

DEPARTMENT OF NATURAL RESOURCES

OFFICE OF THE STATE ENGINEER

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 these 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 these rules and regulations is “Produced Nontributary Ground Water Rules” and in this document the rules and regulations may be referred to as “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.

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 the 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to which an operator may petition the State Engineer for a determination that water that is being or that may be withdrawn from geologic formations to facilitate or permit the mining of minerals is nontributary, as defined at section 37-90-103(10.5), C.R.S. These Rules further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. Consistent with section 37-90-137(7)(c), C.R.S., the State Engineer is adopting these Rules to assist with his administration of ground water withdrawn to facilitate or permit the mining of minerals. Consistent with the intent of House Bill 09-1303, such administration includes the State Engineer using nontributary

determinations made pursuant to these Rules for purposes of issuing water well permits pursuant to section 37-90-137(7), C.R.S., and to obviate the need for administration of wells subject to permitting consideration, as allowed by sections 37-90-137(7) and 37-92-305(11), C.R.S.. The State Engineer shall not use these Rules for permitting of wells pursuant to section 37-90-137(4), C.R.S.

- E. These Rules do not apply to any aquifer or portion thereof that contains designated ground water and is located within the boundaries of a designated ground water basin.
- F. These Rules and regulations shall not be construed to establish the jurisdiction of either the State of Colorado or the Southern Ute Indian Tribe over nontributary ground water within the boundaries of the Southern Ute Indian Reservation as recognized in Pub. L. No. 98-290, § 3, 98 Stat. 201 (1984).

17.4 Definitions

- A. Statutory Definitions. The terms listed below have the identical meaning as in the referenced statutes:
 - 1. "Ground water," also referred to as "underground water," is defined in section 37-90-103(10.5), C.R.S. and section 37-91-102(7), C.R.S.
 - 2. "Nontributary ground water" is defined in section 37 90-103(10.5) C.R.S.
- 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 engaged in the mining of minerals, including any person or entity conducting exploration, production and/or maintenance of oil and gas well(s) or field(s), and excluding geothermal energy developers.
 - 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

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, or to amend, based on factual information not presented at the time of adoption, the Rules to exclude areas previously determined to be nontributary pursuant to these Rules or any amendment thereof. An amendment excluding areas previously determined to be nontributary will not invalidate any existing permits issued pursuant to these Rules or otherwise cause the State Engineer to change his administration of wells in existence prior to such amendment. 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.

These Rules do not preclude any Operator from obtaining a determination regarding the nontributary nature of Produced Water, for the purpose of section 37-90-137(7), C.R.S., through an appropriate proceeding before the Water Court.

A. 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.

B. 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 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, immediately upon effect of these Rules, and in January of each year thereafter, 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.
3. The State Engineer shall allow 30 days for any person to respond to the petition. A person may respond to the petition by submitting written comments or by requesting that the matter be referred for hearing on the petition. The person must state the basis for such a request in sufficient detail to allow the State Engineer to determine whether a hearing is appropriate prior to an Initial Determination. The Applicant or the staff of the State Engineer may also refer the matter for hearing on the petition. If the State Engineer determines a hearing is appropriate, he shall schedule a hearing pursuant to the procedures described below. The State Engineer may submit the matter to a designated Hearing Officer at his discretion.

C. 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 an existing well or wells 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 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.

D. Hearing

1. If any person objects to the Initial Determination, or if the State Engineer has determined a hearing is appropriate before an Initial Determination, the matter will be set for an adjudicatory hearing before the State Engineer. The person objecting must state in detail the basis for such an objection to the Initial Determination.

2. The hearing shall be conducted pursuant to the Division of Water Resources Procedural Regulations, 2 CCR 402-5, and applicable provisions of the State Administrative Procedure Act. The Applicant shall provide notice of the hearing to any person who 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 initial 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.
4. The State Engineer may consider the Initial Determination of the staff of the State Engineer as evidence; however, the hearing will be *de novo*, based upon the evidence presented at the hearing.

E. Final Decision

If no hearing is held, 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 State Engineer 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, and applicable provisions of the State Administrative Procedure Act.

F. Effect of Final Decision

1. The State Engineer shall rely upon the Final Decision to evaluate well permit applications submitted pursuant to section 37-90-137(7), C.R.S., 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 shall 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 section 37-90-137(7), C.R.S., 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 shall rely upon the Final Decision to evaluate all wells constructed within that area for the purposes set forth in the preceding paragraphs.

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.
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.

6. Any party objecting to a petition for an adjudicatory proceeding or objecting to an Initial Determination, as specified in Rule 17.5, may obtain all supporting information relied upon by an Applicant in developing any ground water modeling, or alternative methodologies. The Applicant's obligation to disclose such information arises upon request of any party and, to the extent that the Applicant deems and the State Engineer finds any such information sensitive, confidential, or proprietary, the parties and State Engineer shall agree to hold such information confidential and protect it from public dissemination under appropriate terms and conditions.

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.

6. Any party objecting to a petition for an adjudicatory proceeding or objecting to an Initial Determination, as specified in Rule 17.5, may obtain all supporting information relied upon by an Applicant in developing any ground water modeling, or alternative methodologies. The Applicant's obligation to disclose such information arises upon request of any party and, to the extent that the Applicant deems and the State Engineer finds any such information sensitive, confidential, or proprietary, the parties and State Engineer shall agree to hold such information confidential and protect it from public dissemination under appropriate terms and conditions.

E. Professional Report

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.
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 L²/t (ft²/day).
 - c. Water production rate [Q] shall be reported in units of L³/t (ft³/day).
 - d. Specific storage (S_s) shall be reported in units of L⁻¹ (1/ft).
 - e. Water volume shall be reported in units of L³ (ft³).
 - 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 paper copies of the report and appendices and one 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

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, unless it is demonstrated to be nontributary ground water in accordance with the law. See *Simpson v. Bijou Irrigation Co.*, 69 P.3d 50, 57 n.7 (Colo. 2003). For purposes of administration under section 37-90-137(7), C.R.S. absent a determination made pursuant to Rule 17.5 of these Rules, or other Rulemaking, the State Engineer shall regard all Produced Water within the State of Colorado to be tributary, with the exception of the ground water described in Rule 17.7.A through D.

A. 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), C.R.S., 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.

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

The State Engineer shall regard all water rights that are decreed nontributary by a court 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.

C. Existing Ground Water Well Permits

House Bill 09-1303, Section 3, codified at 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.” Therefore, 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.

D. For the purpose of meeting the objectives in the scope and purpose of these Rules, Rule 17.7.D. identifies geographically delineated areas under which the ground water in only certain formations is nontributary for the limited purposes of these Rules. Small-scale maps showing the extents of the delineated areas and identifying the geologic formations are included as a reference in an appendix to these Rules. Larger-scale maps are available on the Division of Water Resources’ website along with an electronic version of these Rules. The small-scale and large-scale maps show identical areas and each are incorporated as part of the Rules. The delineated areas may be viewed through Division of Water Resources’ public data viewing tools as they are developed

and the data files describing the areas are also available for downloading from the Division of Water Resources' website.

1. Ground water in the Piceance Basin, Mesaverde Formation, Cameo and South Canyon Coal Groups within the boundaries shown on the small-scale Map A-1 in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 1, available on the Division of Water Resources' website.
2. Ground water in the Northern San Juan Basin, Fruitland Formation within the boundaries shown on the small-scale Map A-2 in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 2, available on the Division of Water Resources' website.
3. Ground water in the Piceance Basin, Neslen Formation within the boundaries shown on the small-scale Map A-3 in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 3, available on the Division of Water Resources' website.
4. Ground water in the Paradox Basin, Paradox Formation within the boundaries shown on the small-scale Map A-4 in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 4, available on the Division of Water Resources' website.
5. Ground water in the following formations in the Sand Wash Basin:
 - a. Wasatch Formation (Hiawatha Formation) within the boundaries shown on the small-scale Map A-5a in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 5a, available on the Division of Water Resources' website.
 - b. Nugget Sandstone, Dakota Sandstone, Mowry Shale, Frontier Formation, Baxter Shale, Mesaverde Group, Lewis Shale, Lance Formation, and Fort Union Formation, within the boundaries shown on the small-scale Map A-5b in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 5b, available on the Division of Water Resources' website. For the Frontier Formation Mowry Shale and Dakota Sandstone, the delineated nontributary area excludes the upthrown fault block lying above the Uinta-Sparks fault system.
6. Ground water in the following formations in the Piceance Basin:
 - a. Ground water in the Weber Formation within the boundaries shown on the small-scale Map A-6a in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 6a, available on the Division of Water Resources' website.
 - b. Ground water in the Morrison and the Sundance/Entrada Formation within the boundaries shown on the small-scale Map A-6b in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 6b, available on the Division of Water Resources' website.
7. Ground water in the following formations in the Piceance Basin:

