



Rules of
Department of Natural Resources
Division 50—Oil and Gas Council
Chapter 2—Oil and Gas Drilling and Production

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**Title 10—DEPARTMENT OF
NATURAL RESOURCES
Division 50—Oil and Gas Council
Chapter 2—Oil and Gas Drilling
and Production**

10 CSR 50-2.010 Operator License

PURPOSE: This rule provides for the filing of information that identifies those responsible for oil and gas exploration, production, or related industry activities regulated by the council. The operator license is required in order to properly process bonding, well permitting, producing, plugging, and other council regulated activities and to make sure that the person making application is, in fact, authorized to represent a person, firm, or corporation.

(1) No person shall engage in oil or gas operations pursuant to Chapter 259, RSMo, and implementing regulations without first obtaining or renewing an operator license from the department. Each operator of a well or gas storage facility shall maintain a current operator license even if the well or storage facility is shut in or idle.

(2) Application for an operator license.

(A) An application for an operator license shall be submitted to the state geologist for approval. This application shall be submitted on a form provided by the department along with the fee required pursuant to 10 CSR 50-1.050 and shall be completed in full.

(B) The state geologist shall review the application for operator license and, within fifteen (15) business days, determine if the application is in proper form and if the requirements of Chapter 259, RSMo, and implementing regulations are met. If the application is incomplete or lacking required information, forms, or fees, the state geologist shall notify the applicant and suspend the application process. When the required form, information, or fee is submitted by the applicant and received by the state geologist, the fifteen (15) business day review period will begin anew. If the state geologist has not received the missing or incomplete required application information or fee within thirty (30) days after notification of the applicant, the application shall be considered null and void and the applicant must reapply by submitting a new application for an operator license along with the required fee.

1. If the state geologist finds that the application is in good form, that all requirements of the application have been met, and that Chapter 259, RSMo, and implementing regulations are being met, the state geologist

shall issue the operator license.

2. If the state geologist determines either that the application is not in proper form, that the applicant failed to submit the applicable fees, or that Chapter 259, RSMo, and implementing regulations are not being met, the state geologist shall deny the application.

3. If the state geologist determines that the applicant is in violation of any provision of Chapter 259, RSMo, or implementing regulations, the state geologist may deny the application.

4. If the state geologist has not taken action by the prescribed fifteen (15) business day review period, the application shall be considered denied.

(3) License Renewal.

(A) An operator license issued pursuant to this section shall expire on January 1 of the year immediately following issuance of the license. An operator may apply to renew the operator's license by submitting an application to the state geologist for approval. This application shall be submitted on a form provided by the department, along with the fee required pursuant to 10 CSR 50-1.050, on or before January 1 each year and shall be completed in full.

(B) A late fee pursuant to 10 CSR 50-1.050 shall be paid if the renewal is submitted within thirty (30) calendar days following the expiration date. If a license has been expired more than thirty (30) calendar days, the licensee must reapply by submitting a new application for an operator license along with the required fee.

(C) If the state geologist determines that the licensee is in violation of any provision of Chapter 259, RSMo, or implementing regulations, the state geologist may deny the operator license renewal.

(4) Suspension or revocation of operator license.

(A) The state geologist may issue an order to suspend or revoke an operator license if the state geologist determines that the licensee has violated any provision of Chapter 259, RSMo, or implementing regulations.

(B) The order of suspension or revocation shall state the reason(s) for suspension or revocation, the effective date of the suspension or revocation, and the conditions under which the suspension or revocation would be rescinded. The order shall be sent registered or certified mail to the licensee's last known address. The licensee may appeal the suspension or revocation as provided in 10 CSR 50-1.040(3).

(5) After any change occurs as to facts stated in the application as submitted and filed, except change of ownership, a supplementary application shall be filed with the state geologist with respect to the change within thirty (30) calendar days after the effective date of change.

(6) The operator of any open well shall comply with Chapter 259, RSMo, and implementing regulations. Any open well shall not be transferred from one (1) operator to another operator without approval of the state geologist. An operator (transferor) shall submit to the state geologist a request to transfer any open well(s) to a new operator (transferee). The request shall be submitted on a form provided by the department no less than thirty (30) calendar days prior to the planned transfer. Any such request may be denied if the state geologist determines that the operator has not submitted all the required information.

(A) The state geologist shall review the completed transfer request and, within fifteen (15) business days, approve or deny the request based upon the following conditions:

1. The transfer of the well(s) must be agreed upon by both the transferor and by the transferee;

2. The transferee must have a current operator license issued by the state geologist;

3. The transferee must have bonding as required in 10 CSR 50-2.020 in place prior to transfer;

4. The transferor shall provide a list of American Petroleum Institute (API) numbers for all open wells on the lease, spacing unit, production unit, or gas storage facility with the notice of transfer;

5. Transfers shall not be made to any person who has not complied with the provisions of 10 CSR 50-2.010;

6. The transferor may be required by the state geologist to conduct a mechanical integrity test as a condition of the transfer; and

7. Within ninety (90) days of any transfer, the transferee shall change the tank battery identification sign provided for in 10 CSR 50-2.065(1) to include the new operator information.

(B) If the form is incomplete or lacking required information, the state geologist shall notify the operator and suspend the review process. When the completed form or required information is submitted by the operator and received by the state geologist, the fifteen (15) business day review period will begin anew. If the state geologist has not received the missing or incomplete required information within thirty (30) days after notification of the operator, the request shall be



considered null and void and the operator must submit a new transfer request.

(C) If the state geologist has not taken action by the prescribed fifteen (15) business day review period, the transfer shall be considered denied.

AUTHORITY: section 259.070, RSMo Supp. 2015.* Original rule filed Oct. 11, 1966, effective Oct. 21, 1966. Amended: Filed Sept. 12, 1973, effective Sept. 22, 1973. Amended: Filed Sept. 10, 1979, effective Feb. 1, 1980. Amended: Filed Sept. 15, 2015, effective March 30, 2016.

*Original authority: 259.070, RSMo 1965, amended 1972, 1983, 1987, 1993, 1995, 2012, 2015.

10 CSR 50-2.020 Bonds

PURPOSE: Bonding is required of an operator before commencing oil or gas drilling or operations to insure compliance with the provisions of Chapter 259, RSMo, and the rules of the council, specifically with reference to the proper plugging for abandonment of a well(s).

(1) Prior to commencement of drilling or other operations, the operator commencing such drilling or operations shall make, or cause to be made, a good and sufficient bond for each well. The bond shall be payable to the state of Missouri, conditioned upon the performance of the duty to comply with all of the laws of the state and the rules and orders of the council. The bond shall be filed with the state geologist. This bond shall remain in full force and effect until a letter of release is issued by the state geologist or the bond is forfeited as provided in section (6) below. The state geologist shall issue the letter of release after plugging of the well, or after a new bond is filed by a successor and appropriate well transfer form submitted to the state geologist pursuant to 10 CSR 50-2.010(6).

(2) Bond Amounts. Required bond amounts shall be determined by the council and shall be no less than the following amounts:

MINIMUM SINGLE WELL BOND		
Depth of Well		
From	To	Amount
0'	500'	\$1,100
501'	1000'	\$2,200
1001'	2000'	\$3,300
2001'	5000'	\$4,400
5001'	_____	\$5,500
		plus \$2/foot beyond 5001 feet

Bonds for horizontal wells shall be based on the total measured length of the wellbore from the surface to the depth of the deepest producing horizon.

MINIMUM BLANKET WELL BOND
Depth of Well

From	To	Amount	Number of Open Wells/bond
0'	800'	\$22,000	40 wells
801'	1500'	\$25,000	10 wells

Wells greater than one thousand five hundred feet (1500') in depth must be bonded individually by a single well bond.

(A) A blanket bond amount may be increased by the single well bond amount (which varies depending on the depth of the well—see Minimum Single Well Bond table) for every unplugged well in excess of the maximum allowable unplugged wells per blanket bond as shown in the Minimum Blanket Well Bond table.

(B) Operators of all wells permitted prior to March 30, 2016, shall maintain existing bonding amounts for such wells until they are transferred pursuant to 10 CSR 50-2.010(6), deepened, plugged-back, or recompleted pursuant to 10 CSR 50-2.030, or plugged pursuant to 10 CSR 50-2.060(3).

(C) Operators of all wells permitted or transferred on or after March 30, 2016, shall comply with bonding amounts stipulated in the Minimum Single Well Bond table or the Minimum Blanket Well Bond table prior to permit issuance or transfer approval.

(3) Types of bonds. The state geologist may accept surety bonds, personal bonds secured by certificates of deposit, and personal bonds secured by irrevocable letters of credit. The bond shall be submitted on the appropriate form. When the bond is filed, the state geologist shall review the bond and if the bond is in proper form, the state geologist shall accept the bond with the conditions which may be required by the council or by rule. If the bond is determined to be insufficient or not in proper form, the state geologist shall notify the operator. No drilling or operation shall commence or continue unless there is a sufficient bond on file with the state geologist.

