



DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RESOURCES

John W. Hickenlooper
Governor

Mike King
Executive Director

Dick Wolfe, P.E.
Director/State Engineer

David L. Nettles, P.E.
Division Engineer

April 4, 2011

Re: RULES GOVERNING THE MEASUREMENT OF TRIBUTARY GROUND WATER
DIVERSIONS LOCATED IN THE SOUTH PLATTE RIVER BASIN WITHIN WATER
DIVISION NO. 1

To: INTERESTED PARTIES

The Division of Water Resources, Division 1, is in the process of promulgating rules governing the measurement of tributary ground water diversions located in the South Platte River Basin. In an effort to enhance public comments, we are sending our draft measurement rules to those registered parties on the Division 1 Substitute Water Supply Plan Notification List. It is our goal that this informal review period will begin the dialog between Division 1 and its water users.

We also anticipate scheduling informal public meetings in the next few months. Alternatively, please direct any comments you may have to Jonathan.Hernandez@state.co.us with a subject line of "WELL MEASUREMENT COMMENTS – 4/4/11 DRAFT." I cannot promise every comment will be specifically replied to; however I can assure you that each comment received will be taken into account and discussed as applicable.

This notice does not kick off the formal proceedings required to promulgate Rules.

Thank you,

David L. Nettles, P.E.
Division Engineer

Water Division 1 • Greeley

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**RULES GOVERNING THE MEASUREMENT OF
TRIBUTARY GROUND WATER DIVERSIONS LOCATED IN
THE SOUTH PLATTE RIVER BASIN WITHIN
WATER DIVISION NO. 1**

AUTHORIZATION

In order for the State Engineer and Division Engineer for Water Division No. 1 to obtain information needed for administration of the waters in the South Platte River Basin within Water Division No. 1 and to assist in compliance with the 1974 Amended South Platte Rules (W-7209) and the South Platte River Compact (Title 37 Article 65, C.R.S.), it is necessary to adopt rules governing the measurement of tributary ground water diversions located in the South Platte River Basin within Water Division No. 1. The State Engineer's authority to promulgate these rules is based on § 37-80-102(g), C.R.S., which vests rulemaking authority for the Division of Water Resources in the State Engineer; § 37-80-104, C.R.S., which authorizes the State Engineer to make and enforce such regulations with respect to deliveries of water as will enable the state of Colorado to meet its compact obligations; § 37-92-501, C.R.S., which authorizes the State Engineer to adopt rules and regulations to assist in the performance of the administration, distribution and regulation of the waters of the state in accordance with the constitution of the state of Colorado; the provisions of Article 92 (The Water Rights Determination and Administration Act of 1969) and other applicable laws; § 37-92-502(5) (a), C.R.S., which authorizes the State Engineer and the Division Engineers to order any owner or user of a water right to install and maintain at such owner's or user's expense necessary meters, gages, or other measuring devices and to report at reasonable times to the appropriate Division Engineer the readings of such meters, gages or other measuring devices; and § 37-92-502(5) (b), C.R.S., which authorizes the State Engineer and Division Engineers to order any person or company supplying energy used to pump ground water to provide, at reasonable times to the appropriate Division Engineer, records of energy used to pump ground water.

ORDER OF THE STATE ENGINEER

IT IS ORDERED that the following Rules governing the measurement of tributary ground water diversions located in the South Platte River Basin within Water Division No. 1 are adopted by the State Engineer.

THE INTENT OF THIS ORDER is to optimize the use of water consistent with preservation of the priority system of water rights. These Rules seek to obtain the information needed for administration of the waters in the South Platte River Basin within Water Division No. 1 and to assist in compliance with the 1974 Amended South Platte River Rules and the South Platte River Compact.