- a. Ground water in the Undifferentiated Wasatch Formation within the boundaries shown on the small-scale Map A-7a in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 7a, available on the Division of Water Resources' website.
 - b. Ground water in the Middle and Lower Wasatch Formation within the boundaries shown on the small-scale Map A-7b in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 7b, available on the Division of Water Resources' website.
 - c. Ground water in the Iles Formation within the boundaries shown on the small-scale Map A-7c in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 7c, available on the Division of Water Resources' website.
 - d. Ground water in the Williams Fork Formation within the boundaries shown on the small-scale Map A-7d in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 7d, available on the Division of Water Resources' website. These boundaries are also representative of the Undifferentiated Mesaverde Group for the purpose of these Rules.
8. Ground water in the following formations in the Piceance Basin:
- a. Ground water in the Mancos Formation within the boundaries shown on the small-scale Map A-8a in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 8a, available on the Division of Water Resources' website.
 - b. Ground water in the Dakota Formation within the boundaries shown on the small-scale Map A-8b in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 8b, available on the Division of Water Resources' website.
 - c. Ground water in the Morrison Formation within the boundaries shown on the small-scale Map A-8c in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 8c, available on the Division of Water Resources' website.
9. Ground water in the following formations in the Northern San Juan Basin:
- a. Ground water in the Pictured Cliffs Sandstone Formation within the boundaries shown on the small-scale Map A-9a in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 9a, available on the Division of Water Resources' website.
 - b. Ground water in the Cliff House Sandstone Formation within the boundaries shown on the small-scale Map A-9b in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 9b, available on the Division of Water Resources' website.
 - c. Ground water in the Menefee Formation within the boundaries shown on the small-scale Map A-9c in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 9c, available on the Division of Water Resources' website.
 - d. Ground water in the Point Lookout Sandstone within the boundaries shown on the small-scale Map A-9d in Appendix A, which boundaries are

- more clearly shown on the large-scale map labeled Map 9d, available on the Division of Water Resources' website.
- e. Ground water in the Dakota Formation within the boundaries shown on the small-scale Map A-9e in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 9e, available on the Division of Water Resources' website.
10. Ground water in the following formations in the Denver-Julesburg Basin, provided such ground water is not in an upthrown fault block:
- a. Ground water in the Pierre Shale Formation, Parkman Sandstone Member; also known as the Larimer, Richard, and Rocky Ridge Members; within the boundaries shown on the small-scale Map A-10a in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 10a, available on the Division of Water Resources' website.
 - b. Ground water in the Pierre Shale Formation, Sussex Sandstone Member, also known as the Terry Member, within the boundaries shown on the small-scale Map A-10b in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 10b, available on the Division of Water Resources' website.
 - c. Ground water in the Pierre Shale Formation, Shannon Sandstone Member; also known as the Hygiene Member, within the boundaries shown on the small-scale Map A-10c in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 10c, available on the Division of Water Resources' website.
 - d. Ground water in the Lower Pierre Shale Formation within the boundaries shown on the small-scale Map A-10d in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 10d, available on the Division of Water Resources' website.
 - e. Ground water in the Niobrara Formation within the boundaries shown on the small-scale Map A-10e in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 10e, available on the Division of Water Resources' website.
 - f. Ground water in the Carlile Formation within the boundaries shown on the small-scale Map A-10f in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 10f, available on the Division of Water Resources' website.
 - g. Ground water in the Greenhorn Formation within the boundaries shown on the small-scale Map A-10g in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 10g, available on the Division of Water Resources' website.
 - h. Ground water in the Graneros Formation within the boundaries shown on the small-scale Map A-10h in Appendix A, which boundaries are more clearly shown on the attached large-scale map labeled Map 10h, available on the Division of Water Resources' website.
 - i. Ground water in the Dakota Group within the boundaries shown on the small-scale Map A-10i in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 10i, available on the Division of Water Resources' website.

- j. Ground water in the Lyons Formation within the boundaries shown on the small-scale Map A-10j in Appendix A, which boundaries are more clearly shown on the large-scale map labeled Map 10j, available on the Division of Water Resources' website.

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.

17.10 Other laws, rules, and decrees

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

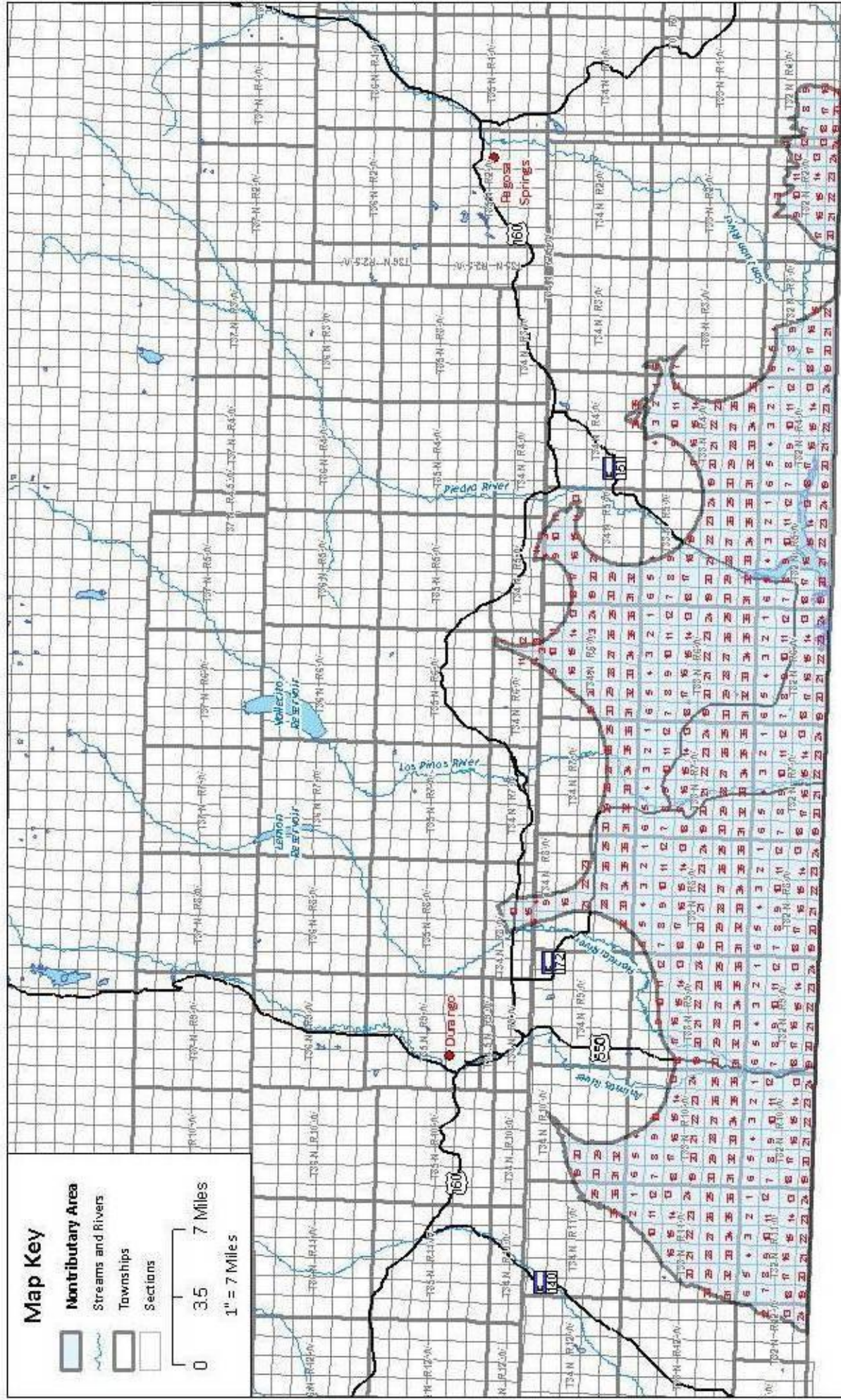
17.11 Effective Date

These Rules shall become effective 20 days after publication and shall remain in effect until amended or revoked as provided by law.