(A) Surety bonds shall be subject to the following conditions:

1. Only irrevocable surety bonds shall be accepted. No bond of a surety company shall be cancelled for any reason whatsoever, including, but not limited to, nonpayment of premium, bankruptcy, or insolvency of the

operator or issuance of notices of violations or cessation orders and assessment of penalties with respect to the operations covered by the bond, except that surety bond coverage for wells not drilled may be cancelled if the surety provides written notification and the state geologist is in agreement. The state geologist shall advise the surety, within thirty (30) days after receipt of a notice to cancel bond, whether the bond may be cancelled;

2. The surety shall be licensed to conduct a surety business in Missouri;

3. Both the surety and the operator shall be primarily liable for completion of any remedial actions, including, but not limited to, well plugging, with the surety's liability being limited to the amount of the bond;

4. The bond shall provide that—

A. The surety will give prompt notice to the operator and the state geologist of any change in name or address of the surety company, or any notice received or action filed alleging the insolvency or bankruptcy of the surety or alleging any violations of regulatory requirements which could result in suspension or revocation of the surety's license to do business; and

B. In the event the surety becomes unable to fulfill its obligation under the bond for any reason, notice shall be given immediately to the operator and the state geologist; and

5. The bond shall provide a mechanism for a surety company to give prompt notice to the state geologist and the operator of any change in name or address of the surety company, or any action filed alleging the insolvency or bankruptcy of the surety company, or the operator, or alleging any violations which would result in suspension or revocation of the surety license to do business. Upon the incapacity of a surety by reason of bankruptcy or insolvency, or suspension or revocation of its license, the operator shall be deemed to be without bond coverage in violation of section (1) and shall promptly notify the state geologist. The state geologist, upon notification of the surety's bankruptcy or insolvency, or suspension or revocation of its license, shall issue a notice of violation against any operator who is without bond coverage. The notice shall specify a thirty-(30-) day period to replace bond coverage. If the bond is not replaced in thirty (30) days, an order shall be issued by the state geologist requiring immediate cessation of operations. Operations shall not resume until the state geologist has determined that an acceptable bond had been posted.

(B) Personal bonds secured by certificates of deposit shall be subject to the following conditions:



1. The certificate(s) shall be in the amount of the bond or in an amount greater than the bond and shall be made payable to or assigned to the state of Missouri, both in writing and upon the records of the institution issuing the certificates, and shall be automatically renewable at the end of the term of the certificate. If assigned, institutions issuing the certificate(s) waive all rights of set off or liens against the certificate(s);

2. No single certificate of deposit shall exceed the sum of two hundred fifty thousand dollars (\$250,000) nor shall any permittee submit certificates of deposit aggregating more than two hundred fifty thousand dollars (\$250,000) or the maximum insurable amount as determined by the Federal Deposit Insurance Corporation from a single institution. The institution issuing the certificate of deposit must be insured by the Federal Deposit Insurance Corporation (FDIC);

3. Any interest on the certificates of deposit shall be made payable to the operator;

4. The certificate of deposit shall be kept until the bond is released by the state geologist;

5. The institution issuing the certificate(s) of deposit for bonding purposes shall give prompt notice to the state geologist and the operator of any change in name or address of the institution, and any insolvency or bankruptcy of the institution; and

6. The bond shall provide a mechanism for an institution to give prompt notice to the state geologist and the operator of any change in name or address of the institution, any action filed alleging the insolvency or bankruptcy of the institution or the operator, or alleging any violations which would result in suspension or revocation of the institution charter or license to do business. Upon the incapacity of any institution by reason of insolvency or bankruptcy, or suspension or revocation of its charter or license, the operator shall be deemed to be without bond coverage in violation of section (1). The state geologist, upon notification of the institution's bankruptcy or insolvency, or suspension or revocation of its charter or license, shall issue a notice of violation against any operator who is without bond coverage. The notice shall specify a thirty- (30-) day period to replace bond coverage. If the bond is not replaced in thirty (30) days, an order shall be issued by the state geologist requiring immediate cessation of operations. Operations shall not resume until the state geologist has determined that an acceptable bond has been posted.

(C) Personal bonds secured by letters of credit shall be subject to the following conditions:

1. The letter of credit shall be no less

than the face amount of the bond and shall be irrevocable. A letter of credit used as security shall be forfeited and shall be collected by the state geologist if not replaced by other suitable bond or letter of credit at least thirty (30) days before its expiration date;

2. The beneficiary of the letter of credit shall be the state of Missouri;

3. The letter of credit shall be issued by a bank authorized to do business in the United States. If the issuing bank is located in another state, a bank located in Missouri must confirm the letter of credit. Confirmations shall be irrevocable and on a form provided by the department;

4. The letter of credit shall be governed by Missouri law. The Uniform Customs and Practice for Documentary Credits, fixed by the International Chamber of Commerce, shall not apply;

5. The letter of credit shall provide that the state geologist may draw upon the credit by making a demand for payment, accompanied by his/her statement that the operator's bond has been declared forfeited;

6. The issuer of a letter of credit or confirmation shall warrant that the issuance will not constitute a violation of any statute or regulation which limits the amount of loans or other credits which can be extended to any single borrower or customer or which limits the aggregate amount of liabilities which the issuer may incur at any one (1) time from issuance of letters of credit and acceptances;

7. The bank issuing the letter(s) of credit for bonding purposes shall give prompt notice to the state geologist and the operator of any change in name or address of the institution, or any insolvency or bankruptcy of the bank; and

8. The bond shall provide a mechanism for a bank to give prompt notice to the state geologist and the operator of any change in name or address of the institution, any action filed alleging the insolvency or bankruptcy of the bank or the operator, or alleging any violations which would result in suspension or revocation of the bank's charter or license to do business. Upon the incapacity of any bank by reason of insolvency or bankruptcy, or suspension or revocation of its charter or license, the operator shall be deemed to be without bond coverage in violation of section (1). The state geologist, upon notification of the bank's bankruptcy or insolvency, or suspension or revocation of its charter or license, shall issue a notice of violation against any operator who is without bond coverage. The notice shall specify a thirty- (30-) day period to replace bond coverage. If the bond is not replaced in thirty (30) days, an order shall be issued by the state geologist requiring immediate

cessation of operations. Operations shall not resume until the state geologist has determined that an acceptable bond has been posted.

(4) Replacement of bonds. Operators may replace existing surety or personal bonds with other surety or personal bonds. Existing bonds will not be released until the operator has submitted and the state geologist has approved acceptable replacement bonds.

(5) Bond Release. Application for release of a bond shall be made by written notice to the state geologist who shall release the bond if the requirements of Chapter 259, RSMo, and implementing regulations have been met.

(6) Bond Forfeiture.

(A) If an operator fails to comply with an order of the state geologist, the state geologist shall issue an order declaring all applicable bonds to be forfeited.

(B) If a well is abandoned, plugged, or determined to have not been drilled, and the operator does not respond within six (6) months to reasonable attempts by the state geologist to contact that operator via information provided, the state geologist shall issue an order declaring the applicable bond forfeited.

(C) If the state geologist determines that the surety or issuer of a letter of credit or certificate of deposit desires to, and is capable of, completing remedial actions, including, but not limited to, well plugging, the state geologist, under additional terms and conditions as deemed necessary by the state geologist, may enter into an agreement with the surety or issuer of a letter of credit or certificate of deposit on a set schedule of compliance in lieu of collection of the forfeited bond. The remedial actions shall be in accordance with a compliance schedule that meets the conditions of the state geologist. The performer of remedial actions shall also demonstrate that they have the ability to satisfy the conditions. If the surety or issuer of a letter of credit or certificate of deposit fails to complete the remedial actions according to the schedule of compliance, the state geologist shall take action to collect the forfeited bond and any instruments securing the bond.

(D) The entry of an order declaring a bond forfeited shall automatically authorize the state geologist, with the assistance of the attorney general, if necessary, to take whatever actions are necessary to collect the forfeited bond and any instruments securing the bond. The forfeited bond shall be deposited into the Oil and Gas Remedial Fund and utilized according to 10 CSR 50-2.060(3)(F).



AUTHORITY: section 259.070, RSMo Supp. 2015. Original rule filed Oct. 11, 1966, effective Oct. 21, 1966. Amended: Filed Sept. 12, 1973, effective Sept. 22, 1973. Amended: Filed Sept. 10, 1979, effective Feb. 1, 1980. Amended: Filed Sept. 13, 1983, effective Dec. 11, 1983. Amended: Filed May 18, 1987, effective July 24, 1987. Amended: Filed Dec. 20, 1988, effective May 25, 1989. Amended: Filed Sept. 15, 2015, effective March 30, 2016.*

**Original authority: 259.070, RSMo 1965, amended 1972, 1983, 1987, 1993, 1995, 2012, 2015.*

10 CSR 50-2.030 Application for Permit to Drill, Deepen, Plug-Back, or Recomplete

PURPOSE: This rule provides for information needed for the permitting of drilling of new wells or reworking existing wells and establishes procedures for the determination of their locations (distances from unit lines, other producing wells, etc.), according to classifications of the well(s). It also establishes procedures to be followed by the state geologist in issuing or denying permits.