Rule 1 Scope

- 1.1. These Rules are applicable to all Wells located in the South Platte River Basin within Water Division No. 1 except:
 - 1.1.1. decreed and/or permitted "exempt" Wells as described in § 37-92-602, C.R.S. (Appendix A);
 - 1.1.2. decreed and/or permitted Wells which withdraw non-tributary ground water;
 - 1.1.3. Wells which withdraw designated ground water in designated ground water basins;

- 1.1.4. Wells which withdraw ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers in the Denver Basin;
- 1.1.5. "Non-Exempt" Wells permitted and/or decreed for not more than 50 gallons per minute that are part of a judicially approved plan for augmentation unless otherwise required by permit or decree.
- 1.1.6. Wells in decreed plans of augmentation where specific flow measurements of each well are not required by the decree and for administration of that plan.
- 1.2. See Appendix B "Well Measurement Rules Jurisdictional Areas" for a geographic representation of areas covered by these Rules.
- 1.3. The metering of exposed ground water evaporation is exempt from these Rules.
- 1.4. These Rules do not supersede terms and conditions of decrees of the court.
- 1.5. Compliance with these Rules does not authorize the operation of the well.

Rule 2 Definitions

- 2.1. The following definitions and acronyms are applicable to these Rules:
 - 2.1.1. "C.R.S." – Colorado Revised Statutes, as amended.
 - 2.1.2. "Complex System" means any system where the total dynamic head at the pump will vary due to multiple discharge locations in a pipeline, or where the method of delivery will vary between open discharge, gated pipe, or sprinkler system during a single irrigation season, or where multiple Wells discharge into a common pipeline.
 - 2.1.3. "Compound System" means a system where the power meter records electrical uses from any electrical device other than the pumping systems from a single Well and its attached sprinklers.
 - 2.1.4. "Division Engineer" means the Division Engineer, or Acting Division Engineer, for the Colorado Division of Water Resources, Water Division No. 1.
 - 2.1.5. "Inactive Well" means a Well that does not divert water for any purpose, is Operationally Disabled, and met the Notification requirements of Rule 7.
 - 2.1.6. "Notify" or "Notification" to the Division Engineer means a written message mailed, facsimiled, or emailed to the Division Engineer's Office, or where specifically required by these rules, completion of a form prescribed by the State Engineer mailed, facsimiled, or emailed to the Division Engineer's Office.
 - 2.1.7. "Operationally Disabled" means a Well that either had its electricity physically disconnected by the service provider or its pump was removed. The Well must also have no other means readily available to enable diversions from the Well.
 - 2.1.8. "Power Conversion Coefficient" or "PCC" means the amount of electrical energy expressed as kilowatt hours consumed in pumping one acre-foot of ground water.
 - 2.1.9. "Qualified Well Tester" means a person who is currently certified by the State Engineer as qualified to determine the accuracy of a flow meter, perform a Power Conversion Coefficient test on a Well, and perform a Well efficiency test.

- 2.1.10. "Rule(s)" means the Rules Governing the Measurement of Tributary Ground Water Diversions Located in the South Platte River Basin within Water Division No. 1. The short title for these Rules is "South Platte Tributary Well Measurement Rules" and they may be referred herein collectively as "Rules" or individually as a "Rule."
- 2.1.11. "South Platte River Basin" means all lands within Water Division No. 1 in the drainage basin of the South Platte River and all tributary rivers, creeks, and streams (i.e., Water Districts 1, 2, 3, 4, 5, 6, 7, 8, 9, 23, 64, and 80.)
- 2.1.12. "TFM" – Totalizing Flow Meter (See Rule 3.1).
- 2.1.13. "Tributary Ground Water" is underground water as defined in § 37-92-103(11), C.R.S., in the State of Colorado tributary to the South Platte River or other natural rivers, creeks, and streams in the South Platte River Basin in Water Division No. 1.
- 2.1.14. "Well" is as defined in § 37-90-103(21), C.R.S.
- 2.1.15. "Well User" means any person diverting ground water. This includes, but is not necessarily limited to, the owner of a water right and/or well permit which allows the diversion of ground water and any person having the right to use such a water right or well permit owned by another, including all agents, employees, lessees, assigns or successors of the same.
- 2.2. Any other term used in these Rules that is defined in §§ 37-90-103, 37-91-102, or 37-92-103 C.R.S., has the same meaning given therein, unless the context otherwise requires.
- 2.3. Any term used in these Rules not defined herein that is defined in other rules and regulations of the State Engineer applicable to Water Division No. 1 has the same meaning given therein, unless the context otherwise requires.