17.12 Statement of Basis and Purpose

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

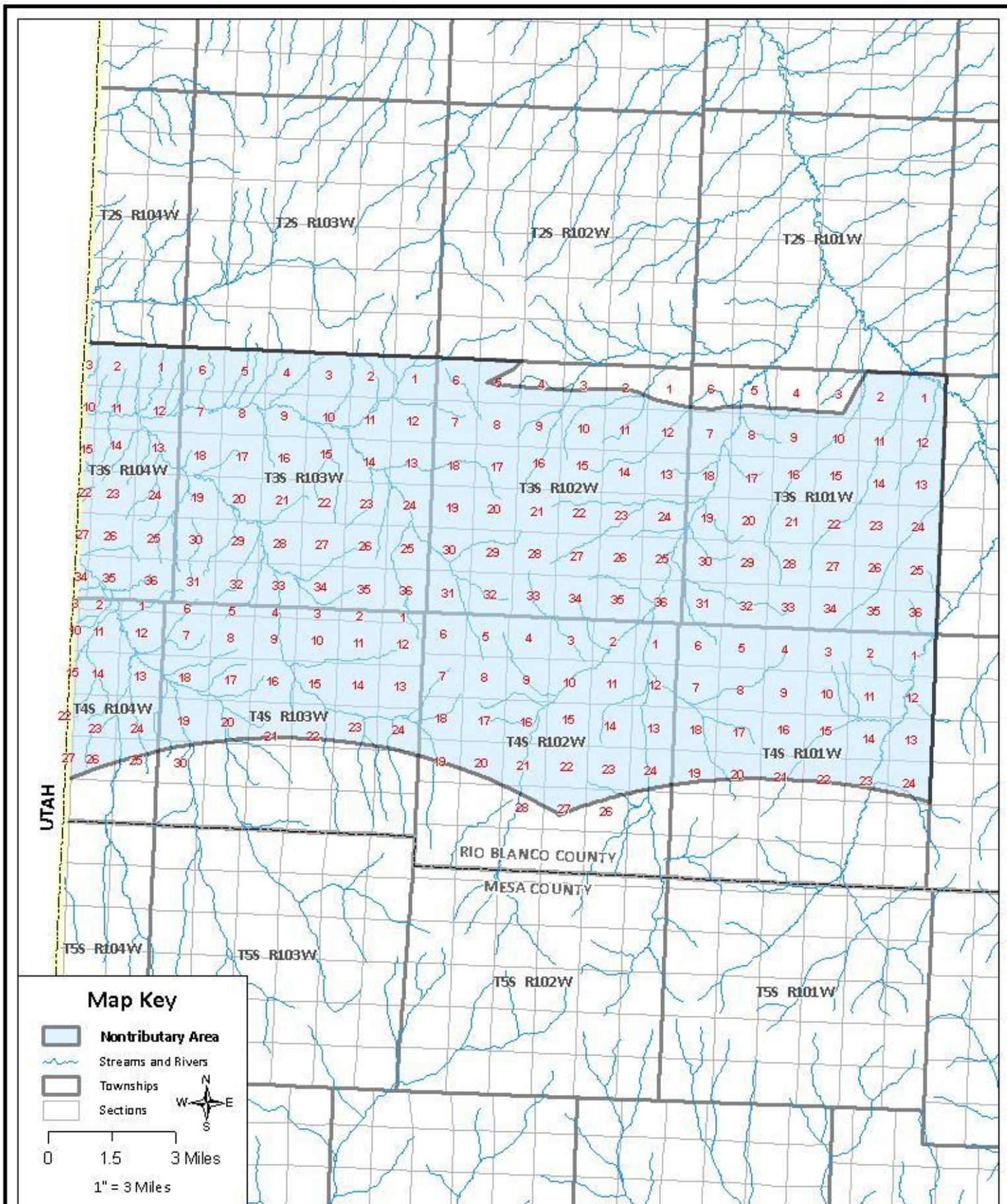
APPENDIX A



STATE OF COLORADO DEPARTMENT OF NATURAL RESOURCES DIVISION OF WATER RESOURCES



State of Colorado – Division of Water Resources
 Produced Nontributary Ground Water Rules; 2 CCR 402-17
 Nontributary Ground Water in the Northern San Juan Basin
 Fruitland Formation



02/02/10C KB C:\0003\B\0003\PROJ\TS\MO\NTRIB\F\03\MAP\3\PIC\BANC\EMESLEN\NON TRIB 823110K.D



State of Colorado – Division of Water Resources
Produced Nontributary Ground Water Rules; 2 CCR 402-17
Nontributary Ground Water in the Piceance Basin
Neslen Formation

Map
A-3



WYOMING

COLORADO

12N 102W

11N 102W

12N 101W

11N 101W

12N 100W

11N 100W

12N 99W

11N 99W

12N 98W

11N 98W

12N 97W

11N 97W

12N 96W

11N 96W

10N 99W

10N 98W

Green River

318

Little Snake River

Map Key

- Nontributary Area
- Streams and Rivers
- Townships
- Sections



0 2.5 5 Miles
1" = 5 Miles



COLORADO DIVISION OF WATER RESOURCES

State of Colorado – Division of Water Resources

Produced Nontributary Ground Water Rules; 2 CCR 402-17

Nontributary Ground Water in the Sand Wash Basin

Wasatch Formation (Hiawatha Member)

Map
A-5a

WYOMING

COLORADO

12N 102W

12N 101W

12N 100W

12N 99W

12N 98W

12N 97W

12N 96W

11N 102W

11N 101W

11N 100W

11N 99W

11N 98W

11N 97W

11N 96W

10N 99W

10N 98W

10N 97W

10N 96W

Green River

Little Snake River

318

Map Key

Nontributary Area

Streams and Rivers

Townships

Sections

N
W
E
S

0 2.5 5 Miles

1" = 5 Miles



State of Colorado – Division of Water Resources

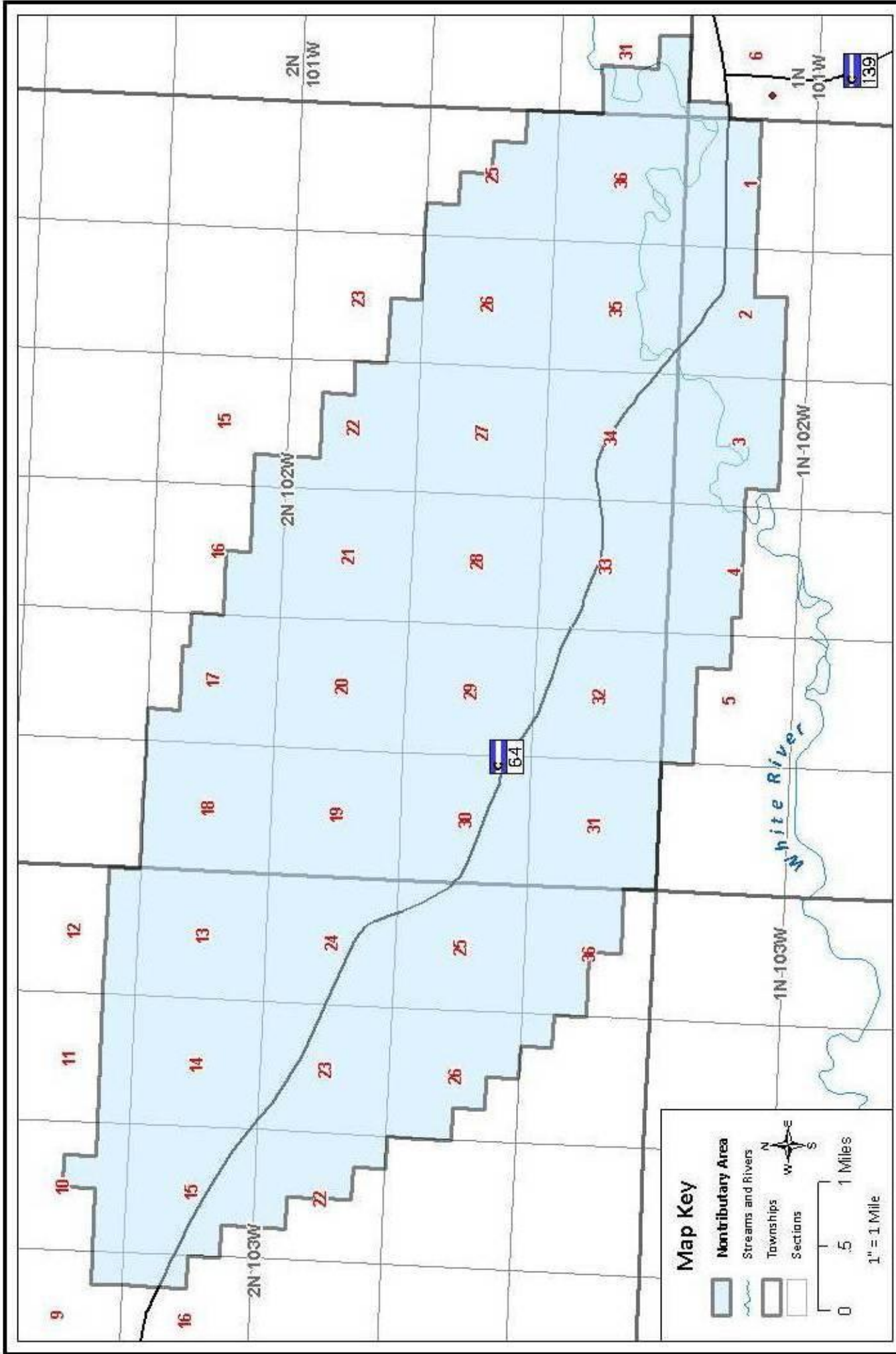
Produced Nontributary Ground Water Rules; 2 CCR 402-17