(1) Prior to commencement of operations, application for a permit to drill, deepen, plug-back, or recomplete any well shall be submitted to and approved by the state geologist. The required operator license and bond must be on file in the office of the state geologist or must accompany the application.

(2) The application for a permit to drill, deepen, plug-back, or recomplete shall be submitted on a form provided by the department along with the fee required pursuant to 10 CSR 50-1.050 and shall be completed in full.

(3) All applications shall be accompanied by a completed well location form and an accurate well location map.

(A) The location map shall show the following:

1. Approximate location of the well within the section or quarter section;
2. Approximate distance to the nearest existing or proposed well;
3. Approximate distance to the nearest perceived spacing unit line or production unit line;
4. Names and addresses of the owners of the property on which the well is located;
5. A north arrow and a scale; and
6. For a horizontal well, the proposed location of the wellbore's path and terminus.

(B) The proposed well location shall be provided using latitude and longitude based on the North American Datum of 1983 (NAD 83) and expressed in the decimal form to the

fifth place. Any well that is found to not meet the minimum location requirements upon completion may be ordered to be plugged by the state geologist.

(C) A drilling location may be moved up to fifty feet (50') from the approved location, if the new location does not violate spacing or setback requirements, without filing a revised permit application. Such changed location shall be noted on the well completion report.

(4) Seismic shot holes. Seismic operations shall not initiate new fractures or propagate existing fractures in the confining strata of underground sources of drinking water.

(5) An operator engaged in drilling wells to depths no greater than one thousand five hundred feet (1500') may request that the state geologist approve prospective well locations on a blanket basis. The fee required pursuant to 10 CSR 50-1.050(1)(C)3. shall be submitted with the request. Blanket requests must be associated with an established production unit. Bonding must be in place for all proposed wells in the blanket request. The request shall be accompanied by a plat of the entire production unit, indicating the unit boundaries, the location of, and identifying by number, all wells which have been drilled or are proposed, using appropriate symbols to distinguish between them; the plat shall conform to the scale and distance requirements specified in section (3) of this rule. In the event the state geologist approves the blanket requests, the approved locations may be drilled in the operator's order of preference, provided that a permit application and fee required pursuant to 10 CSR 50-1.050(1)(C)1. for each well commenced shall be sent to the state geologist within twenty-four (24) hours, or the next business day, after the commencement of drilling of each well.

(6) Upon application for a permit to drill, deepen, plug-back, or recomplete, the state geologist shall review the application and, within fifteen (15) business days, determine if the application is in proper form and if the requirements of Chapter 259, RSMo, and implementing regulations are met. If the application is incomplete or lacking required information, forms, or fees, the state geologist shall notify the operator and suspend the application process. When the required form, information, or fee is submitted by the operator and received by the state geologist, the fifteen (15) business day review period will begin anew. If the state geologist has not received the missing or incomplete required application information or fee within thirty

(30) days after notification of the operator, the application shall be considered null and void and the operator must reapply by submitting a new application for a permit to drill, deepen, plug-back, or recomplete, along with the required fee.

(A) If the state geologist finds that the application is in good form, that all requirements of the application have been met, and that Chapter 259, RSMo, and implementing regulations are being met, the state geologist shall issue the permit.

(B) If the state geologist determines either that the application is not in proper form, that the operator failed to submit the applicable fees, or that Chapter 259, RSMo, and implementing regulations are not being met, the state geologist shall deny the permit.

(C) If the state geologist finds that the drilling of a well at the proposed site would be an undue risk to the surface or subsurface environment, the state geologist shall deny the permit.

(D) If the state geologist determines that the operator is in violation of any provision of Chapter 259, RSMo, or implementing regulations, the state geologist may deny the permit.

(7) Permits for drilling wells are not in any way transferable; however, any open well or the authority to inject for existing wells may be transferred to another operator according to 10 CSR 50-2.010(6).

(8) Permits to drill, deepen, plug-back, or recomplete a single well are valid for one (1) calendar year after date of approval. If the operator opts not to drill the well, a notice to cancel well permit application shall be submitted to the state geologist no later than thirty (30) calendar days following the end of the one- (1-) year permitted period.

(9) Prior to any change or modification of a permit, or any change in the operation of a well subject to these regulations, the operator shall notify the state geologist, identifying the well name, location, the proposed change, and a full explanation of the nature of the change. An appropriately revised permit application or application for permit for well recompletion along with the fee required pursuant to 10 CSR 50-1.050 shall be submitted to the state geologist for approval, except as provided in subsection (3)(C). No modification or change in operation shall begin until the state geologist has reviewed and approved the revised application. The state geologist shall review and respond to the notification within fifteen (15) business days. The review period shall be suspended if additional information is necessary



to effectively review the application. When the required form or information is submitted by the operator and received by the state geologist, the fifteen (15) business day review period will begin anew.

(10) The well name and number entered on the permit application will be permanently assigned to the well and no changes will be approved to this information in the event of well or mineral interest transfers.

AUTHORITY: sections 259.060 and 259.140, RSMo 2000, and sections 259.070 and 259.080, RSMo Supp. 2015. Original rule filed Oct. 11, 1966, effective Oct. 21, 1966. Amended: Filed Sept. 12, 1973, effective Sept. 22, 1973. Amended: Filed Dec. 12, 1975, effective Dec. 22, 1975. Amended: Filed Sept. 12, 1978, effective Feb. 1, 1979. Amended: Filed Oct. 14, 1981, effective Feb. 11, 1982. Amended: Filed Dec. 15, 1986, effective April 11, 1987. Amended: Filed Sept. 15, 2006, effective April 30, 2007. Amended: Filed Sept. 15, 2015, effective March 30, 2016.*

**Original authority: 259.060, RSMo 1965, amended 1972; 259.070, RSMo 1965, amended 1972, 1983, 1987, 1993, 1995, 2012, 2015; 259.080, RSMo 1965, amended 1972, 2015; and 259.140, RSMo 1965.*

10 CSR 50-2.040 Drilling and Completion

PURPOSE: One of the important functions of the council is to prevent the contamination of the waters of the state. In Missouri, an underground source of drinking water may occur either above or below an oil and gas reservoir. This groundwater is commonly the only source of water for irrigation and animal and human consumption. This rule provides procedures for protecting all waters of the state and to create acceptable safety standards for wells and surface installations. Plugging of wells when they are abandoned is consistent with a statewide effort to prevent contamination of waters of the state and additionally is important in areas proven to be productive using enhanced recovery methods.

(1) During the drilling of any well, surface casing shall be set as follows, except as otherwise required or approved by the state geologist as indicated on the approved permit to drill, deepen, plug-back, or recomplete:

(A) Through all unconsolidated material plus twenty feet (20') into the underlying competent bedrock; or

(B) In areas where underground sources of drinking water are present above the production or injection zone(s), at a point at least

fifty feet (50') below the base of the deepest known underground source of drinking water penetrated.

(2) All casing materials shall be steel or other material of equal or greater strength approved by the state geologist and able to withstand collapse and burst pressures that the well might encounter.

(3) All wells drilled shall be completed with tubing, packer, and a string(s) of casing which shall be properly cemented at sufficient depths to protect all water, oil, or gas bearing strata and shall prevent their contents from passing into other strata. For wells drilled to producing strata at a depth of no greater than one thousand five hundred feet (1500'), an operator may set a single casing string with no tubing or packer, if the well is cemented from the bottom of the casing to the surface to seal off and protect any underground source of drinking water. The state geologist may approve other methods of cementing casing in a well.

(4) Cement shall be used in setting all casing or sealing off producing strata, underground porosity gas storage strata, or underground sources of drinking water. Cement shall be installed from the bottom to the top of the casing in one (1) continuous operation using pressure grouting techniques. The cement must be placed in a minimum one inch (1") annulus between strings of casing or the casing and borehole. The cement shall be maintained at surface level. Before the bottom plug is drilled or before tests are initiated, the surface casing shall stand cemented and further operations shall not begin until the cement has been in place for at least eight (8) hours and has reached a compressive strength of three hundred (300) pounds per square inch. These requirements may be modified by the state geologist.

(5) Multiple-completed wells. Operators may produce from more than one (1) pool through the same wellbore if separation of each pool is maintained and after application to, and approval by, the state geologist. Multiple-completed injection and production wells may be permitted if, in addition to the requirements above, all of the following conditions are met:

(A) Any offsetting production will not be adversely affected;

(B) Underground sources of drinking water will not be endangered;

(C) The well is continuously cemented across the injection and producing intervals; and

(D) The well demonstrates mechanical integrity.