Rule 3 Measurement Devices

Wells within the scope of these Rules must either: (1) be equipped with a certified TFM that meets the requirement of Rule 3.1; (2) be equipped with a verified alternative method of measurement that meets the requirement of Rule 3.2 or 3.3; or (3) be declared inactive in accordance with Rule 7. Wells located in District Nos. 1, 2 and 64 not meeting this standard by December 31, 2012, and Wells located in District Nos. 3, 4, 5, 6, 7, 8, 9, 23, and 80 not meeting this standard by December 31, 2013 are subject to enforcement by the Division Engineer.

3.1. Totalizing Flow Meters (TFMs)

- 3.1.1. Any meter that is designed and manufactured for the purpose of measuring the flow of water, has a totalizing feature, and that meets the minimum requirements of Rule 3.1.2 is considered acceptable for purposes of these Rules. The State Engineer may adopt written standards and specifications for the installation, calibration, testing, repair, and maintenance of meters. The Well Owner shall keep the TFM in accurate operating condition. An installed meter is in accurate operating condition when the flow measured by the meter is within plus or minus 5% of an independent field measurement made by a Qualified Well Tester using calibrated test equipment. The Division Engineer has authority to order any meter that fails to meet this standard to be recalibrated or replaced under § 37-92-502(5)(a), C.R.S.

3.1.2. Minimum Requirements

- 3.1.2.1. The totalizer must have nonvolatile memory.
- 3.1.2.2. The measurement readout must be in acre-feet or gallons and have recording digits that are able to: discriminate the annual water use to within the nearest 0.1 percent of the total annual diversion of water, record three years of diversion data prior to a “rollover” to zero, and turn within 20 minutes to allow for testing in the field with a stopwatch.
- 3.1.2.3. The Well User shall be in continuous compliance and maintain the TFM at all times so as to provide a continuous, accurate, and readable record of withdrawals.
- 3.1.2.4. TFMs must be tamper resistant and be permanently and legibly inscribed with a unique ID (i.e., its serial number) by the meter manufacturer or Well User.

3.1.3. Installation

- 3.1.3.1. TFMs are required to be installed at the wellhead upstream of any point of discharge and at a point that is prior to any discharge pipe that is laid underground.
- 3.1.3.2. The Division Engineer may require separate TFMs for each discharge location of a Complex System where necessary for proper water administration.
- 3.1.3.3. TFMs are to be installed in accordance with manufacturer’s specifications and recommendations.

3.1.4. Meter Certification

- 3.1.4.1. TFM certification tests are required to be performed by a Qualified Well Tester and shall be executed in the field with the TFM in its actual plumbing configuration.
 - 3.1.4.2. TFMs must be re-certified to be in accurate operating condition by a Qualified Well Tester within four years from the date of the last valid certification.
 - 3.1.4.3. Certification of TFMs are required more frequently than every four years if there are any damages, repairs, or alterations to the meter, the installation configuration, or the well infrastructure, or any modifications that affect meter accuracy are made, or if the Division Engineer conducts or reviews tests and determines an error was made.
 - 3.1.4.4. The Well User shall provide written proof of the certification within 30 calendar days from the meter installation and/or initial certification and subsequent re-certifications to the Division Engineer on a form to be prescribed by the State Engineer.
- 3.1.5. Should a meter cease to operate accurately or fail certification at any time, the Well User shall immediately Notify the Division Engineer and establish a specific

interim water measurement program until the meter is replaced or repaired. The interim water measurement program will remain valid for up to 14 calendar days from the Notification to the Division Engineer after which the Well User must cease all ground water diversions at the well until the meter is replaced, repaired, or the Division Engineer grants a written variance. Where an interim water measurement program is not established, all ground water diversions must cease immediately.