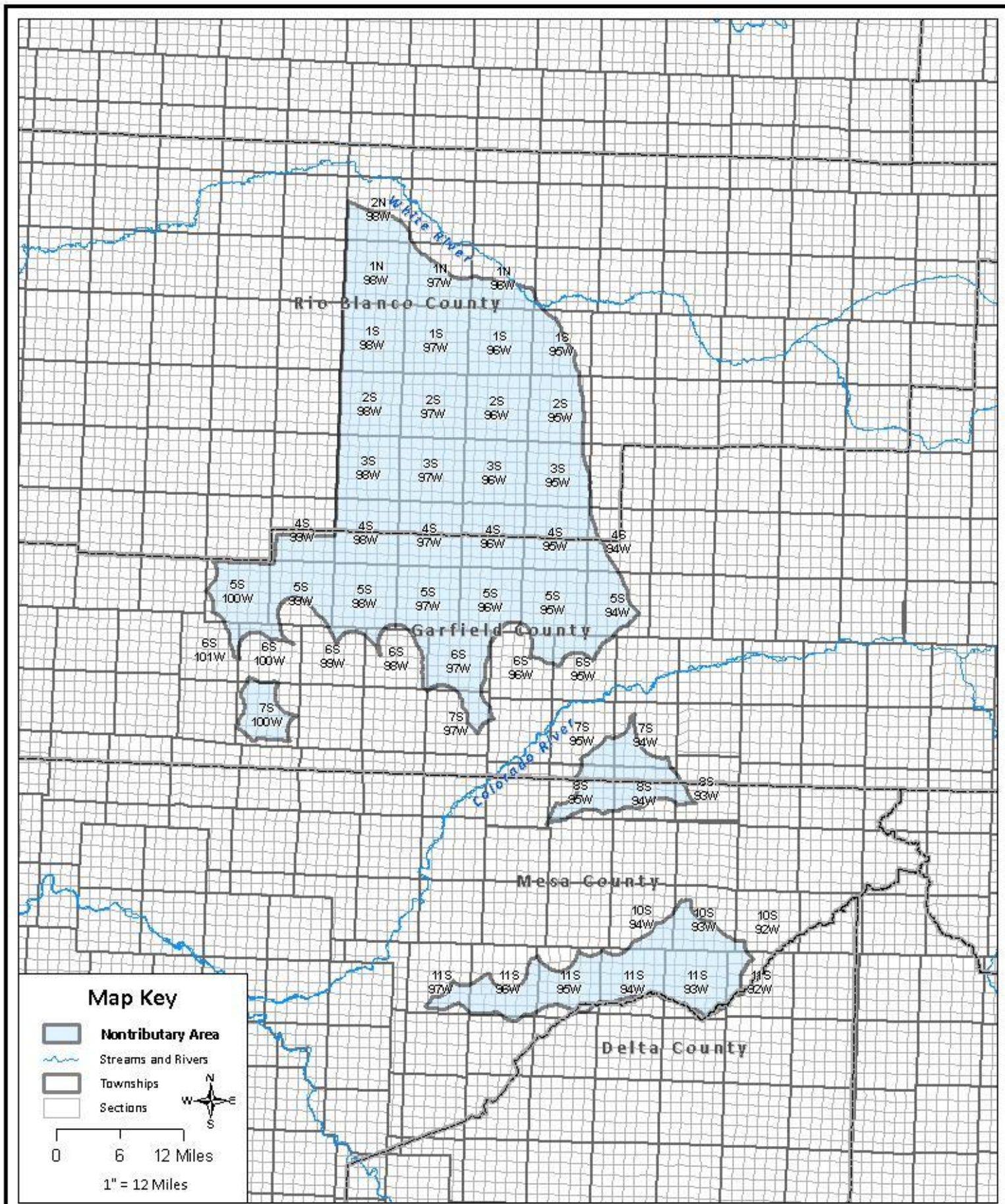
Nontributary Ground Water in the Sand Wash Basin

Nugget Sandstone, Dakota Sandstone, Mowry Shale, Frontier Formation, Baxter Shale,

Mesaverde Group, Lewis Shale, Lance Formation, Fort Union Formation

Map
A-5b



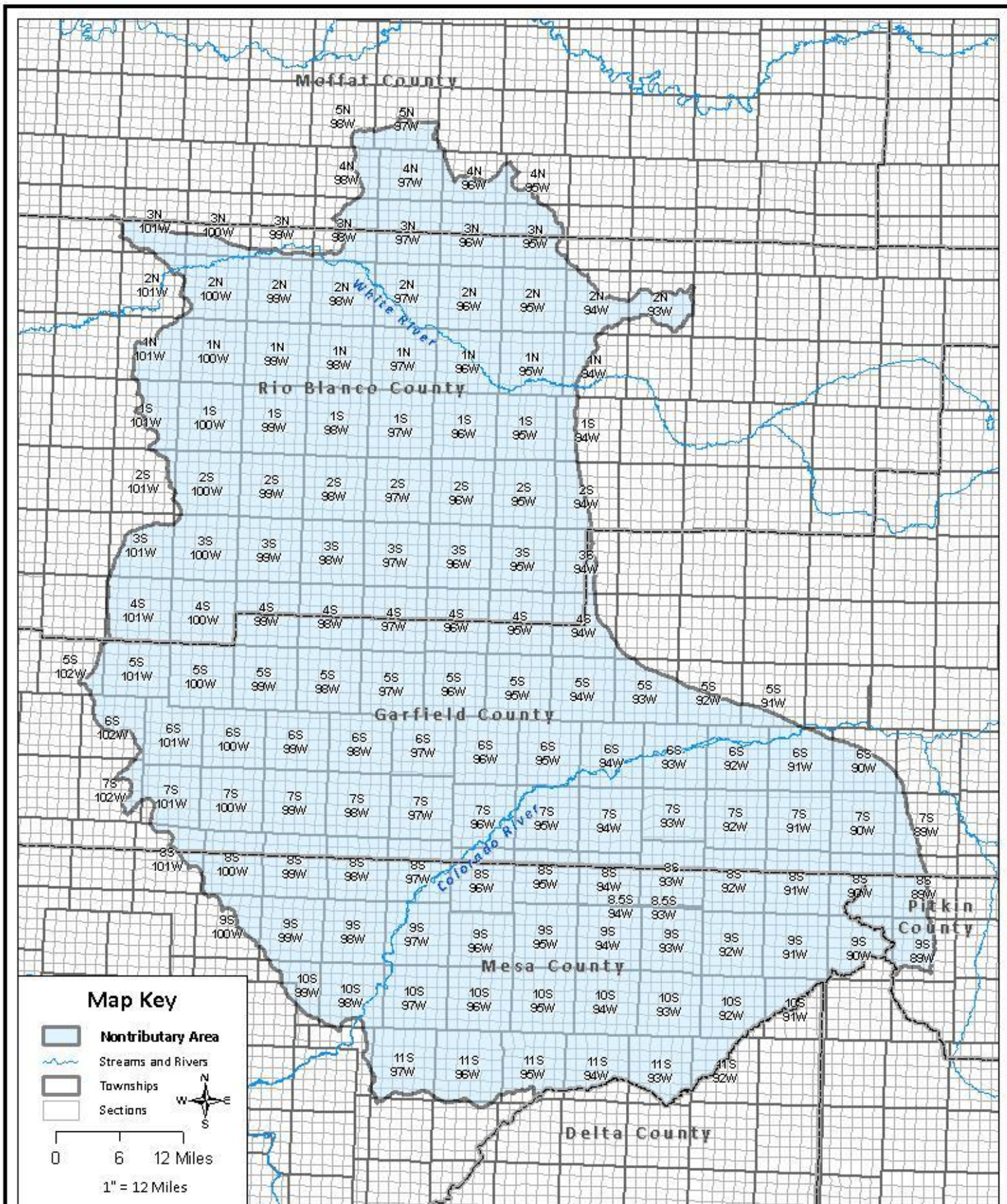


02/13/10 CKB C:\0003\B\0003\PROJECTS\NONTRIBUTARY\MAP\TYPIC\E\UND\WASATCH\NONTRIBUTEX\11.MXD



State of Colorado – Division of Water Resources
Produced Nontributary Ground Water Rules; 2 CCR 402-17
Nontributary Ground Water in the Piceance Basin
Undifferentiated Wasatch Formation