(6) The state geologist may require specific casing and cementing requirements for injection wells based on the following:

(A) The depth of the underground source(s) of drinking water;

(B) The nature of the injected fluids; or

(C) The hydraulic relationship between the injection zone and the underground source(s) of drinking water.

(7) The following requirements shall apply to permitted injection wells:

(A) Each operator shall equip the wellhead with a pressure observation valve and maintain equipment necessary to obtain injection pressure measurements upon inspection by an authorized representative(s) of the state geologist. For injection wells completed prior to March 30, 2016, the pressure observation valve shall be added prior to testing for mechanical integrity, or upon request of the state geologist;

(B) The following tubing and packer requirements shall apply to permitted injection wells:

1. Each well permitted shall meet one (1) of the following requirements:

A. The well shall be equipped to inject through tubing below a packer;

B. A packer run on the tubing shall be set in casing opposite a cemented interval at a point immediately above the uppermost perforation or openhole interval. The annulus between the tubing and the casing shall be filled with a corrosion-inhibiting fluid or hydrocarbon liquid; or

C. A packerless or tubingless completion for injection wells drilled to no greater than one thousand five hundred feet (1500') is authorized under the provisions of paragraph (7)(B)2. or 3. of this regulation;

2. Injection through tubing without a packer is authorized if all of the following requirements are met:

A. The tubing shall be run to a depth not shallower than forty feet (40') above the uppermost perforation or open hole of the injection interval;

B. Each wellhead shall be equipped with a pressure observation valve on the tubing and the tubing-casing annulus; and

C. The operator of the tubingless completion shall maintain the well so that the mechanical integrity tests can be performed as specified in 10 CSR 50-2.055(12); and

3. Injection without tubing is authorized if all of the following requirements are continuously met during the life of the well:



A. The casing shall be cemented continuously from setting depth to surface;

B. Surface wellhead injection pressure shall be recorded monthly and kept by the operator for five (5) years;

C. All pressure readings recorded shall be taken during actual injection operations; and

D. The operator of the tubingless completion shall maintain the well so that the mechanical integrity tests can be performed as specified in 10 CSR 50-2.055(12).

(8) In existing wells to be converted to other use, including but not limited to injection, all additional casing or recompletion shall be constructed as specified in sections (1) through (7).

(9) Documentation. Legible documentation of the cementing operations across all strata shall be maintained by the operator and provided to the state geologist upon request. The documentation may consist of invoices, job logs, job descriptions, or other similar service company reports.

(10) All points at which a well is in physical contact with a pool shall meet all minimum distance requirements as specified in 10 CSR 50. For horizontal wells, a directional survey must be submitted with a well completion or recompletion report to verify points at which the well is in contact with the pool.

(11) Any well not constructed in compliance with requirements of this regulation shall be shut in, according to 10 CSR 50-2.060 until compliance is achieved.

(12) All stratigraphic test wells that are not converted to another type of well must be permanently plugged according to 10 CSR 50-2.060(3) within ninety (90) calendar days of the spud date. A single thirty (30) calendar day extension period may be granted upon written request to the state geologist. If conversion is to take place, permit modification must be submitted to the state geologist as detailed in 10 CSR 50-2.030(9) or 10 CSR 50-2.060(4) prior to conversion. The well will then be subject to all completion and location requirements for the type of well to which it is being converted.

(13) Permanent signage must be posted within ninety (90) calendar days of spud date at each well site indicating the well name, well number, and API number. Stratigraphic test wells and non-commercial gas wells are exempt from signage posting.

AUTHORITY: section 259.070, RSMo Supp. 2015. Original rule filed Oct. 11, 1966, effective Oct. 21, 1966. Amended: Filed Sept. 12, 1973, effective Sept. 22, 1973. Amended: Filed Oct. 14, 1981, effective Feb. 11, 1982. Amended: Filed Aug. 11, 1986, effective Oct. 27, 1986. Amended: Filed Sept. 16, 2015, effective March 30, 2016.*

**Original authority: 259.070, RSMo 1965, amended 1972, 1983, 1987, 1993, 1995, 2012, 2015.*

10 CSR 50-2.050 Samples, Logs, and Completion Reports

PURPOSE: The objective of exploration is to locate reserves of oil and gas. To achieve this objective, the geologic history and the relationships of petroleum generation, migration, and accumulation must be understood. Analyses of well cuttings and cores provide much information on the composition, age, and original environment of deposition of the sediments and on fluid content and characteristics. Logging tools lowered into boreholes provide information concerning the electrical, acoustical, and radioactive properties of rock-fluid systems throughout drilled intervals. This rule provides for filing of these data with the state geologist for the future use of industry and government scientists and is of paramount importance in achieving new energy resources and for protection of the environment.

(1) Each operator drilling or recompleting wells for the purpose of the exploration or production of oil or gas, excluding seismic shot holes, shall preserve and retain samples or drill cuttings, cores, and all other information as required under sections (2) and (3).

(2) Samples.

(A) The operator shall be given notice that samples or cores are required by a notice appended to or on a copy of the permit to drill, deepen, plug-back, or recomplete returned to the operator by the state geologist. All samples or drill cuttings saved in drilling or recompletion operations, and any cores taken, shall be retained by the operator for one hundred eighty (180) days after the spud date of the well.

(B) Sample cuttings shall be taken at five foot (5') intervals from the surface to total depth in all wells drilled under these regulations.

(C) During the drilling, or immediately following the completion, of any well drilled as provided in this rule, the operator shall advise the state geologist of all intervals that

are to be cored, or have been cored, and, if requested, shall forward the core to the state geologist at the operator's expense. In the event that it is necessary for the operator to utilize all or any portion of the core to the extent that sufficiently large and representative samples are not available for the state, the operator shall provide the state geologist with the results of identification or testing procedures.

(D) Each sample shall be identified as to well name, location, and depth of sample. Upon request of the state geologist, all cores or core longitudinal sections not required by the operator for well evaluation purposes shall be placed in stratigraphic sequence in adequate boxes, labeled with the well name, location, and footage, and delivered to the state geologist. All samples shall be shipped at the operator's expense to the office of the state geologist and shall be for study and use.

(E) Delivery of the processed samples or cores shall be made within one hundred twenty (120) days of the spud date or date of commencement of recompletion of the well.

(F) If retention of the core is requested by the operator, designated state geologist staff members shall be provided unrestricted access to the core at the operator's facility during the operator's normal business hours. This access shall be subject to any confidentiality requests made under 10 CSR 50-1.020.

(G) Operators in physical possession of cores requested by the state geologist shall not dispose of the cores without permission of the state geologist.

(H) If the state geologist requests samples from portions of the hole that typically are not saved in drilling operations, the operator shall provide these samples.

(I) The state geologist may waive the requirements of sampling if the state geologist determines additional geologic information is not required. The state geologist will advise the operator on the returned copy of the approved permit to drill, deepen, plug-back, or recomplete when samples will not be required.

(3) Well completion or recompletion report.

(A) Within one hundred twenty (120) calendar days after the spud date or commencement of recompletion of a well drilled under these regulations, the operator shall submit a well completion or recompletion report on a form provided by the department. Stratigraphic test wells that have not been converted are exempt from this requirement.

(B) For good cause shown, an extension of sixty (60) days may be granted by the state geologist. The request for extension shall be



submitted in writing and received before the expiration of the one hundred twenty- (120-) day period.

(C) If requested by the state geologist, the operator shall include with the report complete logs or records of the well, including, but not limited to, drilling time logs, electric logs, radioactive logs, or other logs that may have been obtained during mechanical integrity testing.

AUTHORITY: section 259.070, RSMo Supp. 2015. Original rule filed Oct. II, 1966, effective Oct. 21, 1966. Amended: Filed Sept. 12, 1973, effective Sept. 22, 1973. Amended: Filed Oct. 14, 1981, effective Feb. II, 1982. Amended: Filed Sept. 15, 2015, effective March 30, 2016.*

**Original authority: 259.070, RSMo 1965, amended 1972, 1983, 1987, 1993, 1995, 2012, 2015.*

10 CSR 50-2.055 Injection Wells, Mechanical Integrity Testing, and Well Stimulation Treatment

PURPOSE: This rule provides for information needed for the permitting of injection activities and establishes procedures to be followed by the state geologist in issuing or denying permits. It also establishes procedures for determining injection pressures, demonstrating mechanical integrity, and taking corrective action at deficient wells. The rule further provides for notification of well stimulation treatment projects and submittal of documentation related to such treatment.

(1) Prior to commencement of injection operations, the following conditions shall be met:

(A) Application for a permit to inject along with the fee required pursuant to 10 CSR 50-1.050 has been submitted to the state geologist on forms provided by the department;

(B) The required operator license, bond, and approved completion or recompletion report are on file in the office of the state geologist; and

(C) The state geologist has approved and issued a permit to inject granting the application.

