

**RULES AND REGULATIONS FOR THE DETERMINATION OF THE  
NONTRIBUTARY NATURE OF GROUND WATER PRODUCED THROUGH WELLS  
IN CONJUNCTION WITH THE MINING OF MINERALS.**

**“PRODUCED NONTRIBUTARY GROUND WATER RULES”  
2 CCR 402-17**

**17.1 Title**

The title of the rules and regulations is “Rules and Regulations for the Determination of the Nontributary Nature of Ground Water Produced through Wells in Conjunction with the Mining of Minerals.” The short title of the rules is “Produced Nontributary Ground Water Rules.”

**17.2 Authority**

These rules are promulgated pursuant to the authority granted the State Engineer in House Bill 09-1303, Section 3, as codified at section 37-90-137(7)(c), C.R.S.; and section 37-80-102(1)(g), C.R.S. (2009).

**17.3 Scope and Purpose of Rules**

- A. The purpose of these rules is to assist the State Engineer with administration in the case of dewatering of geologic formations by withdrawing nontributary ground water to facilitate or permit mining of minerals.
- B. These rules establish procedures pursuant to which an operator may petition the State Engineer for a determination that water that is being or that may be withdrawn from geologic formations to facilitate or permit the mining of minerals is nontributary, as defined at section 37-90-103(10.5), C.R.S. (2009) These rules further identify certain areas, locations and formations within the State of Colorado where the State Engineer shall regard ground water removed from geologic formations to facilitate or permit mining of minerals to be nontributary.
- C. These rules provide for the use of engineering and scientific methodologies, including the use and results of ground water modeling or other ground water characteristics, such as water chemistry, hydrogeology, or other scientifically based approaches, that an applicant may rely upon in support of a petition for a nontributary determination.
- D. These rules apply only to ground water removed from geologic formations to facilitate or permit mining of minerals.

**17.4 Definitions**

- A. Statutory Definitions. The terms listed below have the identical meaning as in the referenced statutes:

## Produced Nontributary Ground Water Rules

1. "Ground water," also referred to as "underground water," is defined in section 37-90-103(10.5), C.R.S. (2009) and section 37-91-102(7), C.R.S. (2009).
  2. "Nontributary ground water" is defined in section 37 90-103(10.5) C.R.S. (2009).
- B. Specific Definitions. Unless expressly stated otherwise or the context otherwise requires:
1. "Field" means a region with an abundance of oil and/or gas wells extracting petroleum hydrocarbons from below ground.
  2. "Formation" or "geologic formation" means a certain number of rock strata that have a comparable lithology, facies or other similar properties
  3. "Oil and gas well" means any boring or well into the earth's surface designed to find and produce petroleum oil and/or gas hydrocarbons.
  4. "Operator" means any person or entity conducting exploration, production and/or maintenance of oil and gas well(s) or field(s)
  5. "Produced water" means ground water removed during the dewatering of one or more geologic formations to facilitate or permit mining of minerals
- C. Other Definitions. All other words used herein shall be given their usual customary and accepted meanings. All words of a technical nature specific to the well drilling industry shall be given the meaning that is generally accepted in that industry. All words of a technical or legal nature specific to the State of Colorado water rights administration shall be given the meaning that is generally accepted within that field.

### **17.5 Process for Obtaining a Determination of Nontributary Ground Water**

- A. Any person may seek to amend these rules, through applicable rulemaking procedures, to identify areas within the State of Colorado where the State Engineer shall regard Produced Water to be nontributary, if those areas are not already identified as nontributary in these rules. As an alternative to requesting a rulemaking proceeding, an Operator may obtain a determination regarding the nontributary nature of Produced Water through an adjudicatory proceeding before the State Engineer. Any such request for a nontributary determination must be submitted pursuant to the procedures set forth in this Rule 17.5.
- B. These rules do not preclude any Operator from obtaining a determination regarding the nontributary nature of Produced Water through an appropriate proceeding before the Water Court.
- C. Submittal of Petition for a Determination of Nontributary Ground Water

An Operator or group of Operators seeking a nontributary determination for Produced Water withdrawn from an existing well or group of wells, or for a well or wells to be

constructed in one or more geologic formations within a geographically delineated area ("Applicant") shall file a petition in the form of a letter and accompanying professional report to the State Engineer. The petition shall at a minimum contain the following information:

1. Information indicating whether the ground water will be withdrawn to facilitate or permit the mining of minerals, or withdrawn for purposes other than the mining of minerals.
2. Information indicating whether the Applicant is seeking a nontributary determination for a single well, group of wells, or for all wells, whether such wells have been constructed or are proposed to be constructed in one or more geologic formations within a geographically delineated area.
3. Information sufficient to demonstrate, through analytic or numeric modeling, that the depletions that result from pumping at the location of the well, wells, or at any well constructed, or proposed to be constructed in one or more geologic formations within a geographically delineated area, meet the nontributary standard. In lieu of ground water modeling, the Applicant may provide geologic, hydrologic, and other information sufficient to demonstrate that each subject geologic formation at the well location or within the geographically delineated area is hydraulically disconnected from all surface streams such that there will be no depletions to any surface stream as a result of pumping.

