

# DEPARTMENT OF NATURAL RESOURCES

## DIVISION OF WATER RESOURCES

### 2 CCR 402-16

#### **RULES AND REGULATIONS GOVERNING THE MEASUREMENT OF GROUND WATER DIVERSIONS LOCATED IN THE REPUBLICAN RIVER BASIN WITHIN WATER DIVISION NO. 1**

#### **16.1 Authority**

These Rules and Regulations are adopted pursuant to the authority in sections 37-80-102(1)(g) and 37-80-104, C.R.S. and are intended to be consistent with the requirements of the State Administrative Procedure Act, section 24-4-101 et seq., C.R.S.

#### **16.2 Scope and Purpose**

- A. These Rules are applicable to all Wells located in the Republican River Basin in Water Division No. 1 except decreed and/or permitted "exempt" Wells constructed pursuant to paragraphs (b) through (f) of section 37-92-602(1), C.R.S., section 37-92-602(3)(b)(II)(A), C.R.S. described in Appendix A or paragraphs (a) through (e) of section 37-90-105, C.R.S. described in Appendix B.
- B. The purpose of these Rules is to obtain information needed for administration of the waters in the Republican River Basin within Water Division No. 1 subject to the Republican River Compact and to assist in compliance with the Republican River Compact.

#### **16.3 Applicability**

The provisions of this section shall be applicable to all Wells within the Republican River Basin not specifically exempted by these Rules.

#### **16.4 Definitions**

- A. As used in these Rules:
  - 1. "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. "Compound System" means a system where more than one electrical device is operated from the same electrical power meter.
  3. "Inactive Well" means any Well that is not in use and is disconnected from a power source.
  4. "Notification" or "Notify" to the Chief of Designated Basins Section of the Division of Water Resources means any action or method to deliver information, including but not limited to, personal contact, a telephone call, leaving a telephone message, or written or email message to the Chief of Designated Basins Section of the Division of Water Resources or to the Water Commissioner who retains water administration authority in the former Water District where the subject ground water Well is located.
  5. "Power Conversion Coefficient" or "PCC" means the amount of electrical energy expressed as kilowatt hours (KWH) consumed in pumping one acre-foot of ground water.
  6. "Qualified Well Tester" means a person or entity who is annually 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.
  7. "Republican River Basin" means the geographic area within the Northern High Plains Designated Ground Water Basin that is illustrated by the map in Appendix C and described by the metes and bounds in Appendix D.
  8. "Rules" means the Rules and Regulations Governing the Measurement of Ground Water Diversions Located in the Republican River Basin Within Water Division No. 1. The short title for these Rules is "Republican River Measurement Rules," and they may be referred to herein collectively as the "Rules" or individually as a "Rule."
  9. "Well" means any structure or device used for the purpose or with the effect of obtaining ground water for beneficial use from an aquifer.
- B. Any other term used in these Rules that is defined in sections 37-80-102, 37-80-104, 37-90-103, 37-90-107, 37-90-137 or 37-92-103, C.R.S. (as may be amended) shall have the same meaning given therein.
- C. 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 shall have the same meaning given therein.

## **16.5 Measurement Devices**

By March 1, 2009, all Wells within the scope of these Rules shall either: (1) be equipped with a totalizing flow meter that is installed and maintained according to manufacturer's specifications and recommendations; (2) be equipped with an alternative method of measurement that is granted a variance pursuant to these Rules; or (3) be declared inactive in accordance with Rule 16.9 below.

### **A. Totalizing Flow Meter**

1. Any meter designed and manufactured for the purpose of measuring the flow of water, and that has a totalizing feature, shall be considered to be 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. When a totalizing flow meter is used, it shall be the owner's responsibility to keep the meter in accurate operating condition. An installed flow meter shall be deemed to be in accurate operating condition when the flow measured by the meter is within plus or minus 5% of an independent field measurement made using calibrated test equipment. The State Engineer shall order any meter that fails to meet this standard to be recalibrated or replaced.
  