Map
A-7a

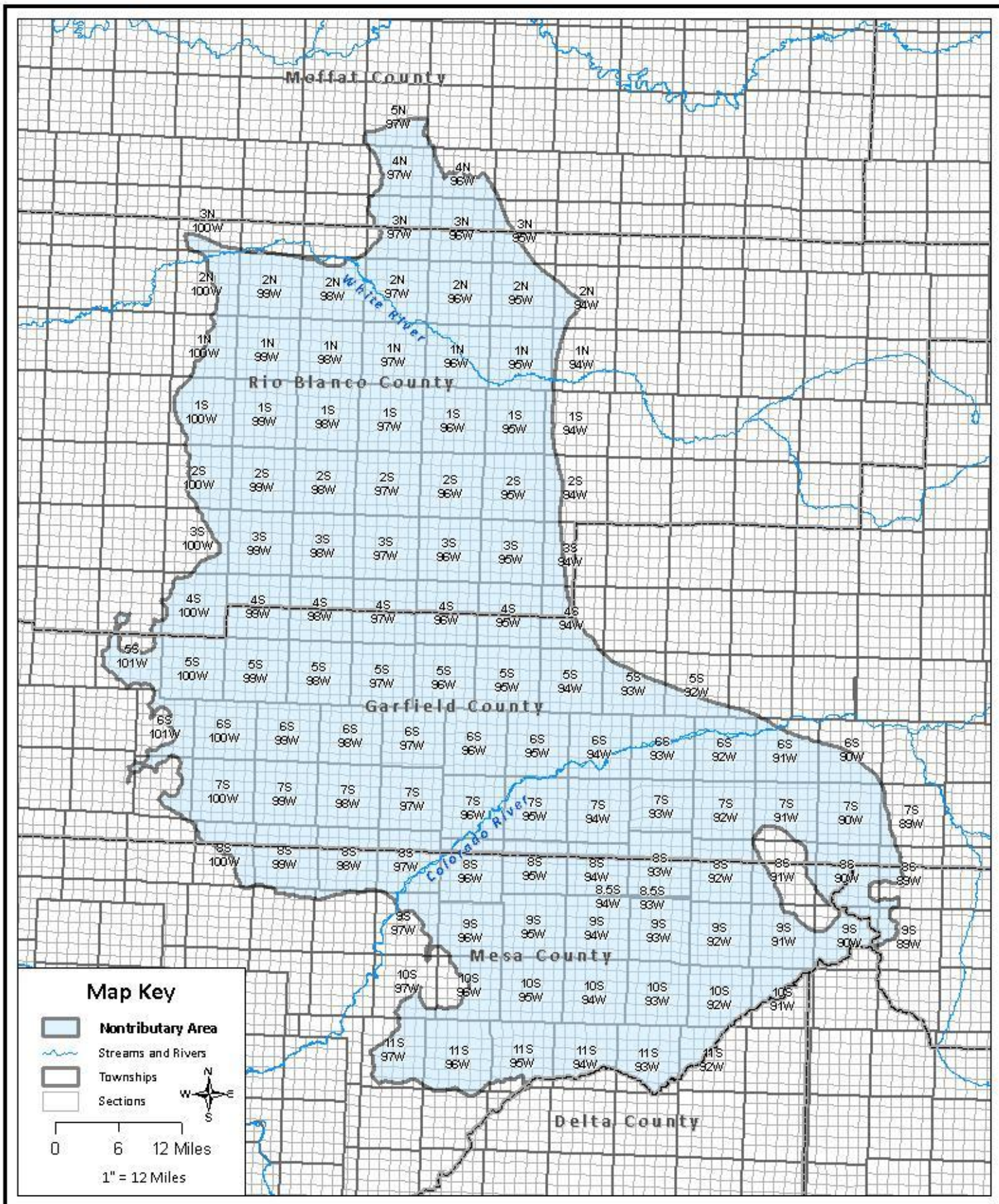


DATE: 10/01/03 BY: 0003 PROJECT: MONITORING MAP TYPIC EARTH ILLS FORMATION TRIBUTARY



State of Colorado – Division of Water Resources
Produced Nontributary Ground Water Rules; 2 CCR 402-17
Nontributary Ground Water in the Piceance Basin
Iles Formation

Map
A-7c

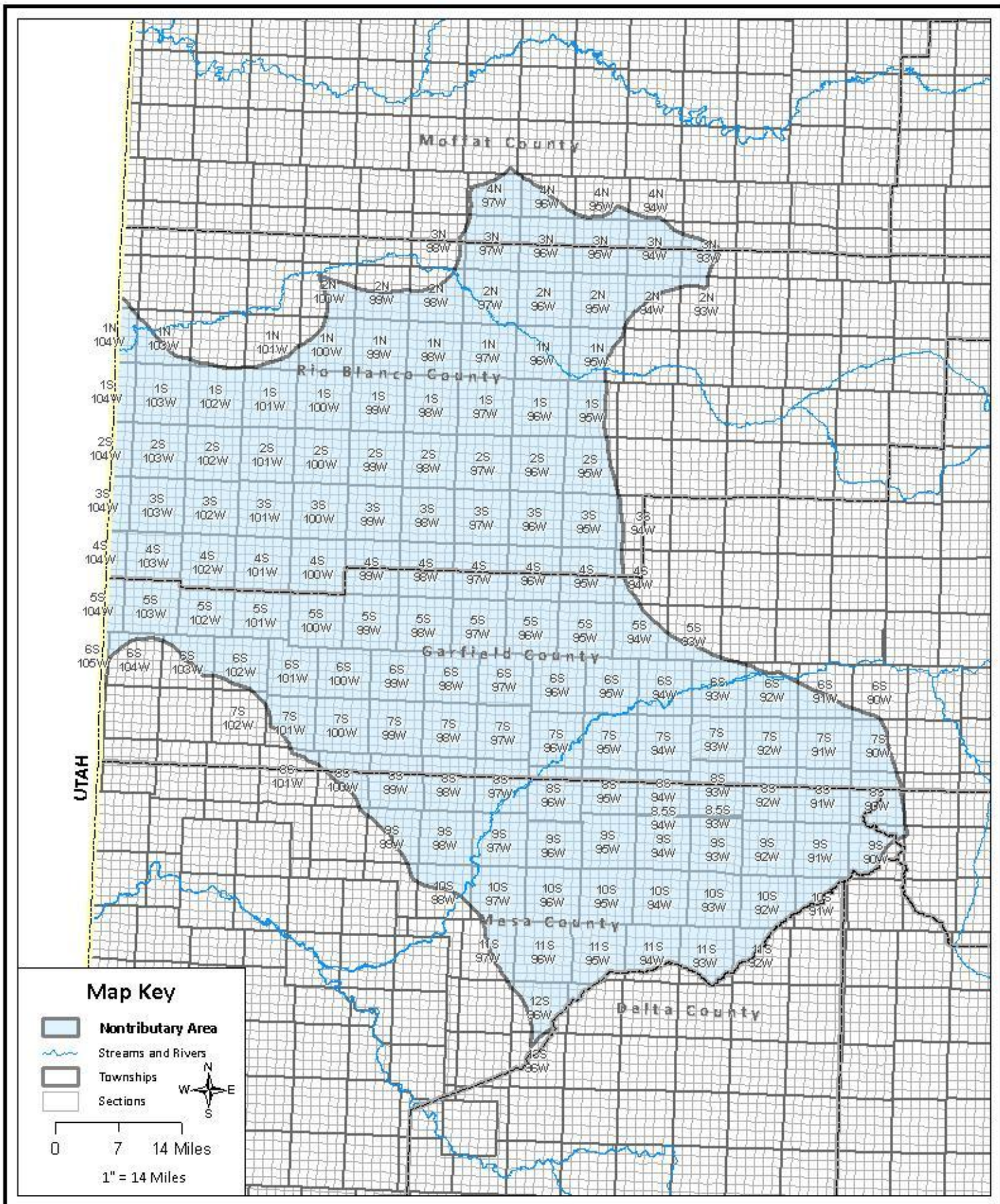


02/13/10C KB C:\0003\B\0003\PROJECTS\MO NTRIB F\03\MAP7\TYP E\AN C\EWILLAMS NO N TRIB SX11.MXD



State of Colorado – Division of Water Resources
Produced Nontributary Ground Water Rules; 2 CCR 402-17
Nontributary Ground Water in the Piceance Basin
Williams Fork Formation

