is required to be in place under Section 1722.4.

(4) The 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.

(i) The operator shall utilize modelling approved by the Division that will effectively simulate the projected fracture height growth within the design limits of the projected hydraulic fracturing operations.

(ii) The fracture radius analysis shall include a review of all wells and faults (active or inactive) within a radius of twice the anticipated fracture length from each point of fracture to verify that no wells or faults will permit the migration of the fracturing fluids or hydrocarbons into a strata that contains protected water.

(iii) If a radius of twice the anticipated fracture length from a point of fracture extends beyond the productive horizon being evaluated for possible hydraulic fracture, then the fracture radius analysis shall include a review of the geological formations between the productive horizon and the base of the deepest stratum or zone that contains protected water. The operator shall assess the mechanical rock properties, including

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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 proper containment of the hydraulically induced fracture and act as an effective barrier to the vertical migration of fluids into one or more strata or zones that contain protected water.

(5) Utilizing the fracture radius analysis conducted pursuant to subsection (a)(4), the 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.

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code.

1785. Monitoring During Hydraulic Fracturing Operations.

(a) The operator shall continuously monitor all of the following parameters during hydraulic fracturing operations:

- (1) Surface injection pressure;
- (2) Slurry rate;
- (3) Proppant concentration;
- (4) Fluid rate; and
- (5) All annuli pressures.

(b) The operator shall terminate hydraulic fracturing operations and immediately report it to the Division if any of the following occur:

- (1) A production-surface casing annulus pressure change of 20% or greater than the calculated pressure increase due to pressure and/or temperature expansion;
- (2) Pressure exceeding 80% of the API rated minimum internal yield on any casing string in communication with the hydraulic fracturing treatment;
- (3) A post hydraulic fracturing fluid volume returns to surface that is in excess of a volume that could reasonably be expected due to pressure or temperature expansion;
- (4) The operator has reason to suspect any potential breach in the production casing, production casing cement, or isolation of any sources of protected water.

(c) If any of the events listed in subdivision (b) occur, then the operator shall perform diagnostic testing on the well to determine whether a breach has occurred. Such testing shall be done as soon as is reasonably practical. If the testing reveals that a breach has occurred then the operator shall immediately shut-in the well, isolate the perforated interval, and notify the Division.

(d) If the surface casing annulus is not open to atmospheric pressure, then the surface casing pressures shall be monitored with a gauge and pressure relief device. The maximum set pressure on the relief device shall be the lowest of the following and hydraulic fracturing operations shall be terminated if pressures in excess of the maximum set pressure are observed in the surface casing annulus:

- (1) A pressure equal to: 0.70 times 0.433 times the true vertical depth of the surface casing shoe (expressed in feet);
- (2) 70% of the API rated minimum internal yield for the surface casing; or
- (3) A pressure change that is 20% or greater than the calculated pressure increase due to pressure and/or temperature expansion.

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NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code.

1786. Storage and Handling of Hydraulic Fracturing Fluids.

(a) Operators shall adhere to the following requirements for the storage and handling of fluids associated with hydraulic fracturing being stored at the wellsite, including hydraulic fracturing chemicals in concentrated and mixed form and hydraulic fracture fluid flowback, but not including freshwater:

(1) Non-freshwater fluids associated with hydraulic fracturing operations shall be stored in compliance with the secondary containment requirements of Section 1773.1.

(2) Operators shall be in compliance with all applicable testing, inspection, and maintenance requirements for production facilities containing hydraulic fracturing fluids.

(3) Non-freshwater fluids associated with hydraulic fracturing operations shall be accounted for in the operator's Spill Contingency Plan;

(4) Non-freshwater fluids associated with hydraulic fracturing operations shall not be stored in unlined sumps or pits;

(5) In the event of an unauthorized release, the operator shall perform clean up and remediation of the area in compliance with all applicable federal, state, and local laws and regulations.

(6) Within 5 days of the occurrence of an unauthorized release, the operator shall provide the Division a written report that includes:

(A) A description of the activities leading up to the release;

(B) The type and volumes of fluid released;

(C) The cause(s) of release;

(D) Action taken to stop, control, and respond to the release; and

(E) Steps taken by the operator to prevent future releases.