2. Totalizing flow meters shall be: properly verified in the field to be in accurate working condition by either a licensed pump installer, a representative of the meter manufacturer, or certified by a Qualified Well Tester if the meter is installed by a private individual when installed; contain sufficient recording digits to assure that "rollover" to zero does not occur within three years; and shall be maintained by the Well owner so as to provide a continuous, accurate record of withdrawals. Totalizing flow meters are required to be reverified in the field to be in accurate working condition by a Qualified Well Tester every four years after the date of original installation. Flow meters in existence as of the effective date of these Rules, December 1, 2008, shall be certified to be in accurate working condition by a Qualified Well Tester by March 1, 2009, and re-verified to be in accurate working condition every four years thereafter. The Well owner shall provide written proof of the verification within 45 calendar days of the meter installation or verification to the Chief of Designated Basins Section of the Division of Water Resources on a form to be prescribed by the State Engineer.

3. Should a meter cease to operate accurately or fail verification at any time, the owner of the Well shall immediately Notify the Chief of Designated Basins Section of the Division of Water Resources and establish a specific interim water measurement program until the meter is replaced or repaired. If the meter is not replaced or repaired and verified to be in accurate working condition within 14 calendar days of the Notification to the Chief of Designated Basins Section of the Division of Water Resources, the Well shall not be operated until the meter is replaced or repaired or the State Engineer grants a variance.
4. Should a meter fail to meet the accuracy standard, the Well owner may seek a variance to use a calibration coefficient computed by a Qualified Well Tester using standards provided by the State Engineer.

B. Alternative Methods of Measurement

The State Engineer may approve a variance to the installation of a totalizing flow meter if it can be demonstrated by a Qualified Well Tester that the proposed alternative method would produce results accurate to within plus or minus 5% of the actual volume pumped over a calendar year.

1. Power Conversion Coefficient Method
  - a. The State Engineer may adopt standards and specifications for PCC testing for Wells that operate under water table conditions only. As a minimum, PCC shall: (1) be determined utilizing rating procedures approved by the State Engineer and conducted under the supervision of an individual or entity annually approved by the State Engineer to do such tests; (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; (3) have been determined by averaging at least two ratings during the course of a single irrigation season with a minimum interval of 90 calendar days between each rating after April 1, 2008; (4) include the pumping water level and operating pressure at the time the tests were conducted; and (5) be updated at least every two years through a re-rating regime that requires at least two ratings during the course of a single irrigation season with a minimum interval of 90 calendar days between each rating. The Chief of Designated Basins Section of the Division of Water Resources shall be notified in writing of the date(s) and person performing the re-rating.

Re-rating of PCC shall be required more frequently than every two years if any of the following occur:

- b. A new or re-worked pump and/or motor are installed on the Well.
- c. The Well is re-worked to change the yield of the Well.
- d. The system that the pump discharges into is modified in such a manner as to change the Power Conversion Coefficient, the discharge of the pump, or the operating pressure.
- e. Any other alteration to the system which changes the discharge of the pump, the operating pressure, or Power Conversion Coefficient.
- f. Additional tests may also be required if the Chief of Designated Basins Section of the Division of Water Resources 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.
- g. Owners and/or users of Wells within the scope of these Rules who use the PCC method and whose Well discharges into a pressurized pipeline system (gated pipe or similar system) with more than one point of discharge during a normal irrigation season must submit two PCC measurements as required under the scope of these Rules. One measurement must be taken under maximum head (minimum yield) and one measurement must be conducted under minimum head (maximum yield) conditions. A registered professional engineer, or a person approved upon written request to the Chief of Designated Basins Section of the Division of Water Resources, must annually evaluate the range of pumping conditions and provide an analysis, which determines the representative condition and PCC for that condition. This analysis must be provided within 30 days of the initiation of pumping for that year. If the Chief of Designated Basins Section of the Division of Water Resources determines that the operation of the Well does not agree with the representative condition, the lower PCC will be used to compute pumping volumes.
- h. Use of the PCC method may not be appropriate where varying terrain makes accurate calculations impossible due to the differences in height to which the water must be pumped.

C. Complex or Compound Systems

If the Well(s) are part of a Complex System or Compound System, or if the pump is not powered by electricity, or the Well produces from a confined aquifer, the owner or user of the Well must utilize a totalizing flow meter (Rule 16.5.A.).

D. Testing Equipment Calibration.

All flow measuring equipment utilized in verification of accuracy and working condition in the field and/or rating of Wells must be calibrated biannually to be accurate within plus or minus 2%, unless a variance is granted by the State Engineer.