Map
A-7d

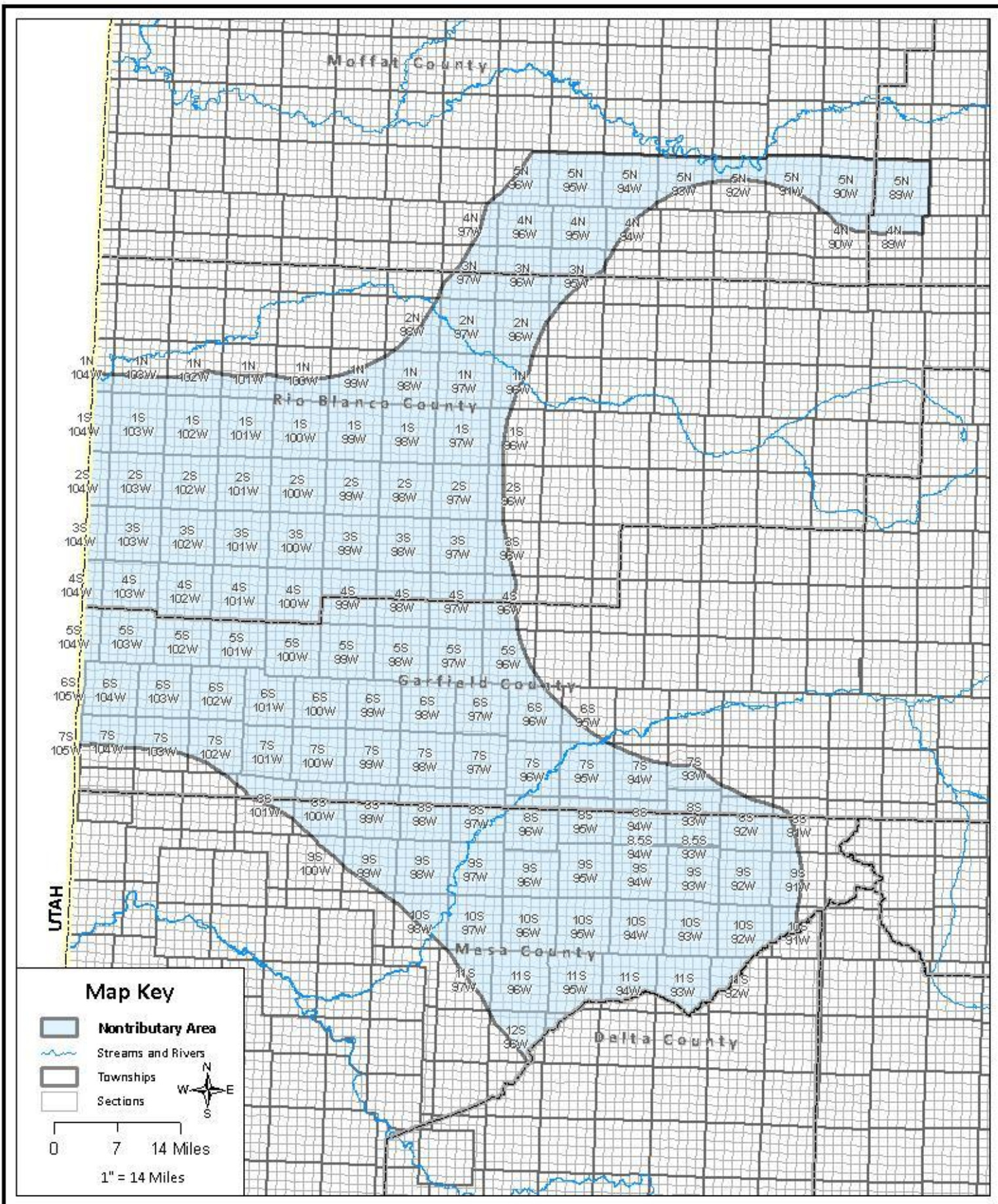


02/25/10 C:\KB C:\0003\B\0003\PROJECTS\NONTRIBUTARY\GWR\MAPS\PICEANCE\MANCOS\NONTRIBUTARY\A-8a.MXD



State of Colorado – Division of Water Resources
Produced Nontributary Ground Water Rules; 2 CCR 402-17
Nontributary Ground Water in the Piceance Basin
Mancos Formation

Map
A-8a







02/02/10C KB C:\003\B\000\PROJECTS\NONTRIBUTARY\GWS\PICEANCE\MORRISON\NONTRIBUTARY\11.JAN.02



State of Colorado – Division of Water Resources
Produced Nontributary Ground Water Rules; 2 CCR 402-17
Nontributary Ground Water in the Piceance Basin
Morrison Formation