D. Notice and Comment

1. Concurrent with submission of the petition to the State Engineer, the Applicant shall file notice of the petition. The notice shall be sent to all parties on the Produced Nontributary Ground Water Notification List for the water division in which the subject ground water is located and the primary newspapers in circulation in the affected watersheds.
2. The State Engineer shall allow 30 (thirty) days for any person to respond to the petition. A person may respond to the petition by submitting written comments, by requesting a copy of an "Initial Determination" (as described below, see Initial Determination), or by requesting that the matter be referred for hearing on the petition. The person must state the basis for such a request. The Applicant or the staff of the State Engineer may also refer the matter for hearing on the petition. If any person refers the matter for a hearing, the State Engineer shall immediately submit the matter to the Hearing Officer for a hearing pursuant to the procedures described below.

E. Initial Determination

1. If no person requests a hearing, the staff of the State Engineer shall evaluate the petition and any written comments, and produce an Initial Determination with respect to whether water withdrawn from the well, wells, or any wells constructed, or proposed to be constructed in one or more geologic formations within a geographically delineated area is nontributary. The Initial Determination may find that water from only certain wells or certain locations is nontributary.

2. The staff of the State Engineer shall provide a copy of its Initial Determination to the Applicant, any person who submitted written comments, and any person who requested a copy of the Initial Determination. If no person objects to the Initial Determination within 30 (thirty) days, the staff of the State Engineer will submit its initial determination to the State Engineer for review and certification as a Final Decision, as described below.

F. Hearing

1. If any person objects to the Initial Determination, or if any party had previously referred the matter for a hearing, the request will be set for an adjudicatory hearing before the Hearing Officer. The person objecting to the Initial Determination must state the basis for such an objection.
2. The hearing shall be conducted pursuant to the Division of Water Resources Procedural Regulations, 2 CCR 402-5, § 1.1.4, and applicable provisions of the State Administrative Procedure Act. The Applicant shall provide notice of the hearing to any person who had responded to the petition.
3. For purposes of the hearing, the Applicant shall be considered the party requesting the hearing and the proponent of the order, and shall have the burden of proof. Any person who responded to the petition may participate as a party to the hearing. The staff of the State Engineer may participate as a party to the hearing in support or opposition of the petition, but shall not bear the burden of proof.
4. The Hearing Officer may consider the Initial Determination of the staff of the State Engineer as evidence; however, the Hearing Officer's review will be *de novo*, based upon the evidence presented at the hearing.

G. Final Decision

If there is no objection to the Initial Determination of the staff of the State Engineer, the Initial Determination shall become the Final Decision of the State Engineer ("Final Decision") with respect to the Applicant's petition. If there has been a hearing on the petition, the decision of the Hearing Officer shall become the Final Decision of the State Engineer pursuant to procedures set forth in the Division of Water Resources Procedural Regulations, 2 CCR 402-5, § 1.1.4, and applicable provisions of the State Administrative Procedure Act.

H. Effect of Final Decision

1. The State Engineer may rely upon the Final Decision to evaluate well permit applications submitted pursuant to § 37-90-137(7), C.R.S. (2009), where an operator is withdrawing nontributary ground water to facilitate the mining of minerals, and where the nontributary ground water being removed will be beneficially used.
2. The State Engineer may rely upon the Final Decision to authorize the withdrawal of nontributary ground water to facilitate the mining of minerals without requiring

a well permit, pursuant to § 37-90-137(7), C.R.S. (2009), where the nontributary ground water being removed will not be beneficially used.

3. Where a Final Decision is applicable to all wells to be constructed within a geographically delineated area, the State Engineer may rely upon the Final Decision to evaluate all wells constructed within that area for the purposes set forth in the preceding paragraphs.

I. Produced Nontributary Ground Water Notification List

The State Engineer shall establish a Produced Nontributary Ground Water Notification List for each water division within the State of Colorado for the purposes of ensuring that water users within each water division receive adequate notice of proceedings held pursuant to these rules. In order to establish such notification list, the State Engineer shall in January of each year cause to have published in the water court resume for each water division an invitation to be included on such notification list for the applicable water division. Persons on the Produced Nontributary Ground Water Notification List shall be provided notice required pursuant to these rules by either first-class mail, or, if a person so elects, by electronic mail.