**16.6 Notice of Compliance**

All owners of Wells within the scope of these Rules who install totalizing flow meters shall provide written notice to the Chief of Designated Basins Section of the Division of Water Resources by March 1, 2009, on a form to be prescribed by the State Engineer that includes: (1) the name and address of the owner of the Well(s); (2) the name and address of the user of the Well(s) (if different than the owner); (3) the Well permit number(s); (4) the decree or case number(s) (if applicable); (5) the legal description of the location of the Well(s); (6) a legal description and map or drawing of land irrigated; (7) the type or method of irrigation; (8) the meter manufacturer, the meter model number and the meter size; (9) the meter serial number(s); (10) the volumetric units (gallons or acre-feet); (11) the name of power utility company and power company account number (if applicable); (12) the kilowatt hour meter reading on the date of installation (if applicable); (13) the beginning totalizing flow meter reading; (14) and the date of installation. The Chief of Designated Basins Section of the Division of Water Resources shall be notified of any method of Well measurement changes on a form prescribed by the State Engineer within 30 days of such change.

**16.7 Notice of Compliance with Variance Terms and Conditions**

All owners of Wells within the scope of these Rules who obtain a variance from installation of a totalizing flow meter shall, by March 1, 2009, or March 1 of the first calendar year in which the variance is in effect, provide in writing to the Chief of Designated Basins Section of the Division of Water Resources, such information as specified in the terms and conditions of the approved variance.

**16.8 Data Submission**

A. Annual Reporting

All owners of Wells within the scope of these Rules shall report in writing the annual amounts of water pumped from Wells for the period of November 1 to October 31 and, for irrigation Wells, the method of irrigation (flood, center-pivot, etc.), to the Chief of Designated Basins Section of the Division of Water Resources no later than December 1, 2009 and every year thereafter.

1. All owners of Wells within the scope of these Rules who choose to utilize the alternative Power Conversion Coefficient method shall provide notice in writing to the Chief of Designated Basins Section of the Division of Water Resources by March 1, of each year the Power Conversion Coefficient method shall be used, stating: (1) the name and address of the owner of the Well(s); (2) the name and address of the user of the Well(s) (if different than the owner); (3) the Well permit number(s); (4) the decree or case number(s) (if applicable); (5) a legal description of the location of the Well(s); (6) the power meter serial number(s); (7) the utility company name; (8) the power company account number; (9) the Power Conversion Coefficient; (10) the dates of Power Conversion Coefficient rating; (11) the kilowatt hour meter reading on the date of the Power Conversion Coefficient ratings; (12) the name and address of the Qualified Well Tester performing the Power Conversion Coefficient ratings; (13) the current transformer (C.T.) factors, if applicable; and (14) the potential transformer (P.T.) factors, if applicable. Notice to the Chief of Designated Basins Section of the Division of Water Resources shall be on a form prescribed by the State Engineer. The Chief of Designated Basins Section of the Division of Water Resources shall be notified of any change of method for measurement on a form to be prescribed by the State Engineer.

B. Forms and Notification

Data shall be submitted on forms prescribed by the State Engineer. Such forms shall also include consent to release power data to the Chief of Designated Basins Section of the Division of Water Resources. If the power account number associated with a Well changes for any reason, the user must notify the Chief of Designated Basins Section of the Division of Water Resources of the new account number on a form prescribed by the Chief of Designated Basins Section of the Division of Water Resources within 45 calendar days following the change.

**16.9 Inactive Well**

An owner of an Inactive Well must provide a notarized affidavit, on a form prescribed by the State Engineer, filed with the Chief of Designated Basins Section of the Division of Water Resources by March 1 of each year, in which the Well will be in inactive status. Once an Inactive Well affidavit is filed with the Chief of Designated Basins Section of the Division of

Water Resources, no further filings are required under these Rules unless the owner or user wishes to change the Well from inactive status to active status. When an owner or user desires to change an Inactive Well to active status, written Notification to the Chief of Designated Basins Section of the Division of Water Resources is required prior to activation. A Well listed as inactive under this Rule 16.9 shall not be used until such Notification is given and the Well is in compliance with the requirements of these Rules.

#### **16.10 Water not to be Withdrawn**

No water shall be withdrawn from any Well that is not in compliance with these Rules except to verify the accuracy of the totalizing flow meter or to verify the accuracy of an approved alternative measurement method.