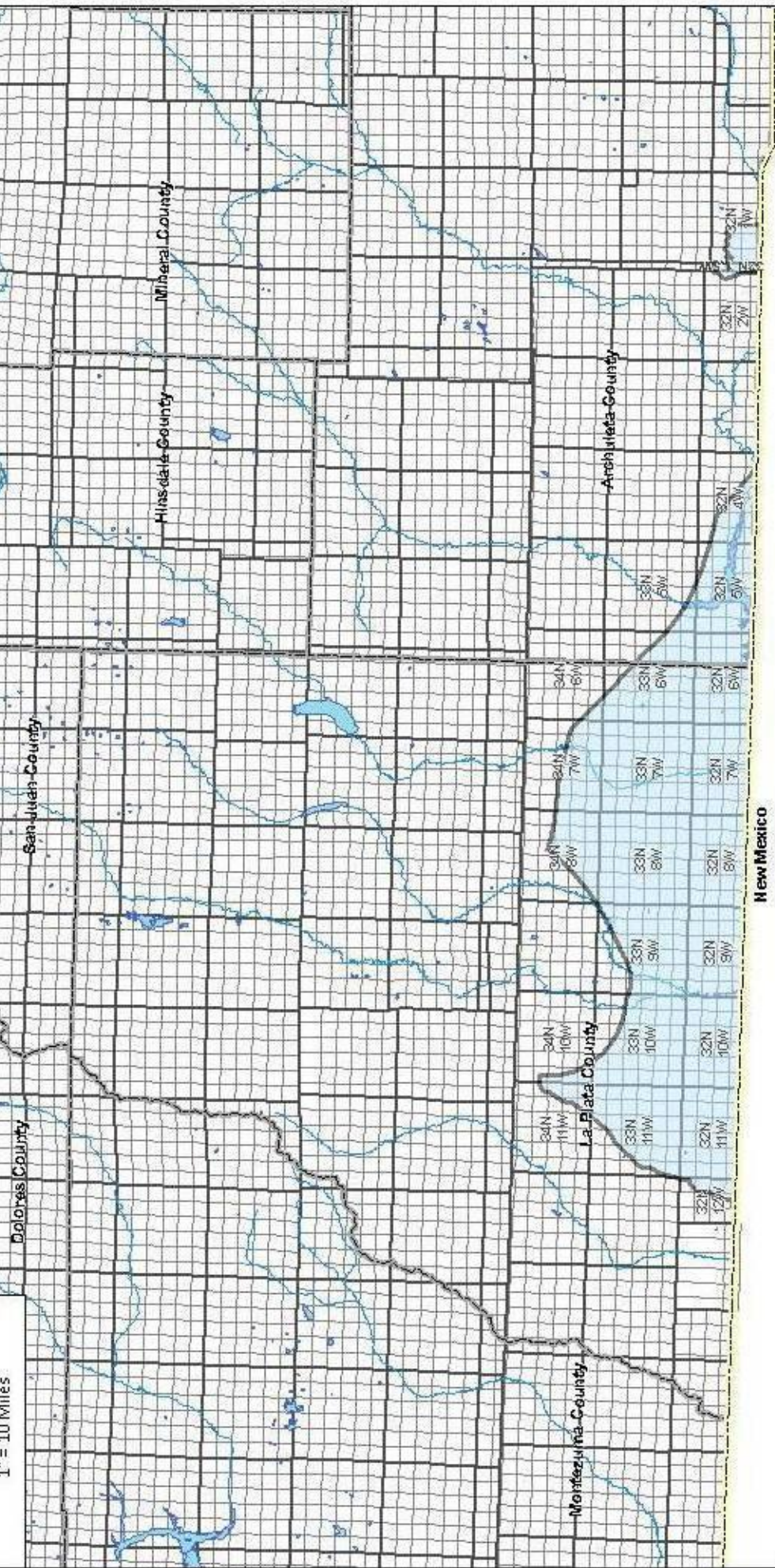
Map
A-8c

Map Key

-  Nontributary Area
-  Streams and Rivers
-  Townships
-  Sections



0 5 10 Miles
1" = 10 Miles



COLOREDIVISION OF WATER RESOURCES
STATE OF COLORADO
JANUARY 1998
JANUARY 1998
JANUARY 1998

State of Colorado – Division of Water Resources





Produced Nontributary Ground Water Rules; 2 CCR 402-17

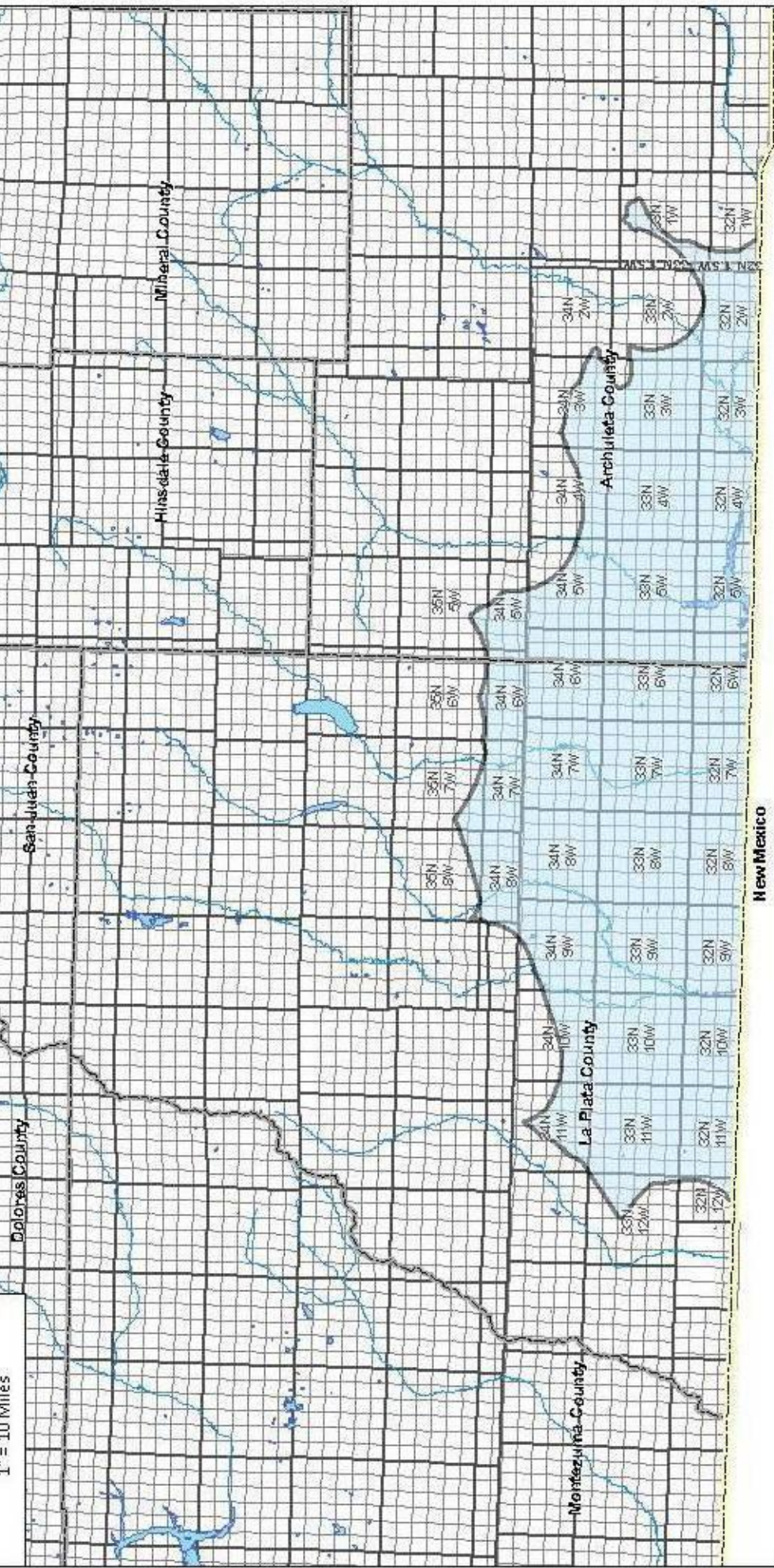
Nontributary Ground Water in the Northern San Juan Basin

Pictured Cliffs Sandstone

Map
A-9a

Map Key

-  Nontributary Area
 -  Streams and Rivers
 -  Townships
 -  Sections
- 0 5 10 Miles
1" = 10 Miles
- N
S
W
E



COLORADO GEOLOGICAL SURVEY, 1485 NORTH AVENUE, DENVER, COLORADO 80202



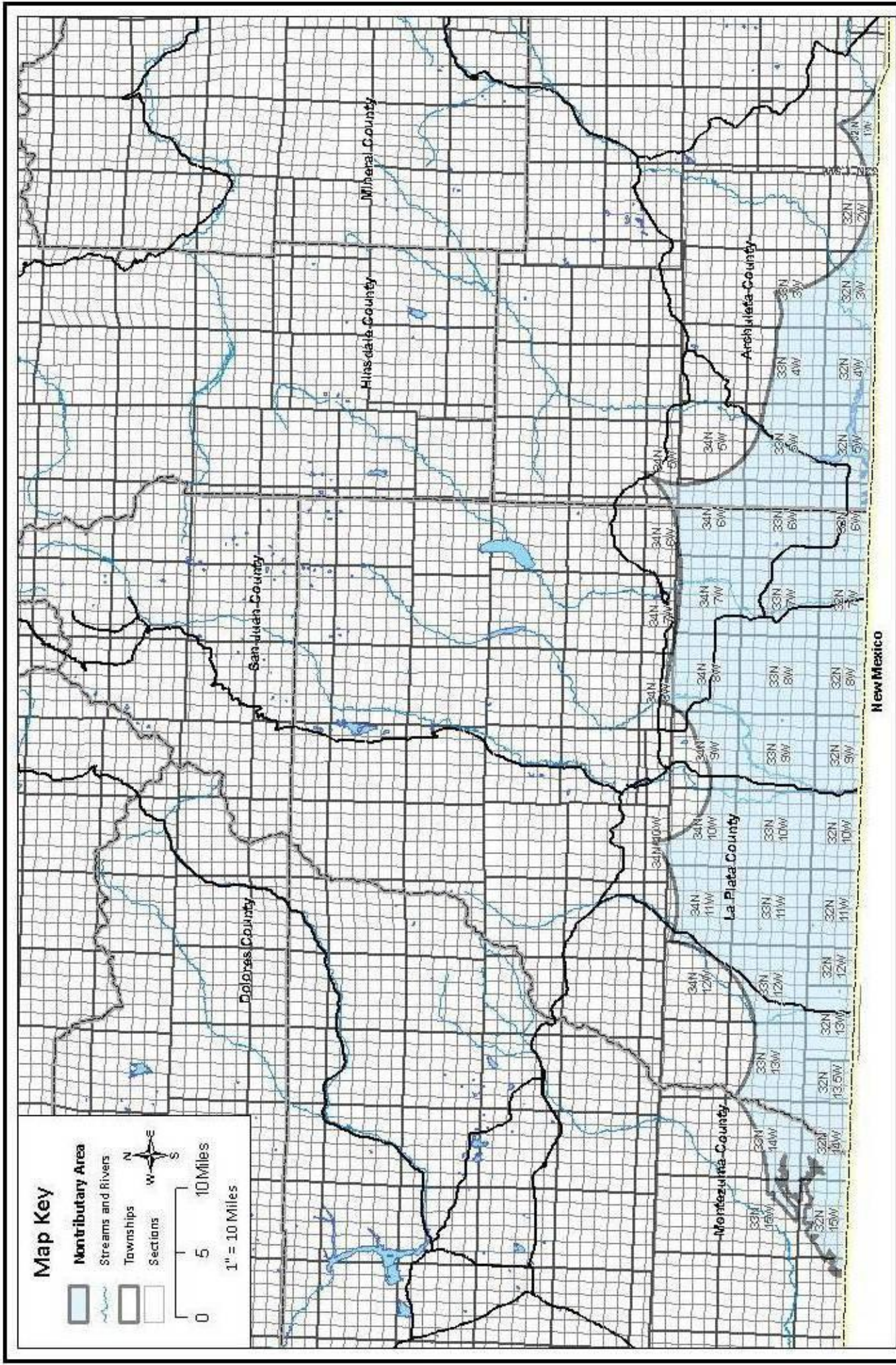
State of Colorado – Division of Water Resources