(2) Each injection well found to be operating without a permit issued by the state geologist shall be shut in, according to 10 CSR 50-2.060 until compliance is achieved.

(3) Each application for permit to inject shall be submitted on a form provided by the department, along with the fee required pursuant to 10 CSR 50-1.050, shall be completed in full, and be accompanied by—

(A) A map that shows the area of review

for the proposed injection well and all area of review wells of public record, within a one-half- (½-) mile radius of the injection well, that penetrate the injection interval. Descriptions of all wells that penetrate the injection interval in the area of review shall be included on a form provided by the department. Each well in the area of review shall be uniquely marked or numbered;

(B) An electric log run to the surface or a log showing lithology or porosity of geologic strata encountered in the injection well, including an elevation reference. If such a log is unavailable, an electric log to surface or a log showing lithology or porosity of geological strata encountered in wells located within a one- (1-) mile radius of the subject well;

(C) A description of the fluid to be injected, the source of injected fluid, and compatibility of injected fluid with that of the receiving stratum, including total dissolved solid comparisons;

(D) An affidavit that notice has been provided in accordance with 10 CSR 50-2.055(4); and

(E) Information showing that injection into the proposed injection zone will be contained within the injection zone and will not initiate fractures through the overlying or underlying strata that could enable the fluid or formation fluid to enter underground sources of drinking water. This information may include the name, description, and depth of overlying and underlying confining strata for the injection zone. Fracture gradients shall be computed and provided to the state geologist by the applicant.

(4) Notice. The injection permit applicant shall provide notice utilizing the following procedure:

(A) The applicant shall notify each of the following parties whose acreage lies partially or fully within a one-half- (½-) mile radius of the project boundaries, by mailing or delivering a copy of the application and notice of intent on or before the date of publication described in subsection (4)(B):

1. Each operator or lessee of record;

2. Each owner of record of the mineral rights of unleased acreage; and

3. Each landowner within the project boundaries;

(B) The applicant shall publish at least one (1) notice of intent to operate an injection well in a newspaper of general circulation in the county in which the proposed injection well(s) is located. The notice shall include the following:

1. Name and address of applicant;

2. Location of well(s);

3. Geologic name of proposed injection

strata and approximate depth of injection zone;

4. Proposed maximum injection rate and pressure;

5. Description of the need for the injection well(s);

6. Approximate maximum number of injection wells that ultimately will be utilized in the project; and

7. Address of the office of the state geologist, where comments may be sent or additional information may be obtained;

(C) The applicant shall provide an affidavit of notice to include a copy of the newspaper publication and a list of parties notified according to subsection (4)(A); and

(D) A fifteen (15) calendar day written comment period shall begin on the date of publication. A record shall be kept by the state geologist of all written comments received and the responses to these comments. If within this comment period the state geologist determines that a significant degree of public interest is expressed, or other factors indicate the need for a public hearing, the state geologist may order a hearing. Public notice of the hearing will be provided in a newspaper of general circulation in the county where the proposed injection well is located with a hearing date set for no sooner than thirty (30) calendar days after the date of notice. If no public hearing is ordered, the state geologist will process the application after the end of the fifteen (15) calendar day comment period and upon receipt of an affidavit of newspaper publication.

(5) Modifications.

(A) Modifications to the type or construction of the injection well including, but not limited to, an increase in injection rate or pressure or an additional perforation or injection zone, neither of which is expressly authorized by the existing permit, shall require an application for a permit to inject to be filed along with the fee required pursuant to 10 CSR 50-1.050, except as specified in subsection (5)(B) below.

(B) An operator shall not be required to file an application to modify any injection well permit but shall file with the state geologist a notice of permit modification on a form provided by the department when the operator seeks to add or delete additional sources of the fluid disposed into the well but will not exceed the maximum authorized injection rate and pressure.

(C) Each application for any modifications to the injection permit, including increasing pressure or rate and changing or adding injection strata, shall require the notice specified in section (4) of this regulation.



(6) Upon application for a permit to inject, the state geologist shall review the application and, within fifteen (15) business days, determine if the application is in proper form and if the requirements of Chapter 259, RSMo, and implementing regulations are met. If the application is incomplete or lacking required information, forms, or fees, the state geologist shall notify the operator and suspend the application process. When the required form, information, or fee is submitted by the operator and received by the state geologist, the fifteen (15) business day permit period will begin anew. If the state geologist has not received the missing or incomplete required application information or fee within thirty (30) days after notification of the operator, the application shall be considered null and void and the operator must reapply by submitting a new application for a permit to inject, along with the required fee.

(A) If the state geologist finds that the application is in good form, that all requirements of the application have been met, and that Chapter 259, RSMo, and implementing regulations are being met, the state geologist shall issue the permit.

(B) If the state geologist determines either that the application is not in proper form, that the operator failed to submit the applicable fees, or that Chapter 259, RSMo, and implementing regulations are not being met, the state geologist shall deny the permit.

(C) If the state geologist finds that injection at the proposed site would be an undue risk to the surface or subsurface environment, the state geologist shall deny the permit.

(D) If the state geologist determines that the operator is in violation of any provision of Chapter 259, RSMo, or implementing regulations, the state geologist may deny the permit.

(7) The state geologist may grant emergency authority to inject or dispose of fluids at an alternate location, if a facility is shut in for maintenance, testing, repairs, or by order of the state geologist or the council.

(8) A permit to inject shall not be transferred from one operator to another operator without approval of the state geologist. The operator (transferor) may submit to the state geologist a request to transfer any permit to inject to a new operator (transferee). The request shall be submitted on a form provided by the department no less than thirty (30) calendar days prior to the planned transfer. Any such request may be denied if the state geologist determines that the operator has not submitted all the required information. The transfer

of a permit to inject shall follow the transfer procedures prescribed in 10 CSR 50-2.010(6)(A) through (C).

(9) For all injection well applications that require wellhead pressure to inject fluids, the operator shall inject the fluids through tubing under a packer set immediately above the uppermost perforation or openhole zone, except as specified in 10 CSR 50-2.040(7).

(10) Injection pressures. A maximum injection pressure for injection wells shall be established by the state geologist so that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the confining strata. The injection pressure also should not cause the injected fluid to migrate into an underground source of drinking water.

(A) The injection pressure determinations should be based on one (1) of the following methods:

1. For injection of liquids, the state geologist shall approve injection pressures at 0.75 psig/foot based upon the depth to the midpoint of the perforations in the injection zone; or

2. For injection of steam or other gases, the state geologist shall approve injection pressures at 3.0 psig/foot based upon the depth to the midpoint of the perforations in the injection zone; or

3. The operator may submit pump pressure data that details the ability of the injection zone to tolerate the requested pressure; or

4. The operator may submit step-rate test data that details the ability of the injection zone to tolerate the requested pressure; or

5. The operator may submit historical injection pressures and/or other data deemed appropriate by the state geologist to demonstrate an appropriate injection pressure for approval by the state geologist.

(B) At least one (1) test must be performed within one thousand three hundred twenty feet (1320') of the proposed injection well, or as otherwise deemed appropriate by the state geologist. The data must be submitted in the format required by the state geologist.

(C) Following approval by the state geologist of an initial maximum injection pressure, the well used to obtain the data in paragraph (10)(A)3. or 4. above may be used as a reference well. Additional injection wells within one thousand three hundred twenty feet (1320') of the reference well may be approved at the same maximum injection pressure.

(D) The established maximum injection

pressure shall not be exceeded. Exceedance of the maximum injection pressure may result in additional compliance monitoring as required by the state geologist. Modifications to increase a maximum injection pressure for injection wells shall be made according to section (5) above.

(11) Following receipt of an approved permit to inject, the operator shall notify the state geologist regarding injection operations as follows:

(A) Immediately upon the commencement of injection operations, the applicant shall notify the state geologist of the date of commencement; and

(B) After permanent discontinuance of injection operations, the operator shall follow the provisions of 10 CSR 50-2.060 and shall notify the state geologist, within ninety (90) calendar days, of the date of the discontinuance and the reasons for discontinuance.

(12) Mechanical integrity. All new or newly converted injection wells shall be required to demonstrate mechanical integrity and meet the requirements of 10 CSR 50-2.090 and 10 CSR 50-2.100 before operation may begin. All injection wells not permanently plugged must demonstrate mechanical integrity at least once every five (5) years.