#### **16.11 Noncompliance**

Failure to comply with any of these Rules may subject the Well owner and/or user to court proceedings and the state's costs, including reasonable attorney's fees, associated with enforcement of these Rules. Prior to filing any court action, the Chief of Designated Basins Section of the Division of Water Resources shall notify the Well owner and/or user (or both if known by records maintained by the Chief of Designated Basins Section of the Division of Water Resources ) of the violation in writing by Certified Mail and shall advise the Well owner and/or user of the date by which the violation must be corrected to avoid court proceedings, which date shall be at least ten calendar days following the date of receipt of the notice by the Well owner and/or user or personal service of the notice on the Well owner and/or user.

#### **16.12 Variance**

When the strict application of any provisions of these Rules would cause unusual hardship, the State Engineer may grant a variance. Any request for a variance shall be made in writing and shall state the basis, with supporting technical data and other documentation, for the requested variance. If the State Engineer finds the request justifiable, the State Engineer may issue a written order granting the variance and setting forth the terms and conditions on which the variance is granted. Variance requests are granted at the sole discretion of the State Engineer.

#### **16.13 Effect of Rules on Other Wells**

Nothing in these Rules shall be construed to preclude the State Engineer from requiring metering of withdrawals, periodic reporting of such withdrawals, and cessation of excessive withdrawals from Wells not covered by these Rules.

#### **16.14 Effect of Rules on Prior Rules of the State Engineer**

As of March 1, 2009, these Rules shall supersede any previous Rules or regulations governing the measurement of any ground water diversions located in the Republican River Basin in Water Division No. 1.

**16.15 Severability**

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

**16.16 Revisions**

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

**16.17 Statement of Basis and Purpose Incorporated by Reference**

The Statement of Basis and Purpose for these Republican River Measurement Rules is incorporated herein as part of these Rules.

**16.18 Effective Date**

These Rules shall become effective on December 1, 2008, and shall remain in effect until amended as provided by law.

IT IS FURTHER ORDERED that any persons wishing to protest these Rules may do so in the manner provided in sections 24-4-101 *et seq.*, C.R.S., (the State Administrative Procedure Act).

## APPENDIX A – Exempt Wells

(b) Wells not exceeding fifteen 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;

(c) Wells not exceeding fifteen gallons per minute of production and used for drinking and sanitary facilities in individual commercial businesses;

(d) Wells to be used exclusively for fire-fighting purposes if said Wells are capped, locked, and available for use only in fighting fires;

(e) Wells not exceeding fifty gallons per minute which were 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; and

(f) 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.

(3)(b)(II)(A) Wells exempted under paragraph (b), above, that are the only Well on a residential site, that are used solely for ordinary household purposes inside a single-family dwelling and are not used for irrigation or are the only Well on a tract of land of thirty-five acres or more or are the only Well on a cluster development lot, serving one single-family residence, where the ratio of water usage in the cluster development does not exceed one acre-foot of annual withdrawals for each thirty-five acres within the cluster development and is used solely for the purposes specified in paragraph (b), above, and the return flow from such uses are returned to the same stream system in which the Well is located.

## APPENDIX B – Small Capacity Wells

- (a) Wells not exceeding fifty gallons per minute and used for no more than three single-family dwellings, including the normal operations associated with such dwellings but not including the irrigation of more than one acre of land;
- (b) Wells not exceeding fifty gallons per minute and used for watering of livestock on range and pasture;
- (c) (I) One well not exceeding fifty gallons per minute and used in one commercial business.
  - (II) To qualify as a "commercial business" under this paragraph (c), the business shall be:
    - (A) A business that will be operated by the Well owner and that will have its own books, bank accounts, checking accounts, and separate tax returns;
    - (B) A business that will use water solely on the land indicated in the permit for the Well and for the purposes stated in such permit;
    - (C) A business that will maintain its individual assets and will own or lease the property on which the Well is to be located or where the business is operated;
    - (D) A business that will have its own contractual agreements for operation of the business;
    - (E) A business that agrees not to transfer a permit issued under this paragraph (c) to another entity that also holds a small capacity commercial Well permit under this paragraph (c); and
    - (F) A business that agrees to notify any potential buyer that such buyer shall notify the state engineer of any change in ownership of such business within sixty days after any such change in ownership.
- (d) 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; or
- (e) Wells to be used exclusively for fire-fighting purposes if said Wells are capped and locked and available for use only in fighting fires.