Produced Nontributary Ground Water Rules; 2 CCR 402-17

Nontributary Ground Water in the Northern San Juan Basin

Cliff House Sandstone

Map
A-9b



COLORADO COUNTY ENGINEERING CONSULTANTS ASSOCIATION, INC. 1999



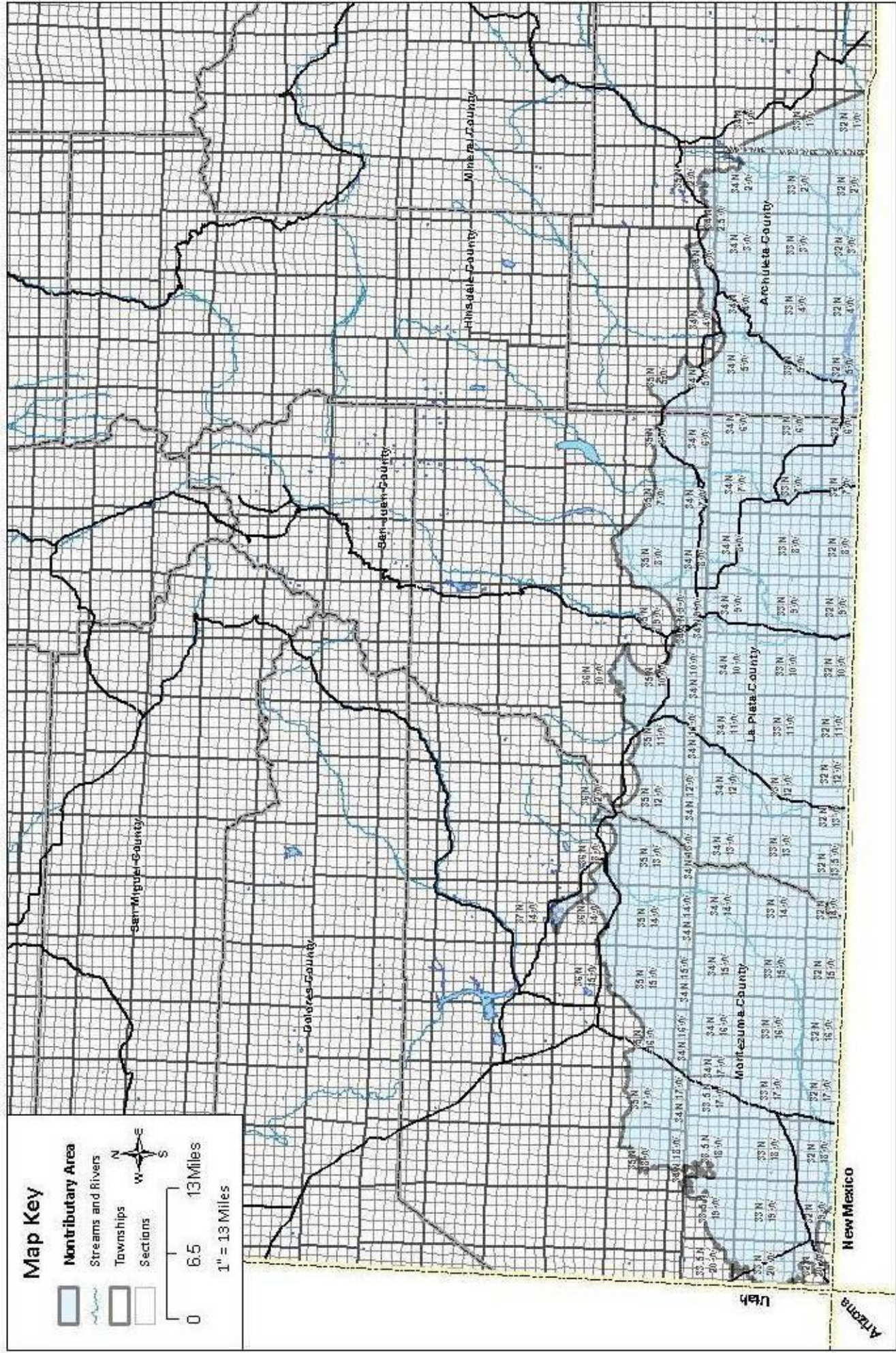
State of Colorado – Division of Water Resources

Produced Nontributary Ground Water Rules; 2 CCR 402-17

Nontributary Ground Water in the Northern San Juan Basin

Menefee Formation

Map
A-9c



COPIED BY C. LINDA SUTHERLAND FOR THE U.S. GEOLOGICAL SURVEY, JUAN D. DIAZ, JR., NOV. 2011

State of Colorado – Division of Water Resources

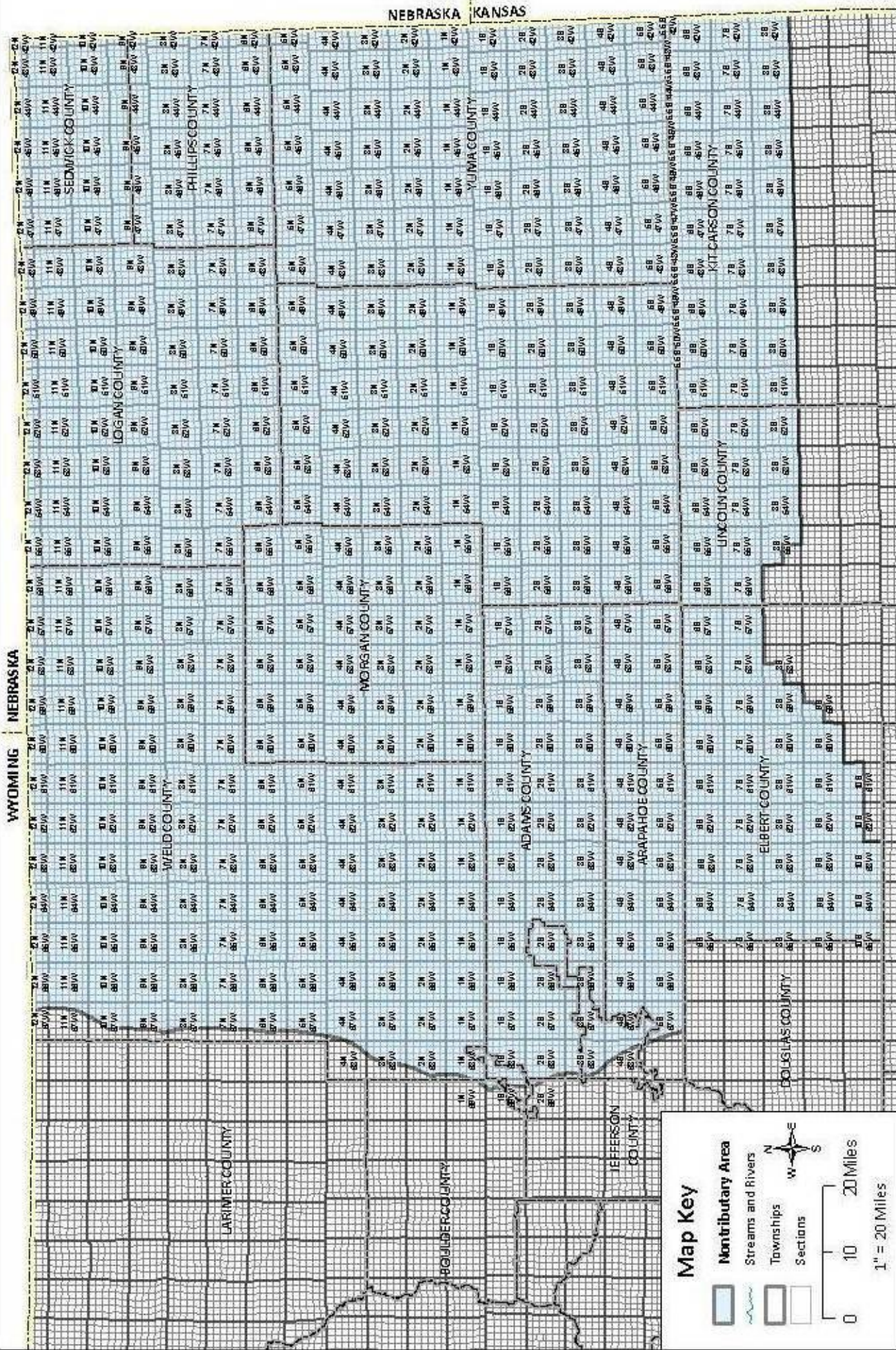
Produced Nontributary Ground Water Rules; 2 CCR 402-17

Nontributary Ground Water in the Northern San Juan Basin

Dakota Formation

Map
A-9e





State of Colorado – Division of Water Resources

Produced Nontributary Ground Water Rules; 2 CCR 402-17

Nontributary Ground Water in the Denver-Julesburg Basin
Shannon Sandstone Member of the Pierre Shale Formation