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code.

1787. Well Monitoring After Hydraulic Fracturing.

(a) Operators shall monitor each producing well that has had hydraulic fracturing operations to identify any potential problems with a well that could endanger any underground source of protected water. If there is any indication of a well failure, the operator shall immediately notify the Division and perform diagnostic testing on the well to determine whether a well failure has actually occurred. If the testing indicates that a well failure has occurred, then the operator shall immediately take all appropriate measures to prevent contamination of all underground sources of protected water and all surface waters in the area of the well.

(b) Operators shall adhere to the following requirements for a well that has had hydraulic fracturing operations:

(1) The well shall be monitored on a daily basis for the first thirty days after hydraulic fracturing operations and on monthly basis thereafter for the following:

(A) The amount of gas, oil and water produced, including readily identifiable hydraulic fracture fluid flowback volume;

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- (B) The annular pressure of the well;
- (C) The tubing pressure of the well; and
- (D) The casing pressure of the well.

(2) Monitoring data shall be maintained for a period of at least 5 years after hydraulic fracturing operation and shall be made available to the Division upon request.

(3) The annular pressures of the well shall be reported to the Division annually. It shall be immediately reported to the Division if annular pressure exceeds 70 per cent of the API rated minimum internal yield or collapse strength of casing, or if surface casing pressures exceed a pressure equal to: 0.70 times 0.433 times the true vertical depth of the surface casing shoe (expressed in feet).

(4) The annular valve shall be kept accessible from the surface or left open and plumbed to the surface with working pressure gauge.

(5) A properly functioning pressure relief device shall be installed on the annulus between the surface casing and the production casing, or, if intermediate casing is set, on the annuli between the surface casing and the intermediate casing and the production casing. This requirement may be waived by the Division, if the operator demonstrates to the Division's satisfaction that the installation of a pressure relief device is unnecessary based on technical analysis and/or operating experience in the area.

(6) If a pressure relief device is installed, then all pressure releases from the device shall be reported to the Division within 24 hours of detection. The maximum set pressure of a surface casing pressure relief device shall be the lowest of the following:

- (A) A pressure equal to: 0.70 times 0.433 times the true vertical depth of the surface casing shoe (expressed in feet);
- (B) 70% of the API rated minimum internal yield for the surface casing; or
- (C) A pressure change that is 20% or greater than the calculated pressure increase due to pressure and/or temperature expansion

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code.

1788. Required Public Disclosures.

(a) Except as provided in subdivision (c), within 60 days after the cessation of hydraulic fracturing operations, the operator shall post to the Chemical Disclosure Registry all the following information that is not claimed as a trade secret pursuant to Section 1788.1:

- (1) The well operator's name.
- (2) The hydraulic fracturing date.
- (3) The county in which the well is located.
- (4) The well API number.
- (5) The well name and number.
- (6) The location of the well, submitted as a non-projected, Latitude Longitude, in the General Coordinate System (GCS) NAD83.
- (7) The true vertical depth of the well.
- (8) The name of the productive horizon to be hydraulically fractured;
- (9) A complete list of the names, CAS numbers, and maximum concentration, in percent by mass, of each chemical added to the hydraulic fracturing fluid. Where the

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CAS number does not exist for a chemical, the operator may provide another unique identifier where available.

(10) The trade name, supplier, and a brief description of the intended purpose of each additive contained in the hydraulic fracturing fluid.

(11) The total volume of carrier fluid used during hydraulic fracturing.

(12) The disposition of the carrier fluid used to conduct hydraulic fracturing.

(13) 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.

(14) The estimated volume of hydraulic fracture fluid flowback that has been recovered.

(b) If the Chemical Disclosure Registry is unable to accept and make publicly available any of the information specified in this section, then the operator shall submit the information to the Division.

(c) Operators are not required to post information to the Chemical Disclosure Registry if the information is found in a well record that the Division has determined is not public record, pursuant to Public Resources Code section 3234. If information listed in subsection (a) is not posted to the Chemical Disclosure Registry on this basis, then the operator shall inform the Division in writing, specifying the information that is not being publically disclosed. It is the operator's responsibility to post the information to the Chemical Disclosure Registry once the information becomes public record under Public Resources Code section 3234.