- 3.2. Power Conversion Coefficient (PCC) Alternate Measurement Method. Through a variance, the Division Engineer may approve the use of a PCC if it can be demonstrated by a Qualified Well Tester that the method would produce results accurate to within plus or minus 5% of the actual volume pumped over a water year.
 - 3.2.1. The State Engineer may adopt standards and specifications for PCC testing for Wells operating under water table conditions. At a minimum, PCC tests must:
 - 3.2.1.1. utilize rating procedures approved by the State Engineer and conducted by a Qualified Well Tester;
 - 3.2.1.2. be performed when the pumping system has stabilized, i.e., both operating pressure and pumping drawdown has not changed more than 10% in the last hour; and
 - 3.2.1.3. include the pumping drawdown and operating pressure at the time the test was conducted.
 - 3.2.2. A computed PCC must:
 - 3.2.2.1. be determined by at least two ratings between the dates of May 15 and October 15 of the same year, with a minimum interval of 90 calendar days between each rating; and
 - 3.2.2.2. be updated at least every two years.
 - 3.2.3. Re-ratings of PCCs are required more frequently than every two years if any of the following occur
 - 3.2.3.1. a new or re-worked pump and/or motor are installed on the Well;
 - 3.2.3.2. the Well is re-worked to change the yield of the Well;
 - 3.2.3.3. the system that the pump discharges into is modified in such a manner as to change the power coefficient, the pump discharge, or the operating pressure;
 - 3.2.3.4. any other alteration to the system which changes the pump discharge or power coefficient; or
 - 3.2.3.5. the Division Engineer conducts or reviews tests and determines an error was made or if annual changes in ground water levels will make a PCC based upon the prior year's testing inaccurate by 5% or more.
 - 3.2.4. The Well User shall Notify the Division Engineer on a form prescribed by the State Engineer of the date(s) and person performing the re-rating. Water is not allowed to be pumped from a Well whose PCC has expired, or is no longer valid, until such

time an additional re-rating regime is performed and accepted by the Division Engineer.

- 3.2.5. The PCC method is not a valid alternative method of measurement where varying terrain makes accurate calculations impossible due to the differences in height to which the water must be pumped unless the system has working pressure regulators installed.
- 3.2.6. The PCC method is not a valid alternative method of measurement for a Well that is part of a Complex or Compound System, or if the pump motor is not powered by a dedicated electrical meter.
- 3.3. Alternate Methods of Measurement. The Division Engineer may approve a variance to the installation of a TFM if it can be demonstrated by a Qualified Well Tester that the alternative method would produce results accurate to within plus or minus 5% of the actual volume pumped over a water year and generates a verifiable record of diversions.
- 3.4. Accessibility. Pursuant to § 37-92-502(6) “meters, gauges, and other measurement devices” shall be made accessible and readable to the Division Engineer’s staff by the Well User. Rule 3.2 includes the PCC method as a measurement method, thus the power meter is a device covered under this rule and shall be made accessible and readable. For devices located in locked buildings, the Well User shall provide the contact information of the person who has the key, and shall make the key readily available. Meter caps shall not be locked. Unreadable meters are subject to repair or replacement orders.
- 3.5. Testing Equipment Calibration. All flow measuring equipment utilized in certification of accuracy and working condition in the field and/or rating of Wells must be calibrated every two years to be accurate within plus or minus 2%, unless a variance is granted by the Division Engineer.

Rule 4 Notice of Compliance

- 4.1. Existing Certified TFMs.
 - 4.1.1. Well Users who have existing TFMs installed and are certified as accurate in accordance with their decree as of the effective date of these rules, shall provide a Notice of Compliance to the Division Engineer by December 31, 2012 on a form prescribed by the Division Engineer. At a minimum, this Notice must include:
 - 4.1.1.1. Well owner’s name, address, and phone number;
 - 4.1.1.2. Well operator’s or user’s name, address, and phone number (if different than the owner);
 - 4.1.1.3. Well permit and/or decree number;
 - 4.1.1.4. Division of Water Resources’ Structure ID (WDID) number (if known);
 - 4.1.1.5. Well location legal description and GPS coordinates of the Well;
 - 4.1.1.6. Date and copy of the most recent certification.