(A) Demonstration of mechanical integrity shall utilize at least one (1) of the following procedures:

1. Pressure test. The annulus above the packer, or the injection casing in wells not equipped with a packer, shall be pressure tested. The date for this test shall be mutually agreed upon by the operator's representative and a representative of the state geologist, with a minimum of five (5) business days' notice prior to the test. Test results shall be verified by the operator's representative. The test shall be conducted in the following manner:

A. For newly completed or newly converted wells, the casing may be tested before perforating. A fluid pressure of one hundred ten percent (110%) of the approved pressure shall be applied, but shall be no less than three hundred (300) psig. A well demonstrates mechanical integrity if, when pressurized, it does not lose more than ten percent (10%) of the tested pressure over a period of thirty (30) minutes;

B. Wells constructed with tubing and a packer shall be pressure tested with the packer in place. A fluid pressure of one hundred ten percent (110%) of the approved pressure shall be applied, but shall be no less than three hundred (300) psig. A well demonstrates mechanical integrity if, when pressurized, it



does not lose more than ten percent (10%) of the tested pressure over a period of thirty (30) minutes;

C. For wells constructed with tubing and no packer, a retrievable plug or packer shall be set immediately above the uppermost perforation or openhole zone. A fluid pressure of one hundred ten percent (110%) of the approved pressure shall be applied, but shall be no less than three hundred (300) psig. A well demonstrates mechanical integrity if, when pressurized, it does not lose more than ten percent (10%) of the tested pressure over a period of thirty (30) minutes; and

D. For wells constructed with tubing and no packer, a method of pressure testing known as fluid depression may be conducted with prior approval and under guidelines established by the state geologist. The fluid in the well shall be depressed with gas pressure to a point in the wellbore immediately above the perforations or openhole interval. The minimum calculated pressure required to depress the fluid in the wellbore shall be no less than fifty (50) psig. A well demonstrates mechanical integrity if, when pressurized, it does not lose more than ten percent (10%) of the tested pressure over a period of thirty (30) minutes;

2. Alternative tests. Alternative test methods approved by the state geologist including, but not limited to, temperature surveys, tracer surveys, or noise logs, may be used to demonstrate mechanical integrity if conditions are appropriate. The date for this test shall be mutually agreed upon by the operator's representative and a representative of the state geologist, with notice provided a minimum of five (5) business days prior to the test. Test results shall be verified by the operator's representative and shall be interpreted as specified in state geologist-approved procedures;

(B) Monitoring. Following an initial test in accordance with subsection (12)(A) above, once a month, the operator shall monitor and record, during actual injection, the pressure or fluid level in the annulus and any other information deemed necessary by the state geologist. An annual report of information logged shall be submitted to the state geologist in accordance with 10 CSR 50-2.080.

(C) The operator shall notify the office of the state geologist at least five (5) business days prior to commencing a mechanical integrity test. Results of this test must be reported on the appropriate form to the state geologist within thirty (30) calendar days of completion of the test. The state geologist shall inform the operator of a satisfactory or unsatisfactory demonstration of mechanical

integrity within fifteen (15) business days.

(13) If a well cannot demonstrate mechanical integrity, or if other conditions develop that threaten or could threaten the quality of surface or groundwater, the operator shall cease operation of the well, shall notify the state geologist within twenty-four (24) hours with details as to the nature of the problem, and shall propose a corrective action plan in writing within five (5) business days. The operator shall have no more than sixty (60) calendar days from the date of initial failure in which to perform one (1) of the following:

- (A) Repair and retest the well to demonstrate mechanical integrity; or
- (B) Plug the well.

(14) Following corrective action required by section (13), the state geologist may require additional testing or monitoring. If the state geologist has approved the use of any chemical sealant or other mechanical device to isolate the leak before use, then the following requirements apply:

- (A) Injection pressure into the well shall not exceed the maximum mechanical integrity test pressure; and
- (B) The well shall demonstrate mechanical integrity on an annual basis for the duration the well is completed in this manner.

(15) The state geologist or an authorized representative shall have the authority to sample injected fluids at any time during injection operations.

(16) Well stimulation treatment projects. At least five (5) business days prior to commencement of a well stimulation treatment project, the operator is required to notify the state geologist in writing the nature of the project. Within thirty (30) calendar days after completion of a well stimulation treatment project, the operator shall submit copies of the well stimulation treatment tickets from the company performing such treatment, including documentation of the materials injected.

(17) All injection wells in operation prior to March 30, 2016, shall comply with these injection permitting requirements no later than April 1, 2017. All wells permitted on or after March 30, 2016, shall comply with requirements in this rule prior to permit issuance.

AUTHORITY: sections 259.060 and 259.140, RSMo 2000, and sections 259.070 and 259.080, RSMo Supp. 2015. Original rule filed Sept. 15, 2015, effective March 30, 2016.*

**Original authority: 259.060, RSMo 1965, amended 1972; 259.070, RSMo 1965, amended 1972, 1983, 1987, 1993, 1995, 2012, 2015; 259.080, RSMo 1965, amended 1972, 2015; and 259.140, RSMo 1965.*

10 CSR 50-2.060 Shut-in Wells, Plugging, and Conversion to Water Well

PURPOSE: This rule provides for the protection of both surface water and groundwater. Drilling muds, oil, and water recovered from drilling or testing operations must be disposed of so that pollution of surface soil, ponds, and streams is avoided. Underground sources of drinking water strata are protected by casing set below the deepest strata penetrated that might contain underground sources of drinking water. Dry holes must be plugged in a manner that subsurface salt water or mineralized water will be confined to the stratum in which it occurs. Similarly, each oil or gas stratum penetrated by a well must be permanently sealed when abandoned to prevent contamination of underground sources of drinking water and also to prevent damage by water of any oil or gas stratum capable of producing in paying quantities. In certain logging procedures, a radioactive source (in a probe or sonde) is lowered into the borehole to provide certain subsurface data useful in exploration for oil and gas. Should this radioactive source contained in a logging tool be lost in the hole, certain procedures are prescribed to prevent the accidental or intentional mechanical disintegration of the radioactive source. Further, there are provisions for marking the well site permanently as a warning that a radioactive source has been abandoned in the well.

(1) Shut-in wells.

(A) Shut-in status. A well shall be considered shut in whenever it has not been operated for ninety (90) calendar days or more. The shut-in status shall not exceed ninety (90) calendar days. Prior to the expiration of the ninety (90) calendar days shut-in status, the operator of that well shall perform one (1) of the following:

1. Return the well to operation and notify the state geologist on the monthly well status report per 10 CSR 50-2.080(2); or
2. Plug the well; or
3. Petition the state geologist for an extension and propose an end date for the shut-in status.

(B) Approval of shut-in status extensions.

1. No well shall have its shut-in status extended as described in subsection (1)(A) unless first approved by the state geologist. Extension to the shut-in status shall not exceed one (1) year. If the operation of any



shut-in well is not resumed within one (1) year after the extension has been approved, the well shall be deemed an abandoned well, and the operator shall plug the well per these rules. Upon application to the state geologist before the expiration of the one (1) year period, and for good cause shown, the period may be extended by the state geologist for one (1) year upon compliance with the provisions of paragraph (1)(B)2. of this section. Additional one- (1-) year extensions may be granted by the state geologist. The total time of such consecutive extensions shall not exceed ten (10) years.

2. Any well in continuous shut-in status must demonstrate mechanical integrity at least once every five (5) years pursuant to procedures in 10 CSR 50-2.055.

(C) Right of denial. Any shut-in well shall be subject to inspection by the state geologist to determine whether its shut-in status could cause contamination of underground sources of drinking water. If necessary, extensions of shut-in status for a well may be denied by the state geologist, and the well may be required to be plugged, repaired, or demonstrate mechanical integrity according to the direction of the state geologist and in accordance with these regulations.

(D) Plugging of shut-in wells. If the well is not returned to service or properly plugged pursuant to these rules before the end of the shut-in status, the well will be considered abandoned and shall be plugged within thirty (30) calendar days. After the thirty- (30-) day period, if the well has not been plugged pursuant to these rules, the bond in place for the well shall be forfeited and deposited into the Oil and Gas Remedial Fund according to 10 CSR 50-2.020(6) and utilized according to 10 CSR 50-2.060(3)(F).

(2) Shut-off test. Whenever it appears to the state geologist that any water from any well is migrating or infiltrating into oil-bearing or gas-bearing strata or that any detrimental substances are infiltrating any underground sources of drinking water, the state geologist may require a shut-off test, to be conducted at the expense of the operator of that well. The time and procedure for the taking of the test shall be fixed by the state geologist. Reasonable notice of the test shall be given to the owner or operator. The owner or operator of any abandoned oil or gas well from which water is migrating or infiltrating into any oil-bearing or gas-bearing strata, or from which any detrimental substances are infiltrating any underground sources of drinking water, shall immediately plug or repair the well in accordance with section (3) below and shall prevent the infiltration of oil, gas, produced water, or

other detrimental substances into underground sources of drinking water strata.

(3) Plugging Requirements.

(A) Abandoned Wells.