**17.6 Engineering and Scientific Methodologies and Standards**

- A. An Applicant shall comply with the engineering and scientific methodologies and standards described in Rule 17.6 of these rules when submitting a petition for determination of nontributary groundwater made pursuant to Rule 17.5 of these rules.

B. Conceptual Model

For any petition for determination of nontributary groundwater submitted pursuant to Rule 17.5 of these rules, an Applicant shall include a conceptual model of the geologic and hydrogeologic characteristics of the relevant area, formation or basin under consideration. The conceptual model shall adequately represent the known geologic and hydrogeologic characteristics of the ground water system. At a minimum, the conceptual model shall define the hydrostratigraphic units along with any known characteristics and boundary conditions. The conceptual model will determine whether numerical or analytical modeling, or alternative methodologies are appropriate for evaluating the petition for a determination of nontributary ground water. For numerical modeling, the conceptual model shall establish the preliminary water budget of the system, which should include sources of water, flow directions, and discharge or exit points.

C. Ground Water Modeling

1. An Applicant may use mathematical ground water modeling simulating the ground water system through equations that describe the heads or flows with representative boundary conditions to demonstrate that the withdrawal of produced ground water that is, or is presumed to be, in hydraulic connection with the surface water system is nontributary, as defined at section 37-90-103(10.5), C.R.S. (2009).

2. Any ground water model used to demonstrate that the withdrawal of produced ground water that is, or is presumed to be, in hydraulic connection with the surface water system is nontributary shall comply with the protocol for development and use of a mathematical ground water model as generally agreed upon by technical experts in the water resources discipline. Many analytical and numerical models are available that may be found acceptable for use in the evaluation of an Application. However, the Applicant must demonstrate the model's suitability and applicability to determining that the ground water is nontributary. The Applicant should contact the State Engineer's Office regarding the use of models since certain models will have more or less credibility with ground water modeling experts.
3. For situations in which the hydrologic system is under confined or semi-confined conditions, model calculations shall utilize a storativity (storage coefficient). A specific yield value may be used in the calculations where water table (unconfined) conditions exist.
4. All data files used in a numerical or analytical ground water model shall be provided in an electronic format deemed acceptable to the State Engineer's Office. All data files shall include the model input files as well as any supporting data used in the development of the model input files. Any GIS shape files used in the development of the model shall also accompany submittal of the model.
5. Documentation to explain the context and methodology of all ground water modeling shall accompany the Professional Report as described in Rule 17.6.E. It is incumbent upon the Applicant to demonstrate to the satisfaction of the State Engineer's Office that the model code and input data are suitable and applicable for determining that the produced ground water is nontributary. Proprietary information and data need not be disclosed by an Applicant beyond that which is deemed necessary by the State Engineer's Office to evaluate the model and verify model input parameters.

D. Alternative Methodology

1. Geologic conditions at a site may effectively isolate the mineral-bearing production zones from the surface water system. An alternative method may be utilized to demonstrate that ground water produced in conjunction with the mining of minerals from the potential and existing production zones is nontributary. Alternative methodologies are intended to demonstrate that the production zones are disconnected from the surface water system by a lithologic discontinuity or structural separation between the production zone and its outcrop equivalent.
2. The criteria for demonstrating isolation of an existing or potential production zone from the surface water system may include both direct and indirect physical evidence such as that obtained from drilling, borehole geophysical logging, surface seismic and geophysical surveys, drill stem and pump tests, geochemical analyses and surface and subsurface mapping.

Geologic and geophysical maps and cross sections shall be based on actual evidence obtained from drilling, geophysical and/or seismic surveys or other

verifiable geotechnical investigations. Location, seismic and geophysical survey data, including GIS data, shall be submitted in a paper and/or electronic format deemed acceptable by the State Engineer's Office.

3. Published professional reports, investigations, or technical papers may be provided as a source of factual evidence in support of a petition
4. Petrophysics, hydrogeologic data and water chemistry may be used to support the conclusions of a petition. Samples of water and gas, or other media to be subjected to chemical or isotopic analysis, shall be collected, handled and analyzed to ensure that the results are consistent with the intended use of the data. A detailed description of the sample collection procedures and analytical methods shall be submitted to the State Engineer's Office upon request. Laboratory data shall be submitted in a format deemed acceptable by the State Engineer's Office.
5. Copies of supporting evidence shall be provided to the State Engineer's Office upon request. Such evidence may include, but is not limited to, geophysical logs and surveys, pump and drill stem test data, lithologic descriptions or other physical or hydrologic analyses and water quality/chemistry analyses on which the Applicant has relied to support a petition. Proprietary information and data need not be disclosed by an applicant beyond that which is deemed necessary by the State Engineer's Office to evaluate the petition and demonstrate that the data on which the Applicant's conclusions are based is valid.