- 4.1.2. Existing certified TFMs must be re-certified to be in accurate operating condition by a Qualified Well Tester four years after its most recent certification, unless otherwise specified in the decree.
- 4.2. Existing Alternative Methods. Well Users with an existing measurement method other than a TFM have until their corresponding compliance date within Rule 3 to have an approved variance issued or be equipped with a certified TFM.

Rule 5 Water Not to be Withdrawn

No water is permitted to be withdrawn from any Well that is not in compliance with these Rules except to verify the TFM accuracy or to verify the accuracy of an approved alternative measurement method. Any water withdrawn pursuant to Rule 5 cannot be put to beneficial use and must be immediately returned to the same stream system.

Rule 6 Data Submission

- 6.1. Use Reporting. At a minimum, all Well Users within the scope of these Rules shall report in writing their Well's end of each month meter reading to the Division Engineer no later than December 1 for the past water year (November 1 to October 31). The Division Engineer reserves the right to require more frequent reporting and/or recording frequency when determined to be required for proper water administration.
- 6.2. Forms. All data must be submitted on forms prescribed by the State Engineer. Such forms include consent to release power data to the Division Engineer. At a minimum, required information includes:
 - 6.2.1. Well owner's name, address, and phone number;
 - 6.2.2. Well operator's or user's name, address, and phone number (if different than the owner);
 - 6.2.3. Well permit number, decree number (if applicable), and WDID number (if known);
 - 6.2.4. Legal description and GPS coordinates of the Well;
 - 6.2.5. Well use (e.g., irrigation, municipal, commercial etc.);
 - 6.2.6. Type of meter and meter identification (i.e., serial number);
 - 6.2.7. Meter reads at required frequency.
- 6.3. In Priority Diversions. With prior approval by the water commissioner, Wells that divert ground water based on instantaneous depletions per permit or decreed conditions can be administered by the water commissioner in the same manner as a surface water right. In order to qualify and claim in-priority diversions for periods where the Well operated in priority, diversions must be recorded and accounted for daily. Accounting must be submitted to the water commissioner as frequently as requested by the water commissioner but, at a minimum, within 30 days of the end of the month the diversion is made. The State Engineer may adopt written standards and specifications for the installation, calibration, testing, repair, and maintenance of such devices capable of automatic recording and logging of diversions.

Rule 7 Inactive Wells

- 7.1. Well Inactivation. A Well that does not divert water for any purpose and is Operationally Disabled may be classified as an Inactive Well by the Division Engineer upon receiving a notarized affidavit from the Well User on a form prescribed by the State Engineer. Upon receiving the Division Engineer's written notification of the Inactive status, no further filings or reporting are required under these Rules. A TFM, or other recording device is not required for an Inactive Well.
- 7.2. Well Reactivation. In order to reactivate an Inactive Well, the Well User shall first Notify the Division Engineer on a form prescribed by the State Engineer prior to any water withdrawal including that for testing meters, and at least 30 days prior to desired reactivation date. The Well cannot be reactivated until the Well is in compliance with all terms and conditions of these Rules including, but not limited to, proof of a measurement method in compliance with Rule 3.
- 7.3. Any well that is not Operationally Disabled cannot be classified as an Inactive Well and is not exempt from these Rules including metering and reporting requirements.
- 7.4. Filing Notice of a Well Inactivation does not modify terms and conditions of decrees of the court.

Rule 8 Noncompliance

Failure to comply with any of these rules may subject the Well User to court proceedings and the state's cost, including reasonable attorney's fees, associated with enforcement of these Rules pursuant to § 37-92-503, C.R.S. Prior to filing any court action, the Division Engineer will inform the Well owner, operator, and/or the registered agent, as applicable, of the violation in writing by certified mail and, if applicable, will advise the associated parties of the date by which the violation must be corrected to avoid court proceedings. This date will be at least ten calendar days following the date of receipt of the notice, or personal service, to the Well owner, operator, and/or registered agent.