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Sections 3106, and 3234, Public Resources Code.

1788.1. Claims of Trade Secret Protection.

(a) Operators are not required to post trade secrets to the Chemical Disclosure Registry. An operator who, on the basis of a claim of trade secret protection, withholds information that is otherwise required to be posted to the Chemical Disclosure Registry shall submit the following to the Division within 60 days after the cessation of hydraulic fracturing operations:

(1) Identification of the information withheld as protected trade secret in a manner that does not itself disclose information subject to a claim of trade secret protection. If the withheld information includes the identity of a chemical, the identification shall include the chemical family or similar descriptor for the chemical.

(2) The name, mailing address, phone number of the contact person for the person or entity who holds the withheld information and is asserting the claim of trade secret protection.

(3) A declaration under penalty of perjury by the holder of the withheld information that affirms or otherwise addresses, and provides specific information regarding, the following:

(A) The information identified in paragraph (1) was withheld as protected trade secret information, as defined in Civil Code section 3426.1, subdivision (d), or Penal Code section 499c;

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(B) The holder of the withheld information has not disclosed it to another person, other than a member of a local emergency planning committee, an officer or employee of the United States or a state or local government, an employee of those entities, or a person who is bound by a confidentiality agreement, and that person has taken reasonable measures to protect the confidentiality of the information and intends to continue to take measures, or disclosure has otherwise been limited so that the information is not readily available to competitors;

(C) The information is not required to be disclosed, or otherwise made available, to the public under any other federal or state law;

(D) Disclosure of the information would harm the competitive position of the disclosing person or entity; and

(E) The information is not readily discoverable through reverse engineering.

(b) The holder of the withheld information shall ensure that the Division is informed of any changes to the information required in subsection (a)(2).

(c) Information withheld on the basis of a claim of trade secret protection shall be replaced by posting text to the Chemical Disclosure Registry indicating information has been withheld as trade secret information and, if the withheld information includes the identity of a chemical, providing the chemical family or similar descriptor associated with the trade secret constituent.

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code; Section 1060, Evidence Code; Section 3426.1, Civil Code; Section 499c, Penal Code.

1788.2. Use of Trade Secret Information.

(a) The holder of information withheld as trade secret pursuant to Section 1788.1 shall immediately provide the information to the Division, or to a public agency with lawful jurisdiction for either enforcement action or emergency response, upon receipt of written communication from the Division or other public agency stating that the information is necessary to investigate or respond to evidence of a spill or release of hydraulic fracturing fluid or material or evidence that hydraulic fracturing fluid or material has escaped the intended zone or zones of the hydraulic fracturing operations. The holder of information withheld as trade secret may request, and the Division or other public agency shall, as soon as circumstances permit, provide an agreement by the Division or other public agency to prevent the disclosure of trade secret information received pursuant to this section, to maintain the confidentiality of trade secret information, and to destroy all copies of the trade secret information received once the need for the information has ended.

(b) The holder of information withheld as trade secret pursuant to Section 1788.1 shall identify the specific identity and amount of any chemicals claimed to be a trade secret to any health professional who, in the scope of his or her professional duties, requests the information in writing, if the health professional executes a confidentiality agreement and provides a written statement of need for the information indicating all of the following:

(1) The information is needed for the purpose of diagnosis or treatment of an individual;

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(2) The individual being diagnosed or treated may have been exposed to a hazardous chemical; and

(3) Knowledge of the information will assist in the diagnosis or treatment of the individual.

(c) If a health professional determines that a medical emergency exists and the specific identity and amount of any chemicals claimed to be a trade secret pursuant to Section 1788.1 is necessary for emergency treatment, then the holder of information withheld as trade secret shall immediately disclose the information to the health professional upon a verbal acknowledgment by the health professional that the information may not be used for purposes other than the health needs asserted and that the health professional shall maintain the information as confidential. The holder of information withheld as trade secret may request, and the health professional shall provide upon request, a written statement of need and a confidentiality agreement from the health professional as soon as circumstances permit.

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code; Section 1060, Evidence Code; Section 3426.1, Civil Code; Section 499c, Penal Code.