E. Professional Reports

1. The supporting data for a petition shall be assembled in a professional report and shall include appendices of the data and calculations used to demonstrate that the ground water is not connected to the surface water system or that the ground water otherwise meets the statutory definition of nontributary ground water as set forth at section 37-90-103(10.5), C.R.S. (2009).
2. A detailed map of the proposed nontributary area shall accompany the report and shall be overlain on a standard U.S.G.S. topographic map with scale 1:24000 inches when such area can be shown within the boundary of 7 mile by 14 mile map area. For larger areas, a topographic base map with a scale of 1:50000, 1:100000 or 1:250000 inches may be utilized; using the largest scale possible that will enclose the entire area of the nontributary ground water determination, wells, and locations of data points, surveys, and other features related to the petition.
3. Standard Data Format – For consistency in reporting, the following parameters shall be used as the standard format and units for reporting the stated types of data: *Where: L = length (feet); t = time (day)*
  - a. Hydraulic conductivity (K) shall be reported in units of L/t (ft/day).
  - b. Transmissivity [T] shall be reported in units of L<sup>2</sup>/t (ft<sup>2</sup>/day).

- c. Water production rate [Q] shall be reported in units of  $L^3/t$  ( $ft^3/day$ ).
  - d. Specific storage (Ss) shall be reported in units of  $L^{-1}$  (1/ft).
  - e. Water volume shall be reported in units of  $L^3$  ( $ft^3$ )
  - f. Specific yield, storativity or storage coefficient shall be reported as a ratio.
  - g. Thicknesses (aquifer, formation, etc.) shall be reported in units of L (feet).
  - h. Distances shall be reported in units of L (feet).
- 4. The Applicant shall submit two (2) paper copies of the report and appendices and one (1) electronic copy, including GIS shape files, in a format deemed acceptable by the State Engineer's Office.
  - 5. A petition for multiple production zones may be submitted with a single report utilizing data from a source or sources that include the same geographic/geologic area.

#### **17.7 Specific Locations of Nontributary Ground Water in Colorado**

- A. Ground water in the State of Colorado is legally presumed to be "tributary," or hydraulically connected to surface water in such a fashion so as to require administration within the prior appropriation system in conjunction with surface rights. See *Simpson v. Bijou Irrigation Co.*, 69 P.3d 50, 57 n.7 (Colo. 2003). Accordingly, absent a determination made pursuant to Rule 17.5 of these rules, the State Engineer shall regard all Produced Water within the State of Colorado to be tributary, with the following exceptions:

- B. The Denver Basin

The State Engineer shall regard the bedrock aquifers of the Denver Basin (the Dawson, Denver, Arapahoe, and Laramie-Fox Hills) to be nontributary only where shown to be nontributary by the Denver Basin Rules, 2 CCR 402-6. Pursuant to Section 37-90-103(10.7) (2009), the State Engineer shall regard all remaining ground water in the bedrock aquifers of the Denver Basin subject to the Denver Basin rules to be not nontributary.

- C. Water Rights Found to be Nontributary by a Valid Court Decree

The State Engineer shall regard all water rights that have been decreed nontributary to be nontributary only to the extent provided by the court decree and only insofar as such water is used in a manner wholly consistent with the terms and conditions of such decree.

- D. Existing Ground Water Well Permits

House Bill 09-1303, Section 3, as codified at section 37-90-137(7)(c), C.R.S. (2009); Section 37-90-137(7)(c), C.R.S. provides "[a]ny rules promulgated pursuant to this subsection (7) shall not conflict with existing laws and shall not affect the validity of



ground water well permits existing prior to the adoption of such rules.” Accordingly, the State Engineer shall regard as nontributary all ground water permitted for withdrawal as nontributary ground water pursuant to well permits issued by the State Engineer prior to the adoption of these rules.

**17.8 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

**17.9 Revisions**

These rules may be revised in accordance with section 24-4-103, C.R.S. (2009).

**17.10 Variance**

Except when necessary to comply with applicable law, the requirements of these rules may be waived by the State Engineer if it is determined that strict adherence to these rules will not promote the interests of justice. In any such instance appropriate justification shall be provided to all affected persons.

**17.11 Other laws, rules, and decrees**

These rules shall be interpreted where possible so as to not conflict with existing laws, rules, or decrees.

**17.12 Effective Date**

These Rules shall become effective on \_\_\_\_\_, and shall remain in effect until amended as provided by law.

**17.13 Statement of Basis and Purpose**

The Statement of Basis and Purpose for these Rules is incorporated herein as part of the Rules.