Rule 9 Effect of Rules on other Wells

Nothing contained herein shall be construed to preclude the Division Engineer from requiring metering of withdrawals, periodic reporting of such withdrawals, and cessation of withdrawals not necessary for application to a beneficial use from Wells not covered by these Rules.

Rule 10 Revisions

These Rules may be revised in accordance with § 24-4-103, C.R.S.

Rule 11 Variance

- 11.1. The Division Engineer may grant a variance when the strict application of any provisions of these Rules would cause unusual hardship. Any variance request must be made in writing on a form to be prescribed by the State Engineer and state the basis for the requested variance with supporting technical data and other documentation attached. If the Division Engineer finds the request justifiable, the Division Engineer may issue a written order granting the variance and setting forth the terms and conditions on which the variance is granted.

11.2. A variance is not approved until the Division Engineer issues a written order granting the variance and any requested information set forth in the terms and conditions is received and approved by the Division Engineer. Variance request are granted at the Division Engineer's sole discretion.

Rule 12 Severability

If any portion of these Rules is found to be invalid, the remaining portions of the Rules remain in full force and effect.

IT IS FURTHER ORDERED that these Rules become effective on the 31st day of December 2011, and will remain in effect until amended as provided by law. Any person desiring to protest these Rules may do so in the manner as provided in §§ 37-92-501(3)(a) & (b), C.R.S.

Dated this _____ day of _____.

Dick Wolfe, P.E.

State Engineer

**RULES GOVERNING THE MEASUREMENT OF
TRIBUTARY GROUND WATER DIVERSIONS LOCATED IN
WATER DIVISION NO. 1,
THE SOUTH PLATTE RIVER BASIN**