1. An abandoned well shall be plugged or addressed as directed by the state geologist as provided in these rules. Plugging an abandoned well shall include the removal of any rig, derrick, or other operating structure, and all abutments and appurtenances used in the operation of such well, from the land upon which the well was operated, and shall include grading the surface of the soil in such manner as to leave the land, as nearly as practicable, in the same condition after the removal of such structures, equipment, and appurtenances as it was before such structures and abutments were placed thereon, unless the owner of the land and the plugging party have entered into an agreement providing otherwise.

2. When the state geologist investigates and determines that a well has been abandoned, as provided in these rules, the state geologist may issue an order directing the operator, owner, or any person who without authorization tampers with or removes surface equipment or downhole equipment from the abandoned well to plug the well as directed by the state geologist. If the person to whom the order is issued fails to comply with any such order that has become final under 10 CSR 50-1.040, the person to whom the order is issued shall be deemed to have abandoned any and all property interests in the well and any rig, derrick, or other operating structure, and all abutments and appurtenances.

3. In addition to any other remedy provided in Chapter 259, RSMo, or implementing regulations, if the state geologist determines that a well has been abandoned, the department or the council may request that the attorney general institute a civil proceeding to request appropriate injunctive relief, civil penalties, or other appropriate remedy, as provided in sections 259.200 and 259.210, RSMo.

4. If the state geologist determines that a well has been abandoned, the department in accordance with section 259.070.5(7), RSMo, may plug such well, or cause it to be plugged as to prevent contamination or danger of contamination of any waters of the state or loss of underground sources of drinking water, and may remediate contamination from the well. Plugging or remediation may include the collection, removal, salvage, and disposition of abandoned operating structures or other equipment. The cost of the plugging or remediation shall be paid by the Oil and

Gas Remedial Fund, as provided in section 259.190, RSMo.

(B) Notice.

1. Before plugging any well the operator shall file with the state geologist a notice of intent to plug on a form provided by the department. The notice shall include the details of the proposed plugging procedure and description of any logging tool containing a radioactive source being abandoned (see subsection (E) of this section for radioactive source abandonment procedure). The proposed plugging procedure shall be approved by the state geologist prior to commencement of plugging activities.

2. The operator shall notify the state geologist no later than five (5) business days before the plugging.

3. Exceptions.

A. If necessary to avoid rig downtime, oral permission to plug dry holes may be obtained by informing the state geologist of proposed plugging procedures, in which case a notice of intent to plug form must be submitted within three (3) business days of plugging.

B. In lieu of prior notice and approval by the state geologist as detailed in paragraph (3)(B)1. of this rule, the operator may elect to plug a well from total depth to the surface with cement slurry, being no less than fifteen (15) pounds per gallon density.

C. If an emergency situation exists, the operator shall orally notify and present the plugging proposal to the state geologist for approval.

(C) Plugging methods.

1. Before any well is considered plugged, all oil, gas, and water shall be permanently confined in the separate strata originally containing them.

2. Wells shall be plugged by emplacing cement from twenty-five feet (25') below the bottom of the stratum to a point no less than twenty-five feet (25') above the top of the stratum that contains oil or gas, or from which oil or gas has been produced, or that has been used for injection.

3. Casing in plugged wells, including horizontal wells, shall be cut off at least three feet (3') below ground surface at the well-head.

4. Horizontal wells. Each horizontal well shall be filled with a cement plug from total depth of the deepest producing horizon to the surface.

5. Stratigraphic test wells. Each stratigraphic test well shall be filled with a cement plug from total depth to within three feet (3') of the surface. All stratigraphic test wells shall be plugged after being used as soon as is reasonably practicable. However, such



wells shall not remain unplugged for a period of more than thirty (30) calendar days after the drilling of the well.

6. Seismic shot holes. All seismic shot holes shall be plugged upon completion of the shooting. Such holes shall not remain unplugged for a period of more than thirty (30) calendar days after the drilling of the hole.

7. If circulation is lost in the drilling of any hole and circulation cannot be regained, a cement plug shall be placed above the zone of lost circulation to the surface.

8. Alternative plugging methods may be authorized by the state geologist when geologic conditions or conditions in the casing or wellbore warrant.

(D) Reporting. The operator shall submit a plugging record along with the fee required pursuant to 10 CSR 50-1.050 to the state geologist within thirty (30) calendar days after completion of plugging activities. The report shall be made on the form provided by the department and shall be completed in full.

(E) Radioactive source.

1. If a radioactive source has been lost and cannot be retrieved from a hole, the person, firm, or corporation proposing the abandonment shall notify the state geologist. Wells in which radioactive sources are being abandoned shall be mechanically equipped so as to prevent the accidental or intentional mechanical disintegration of the radioactive source.

A. Sources being abandoned in a well shall be covered with no less than a fifty feet (50') standard-red-dyed cement plug on top of which a whipstock shall be set. The dye is to alert the re-entry operator prior to encountering the source.

B. In wells where a radioactive logging source has been cemented in place behind a casing string and above total depth, upon abandonment a standard-red-dyed cement plug should be placed opposite the abandoned source and extend fifty feet (50') above and fifty feet (50') below with a whipstock placed on top of the plug.

C. If the operator finds after expending a reasonable effort it is not possible to abandon the source as prescribed in subparagraph (3)(E)1.A. or B. of this rule, the operator shall seek the state geologist's approval to cease efforts in this direction and obtain approval for an alternate abandonment procedure.

2. Upon permanent plugging of any well in which a radioactive source is abandoned, and after removal of the wellhead, a permanent plaque is to be attached to the top of the casing left in the hole in a manner that re-entry cannot be accomplished without dis-

turbing the plaque. This plaque would serve as a visual warning to any person re-entering the hole that a radioactive source has been abandoned in place in the well. The plaque should contain the trefoil radiation symbol with a radioactive warning and should be constructed of a long-lasting material such as monel, stainless steel, or brass.

(F) Monies deposited in the Oil and Gas Remedial Fund may be used by the department to plug those oil, gas, and injection wells that have been abandoned and have not been plugged according to these rules, subject to the following guidelines:

1. Wells covered by a forfeited bond shall receive first priority; and

2. Other wells shall receive secondary priority on the basis of their potential for groundwater contamination or other damage in the order recommended by the state geologist.

(4) Conversion to domestic water supply well. A well conversion agreement form must be submitted for conversion of a well under these regulations to a domestic water supply well and must be submitted within thirty (30) calendar days after conversion of the well. The well must have been reconstructed, or, for a stratigraphic test well, must have been constructed, as a water well by a Missouri permitted water well installation contractor and must meet minimum water well construction standards as set forth in the Water Well Drillers' Act, Chapter 256, RSMo, and the implementing Missouri Well Construction rules 10 CSR 23. A well registration or certification, as appropriate, per those rules shall be approved before the state geologist will approve the conversion agreement and release the applicable bond.

AUTHORITY: sections 259.070 and 259.190, RSMo Supp. 2015. Original rule filed Oct. 11, 1966, effective Oct. 21, 1966. Amended: Filed Sept. 12, 1973, effective Sept. 22, 1973. Amended: Filed Dec. 12, 1975, effective Dec. 22, 1975. Amended: Filed Sept. 10, 1979, effective Feb. 11, 1980. Amended: Filed Oct. 14, 1981, effective Feb. 1, 1982. Amended: Filed Sept. 13, 1983, effective Dec. 11, 1983. Amended: Filed Sept. 15, 2015, effective March 30, 2016.*

**Original authority: 259.070, RSMo 1965, amended 1972, 1983, 1987, 1993, 1995, 2012, 2015 and 259.190, RSMo 1965, amended 1983, 2015.*

10 CSR 50-2.065 Operations

PURPOSE: This rule provides for procedures or requirements for activities as part of oil

and gas production operations. General operations include hydrocarbon storage, metering of produced gas, and spill response.

(1) Tank identification. All oil tanks, tank batteries, tanks used for produced water collection or disposal, and tanks used for oil-sediment treatment or storage shall be identified by a sign posted on, or not more than fifty feet (50') from, the tank or tank battery. The sign shall be of durable construction and shall be large enough to be legible under normal conditions at a distance of fifty feet (50'). The sign shall identify—

(A) Name, license number, and contact information of the operator;

(B) Name of the lease or unit being served by the tank;

(C) Location of the tank, including section, township, range, and county; and

(D) Contents of the tank.

(2) Gas to be metered. All gas, when produced or sold, shall be metered with a meter of sufficient capacity. Meters shall not be required for gas produced and used on site for development purposes, production unit operations, primary dwellings, or non-commercial gas wells.

(A) Each party who owns, maintains, or operates the metering device used to record gas sales from each well or production unit in a gas field shall, at a minimum, test and calibrate the metering device on an annual basis and retain the record of the testing and calibration for at least two (2) years. Each party shall also retain, for at least two (2) years, the original field record consisting of meter charts, electronic records, records of gas purchases, or other approved method. All information retained shall be made available to the state geologist upon request.