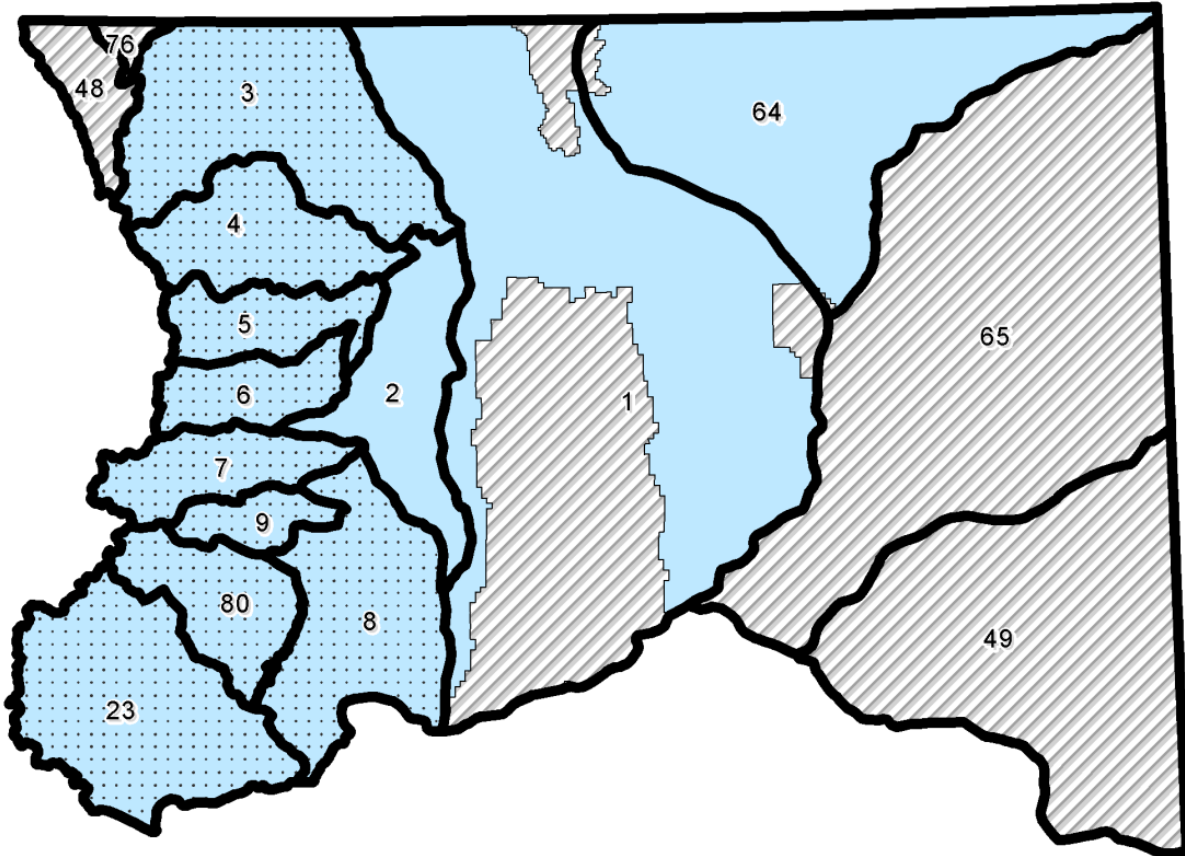
**APPENDIX A
§ 37-92-602 EXEMPT WELLS**

“Exempt” Wells as described in § 37-92-602, C.R.S., are as follows:

1. Designated ground water basins as defined and established by Article 90 of Title 37 C.R.S. *See* § 37-92-602(1)(a).
2. Wells not exceeding fifteen (15) gallons per minute that are in production or whose application was filed prior to May 8, 1972, not exceeding fifteen (15) gallons per minute of production and used for ordinary household purposes, fire protection, the watering of poultry, domestic animals, and livestock on farms and ranches and for the irrigation of not over one acre of home gardens and lawns but not used for more than three single family dwellings. *See* §§ 37-92-602(1)(b) & (3)(b)(I).
3. The only Well on a tract of land thirty-five (35) acres or more, not exceeding fifteen (15) gallons per minute of production and used for ordinary household purposes, fire protection, the watering of poultry, domestic animals, and livestock on farms and ranches and for the irrigation of not over one acre of home gardens and lawns but not used for more than three single family dwellings. *See* §§ 37-92-602(1)(b) & (3)(b)(II)(A).
4. The only Well on a residential site, not exceeding fifteen (15) gallons per minute of production and used solely for ordinary household purposes inside a single-family dwelling and not used for irrigation. *See* § 37-92-602(3)(b)(II)(A).
5. Wells not exceeding fifteen (15) gallons per minute of production and used for drinking and sanitary facilities in individual commercial businesses. *See* § 37-92-602(1)(c).
6. Wells to be used exclusively for fire-fighting purposes if said wells are capped, locked, and available for use only in fighting fires. *See* § 37-92-602(1)(d).
7. Wells not exceeding fifty (50) gallons per minute that are in production as of May 22, 1971, and were and are used for ordinary household purposes for not more than three single-family dwellings, fire protection, the watering of poultry, domestic animals, and livestock on farms and ranches, and for the irrigation of not over one acre of gardens and lawns. *See* § 37-92-602(1)(e).
8. Wells to be used exclusively for monitoring and observation purposes if said wells are capped and locked and used only to monitor water levels or for water quality sampling. *See* § 37-92-602(1)(f).

**RULES GOVERNING THE MEASUREMENT OF
TRIBUTARY GROUND WATER DIVERSIONS LOCATED IN
WATER DIVISION NO. 1,
THE SOUTH PLATTE RIVER BASIN**

**APPENDIX B
WELL MEASUREMENT RULES JURISDICTIONAL AREA**



Legend




Division 1 District Boundaries



Designated Groundwater or Non-South Platte River Basin

Measurement Rule Jurisdictional Area Compliance Date

December 31, 2012 

December 31, 2013 