(B) By-passes shall not be connected around meters in a manner that will permit the improper taking of gas.

(3) Spill Notification. Each operator, immediately upon discovery or knowledge of any spill or release, shall take immediate action in accordance with the Spill Bill, section 260.500 to 260.550, RSMo, and the implementing regulations in 10 CSR 24. This does not alter responsible parties' obligations under any other applicable law.

AUTHORITY: section 259.060, RSMo 2000, and section 259.070, RSMo Supp. 2015. Original rule filed Sept. 15, 2015, effective March 30, 2016.*

**Original authority: 259.060, RSMo 1965, amended 1972; 259.070, RSMo 1965, amended 1972, 1983, 1987, 1993, 1995, 2012, 2015.*

**10 CSR 50-2.070 Well Spacing**
(Rescinded March 30, 2016)

AUTHORITY: sections 259.060, 259.070, and 259.100, RSMo 1986. Original rule filed Oct. 11, 1966, effective Oct. 21, 1966. Amended: Filed Sept. 12, 1973, effective Sept. 22, 1973. Amended: Filed Sept. 12, 1978, effective Feb. 1, 1979. Amended: Filed Dec. 15, 1986, effective April 11, 1987. Amended: Filed May 18, 1987, effective July 24, 1987. Rescinded: Filed Sept. 15, 2015, effective March 30, 2016.

10 CSR 50-2.080 Record Retention and Reporting

PURPOSE: A history of the production of an oil or gas well is important in the evaluation of a particular well or pool. Reservoir characteristics, fluid behavior, and production can be used for studies and estimates of production on future pools. Use of production data and reservoir analyses included on monthly reports can be correlated with recovery techniques to promote conservation and to prevent waste in the oil industry. This rule provides for the filing of monthly status, production, and water disposal reports, with certain waivers.

(1) Record Retention. Each operator of an injection well shall keep current, accurate records of the amount and kind of fluid injected into the injection well and shall preserve these records for five (5) years.

(2) Monthly Reporting.

(A) Well status of each open well in a unit shall be reported by each operator monthly on a form provided by the department. The report shall be prepared in full and submitted to the state geologist no later than forty-five (45) calendar days after the end of each calendar month.

(B) Well production shall be reported by the first purchaser of the oil or gas monthly on a form provided by the department. The report shall be prepared in full and submitted to the state geologist no later than forty-five (45) calendar days after the end of each calendar month. Production may be presented for each unit unless requested otherwise by the state geologist or the council.

(C) Disposal of produced water shall be reported by each operator monthly on a form provided by the department. The report shall be prepared in full and submitted to the state geologist no later than forty-five (45) calendar days after the end of each calendar month. The report must include the amount,

type, and method of disposal of all fluids produced from oil wells, gas wells, or underground gas storage reservoirs.

(D) Each party who owns, maintains, or operates the metering device used to record gas produced from each unit or well in any gas field shall file a monthly volume report showing the amount of gas actually metered on each unit, and may be directed by the state geologist to file a volume report showing the amount of gas actually metered for each well for a specified time period. The monthly volume report shall be prepared in full on a form provided by the department and submitted to the state geologist no later than forty-five (45) calendar days after the end of each calendar month.

(E) The required monthly gas well status and production reports may be waived by the state geologist upon application by the operator of the well when production from the well is for the owner's sole and non-commercial use.

(3) Annual reporting.

(A) Each operator of an injection well shall submit an annual injection well monitoring report on a form provided by the department. The report for the previous calendar year shall be submitted to the state geologist on or before March 1 of the following year.

(B) Each operator shall submit annually on a form provided by the department a complete inventory report of all open wells as of December 31. The report shall be submitted to the state geologist on or before January 31.

(C) Each operator shall submit an annual bonding report, on a form provided by the department, providing documentation of sufficient bonding for all open wells, as required by Chapter 259, RSMo, and implementing regulations. The report shall be submitted to the state geologist on or before January 31 of each year and shall include a signed and notarized statement from any applicable surety or issuer of a letter of credit or certificate of deposit documenting that the referenced bonds are valid and in full force.

(4) All monthly and annual reports will be on file at the office of the state geologist and will be retained and available for at least five (5) years.

AUTHORITY: section 259.070, RSMo Supp. 2015. Original rule filed Oct. 11, 1966, effective Oct. 21, 1966. Amended: Filed Sept. 12, 1973, effective Sept. 22, 1973. Amended: Filed Dec. 12, 1975, effective Dec. 22, 1975. Amended: Filed Oct. 14, 1981, effective Feb. 11, 1982. Amended: Filed Sept. 15, 2015, effective March 30, 2016.*

**Original authority: 259.070, RSMo 1965, amended 1972, 1983, 1987, 1993, 1995, 2012, 2015.*

10 CSR 50-2.090 Disposal of Fluids by Injection

PURPOSE: In some phases of the producing life of some reservoirs, large quantities of formation water may be produced along with the oil and gas. Adequate protection of underground sources of drinking water lies in the proper disposal of this produced water. Rather than allowing the produced water to flow onto the land surface and into streams and rivers, a more satisfactory method of disposal is to inject this water into permeable subsurface strata that do not contain underground sources of drinking water. This rule provides details such as quality and quantity of the water and well construction that are to be submitted to the state geologist for approval prior to such injection to ensure that underground sources of drinking water are adequately protected.

(1) Prior to the disposal of fluids by injection, an application for permit to inject must be approved by the state geologist as provided in 10 CSR 50-2.055.

(2) Other than within the original production strata, disposal of produced fluid from an oil or gas operation is prohibited into an oil or gas reservoir, a potential oil or gas reservoir, or an underground source of drinking water unless that drinking water source has been exempted, or unless otherwise approved by the state geologist.

(3) Disposal wells must be located a minimum of one hundred sixty-five feet (165') from a unit boundary.

AUTHORITY: section 259.070, RSMo Supp. 2015. Original rule filed Oct. 11, 1966, effective Oct. 21, 1966. Amended: Filed Sept. 12, 1973, effective Sept. 22, 1973. Amended: Filed Oct. 14, 1981, effective Feb. 11, 1982. Amended: Filed Sept. 15, 2015, effective March 30, 2016.*

**Original authority: 259.070, RSMo 1965, amended 1972, 1983, 1987, 1993, 1995, 2012, 2015.*

10 CSR 50-2.100 Enhanced Recovery Projects

PURPOSE: Enhanced recovery projects utilize fluids, including but not limited to, produced water, steam, or natural gas, by injection into an oil reservoir to recover additional oil. Where the oil is difficult to recover



with water or steam, certain chemicals are often added to increase the efficiency of water as an oil-recovery agent. These enhanced recovery methods help maintain reservoir pressure and increase the ultimate amount of oil that can be obtained from a particular pool, thereby preventing the waste of natural resources. This rule provides for the protection of groundwater by requiring approval by the state geologist of certain details of the enhanced recovery project. In addition, this rule protects the correlative rights of the offset property owners by requiring the state geologist's approval of well spacing and production unit line requirements prior to the commencement of operations.

the gas storage operation.

AUTHORITY: section 259.070, RSMo Supp. 2015. Original rule filed Oct. 14, 1981, effective Feb. 11, 1982. Amended: Filed Sept. 15, 2015, effective March 30, 2016.*

**Original authority: 259.070, RSMo 1965, amended 1972, 1983, 1987, 1993, 1995, 2012, 2015.*

Enhanced recovery projects designed for the secondary or tertiary recovery of oil or gas may be approved as part of a proposed production unit. Production unit approval may be requested by submitting to the state geologist an application specifying all pertinent details of the proposed project as detailed in 10 CSR 50-3.020(2).

AUTHORITY: section 259.070, RSMo Supp. 2015. Original rule filed Oct. 11, 1966, effective Oct. 21, 1966. Amended: Filed Sept. 12, 1973, effective Sept. 22, 1973. Amended: Filed Sept. 15, 2015, effective March 30, 2016.*

**Original authority: 259.070, RSMo 1965, amended 1972, 1983, 1987, 1993, 1995, 2012, 2015.*

10 CSR 50-2.110 Special Projects and Research Projects

(Rescinded March 30, 2016)

AUTHORITY: sections 259.060 and 259.070, RSMo 1986. Original rule filed Oct. 11, 1966, effective Oct. 21, 1966. Amended: Filed Sept. 12, 1973, effective Sept. 22, 1973. Rescinded: Filed Sept. 15, 2015, effective March 30, 2016.

10 CSR 50-2.120 Gas Storage Operations

PURPOSE: The development of gas storage operations requires that they be addressed by the state. This rule will ensure protection of underground sources of drinking water.

(1) Gas storage operations that inject gas that is liquid at standard temperature and pressure to be recovered at a later date for use shall comply with all rules pertaining to injection wells, except that such wells may not be drilled closer than approximately three hundred thirty feet (330') from the boundary of