IN RE: NON-BINDING ARBITRATION PURSUANT TO THE FINAL SETTLEMENT STIPULATION, *KANSAS v. NEBRASKA AND COLORADO*, NO. 126 ORIGINAL

BEFORE MARTHA O. PAGEL, ARBITRATOR

EXPERT REPORT OF DICK WOLFE, P.E. STATE ENGINEER

I, Dick Wolfe, state the following:

(1) I understand that my role as an expert, both in preparing this report and in giving evidence, is to assist the arbitrator to understand the evidence or to determine facts in issue. The opinions expressed in my report are my own professional opinions.

(2) I have endeavored in my report and disclosures to be accurate and complete, and have addressed matters that I regard as being material to the opinions expressed, including the assumptions that I have made, the bases for my opinions, and the methods that I have employed in reaching those opinions.

(3) I have been advised by the attorney for the State of Colorado of the disclosure requirements of the rules of the arbitration, and I have provided in my report the information required by those rules. I have not included anything in my report and disclosures that has been suggested by anyone, including the attorney for the State of Colorado, without forming my own independent judgment on the matter.

(4) I will immediately notify, in writing, the attorney for the party for whom I am giving evidence if, for any reason, I consider that my existing report requires any correction or qualification; and, if the correction or qualification is significant, will prepare a supplementary report or disclosure to the extent permitted by the applicable rules of the arbitration.

(5) I have used my best efforts in my report and disclosures, and will use my best efforts in any evidence that I am called to give, to express opinions within those

areas in which I have been offered or qualified as an expert by the arbitrator, and to state whether there are qualifications to my opinions.

(6) I have made the inquiries that I believe are appropriate and, to the best my knowledge, no matters of significance that I regard as relevant have been withheld from the arbitrator.

(7) I have disclosed any financial or pecuniary interest that I have in the results of this lawsuit or in any property or rights that are the subject of the lawsuit for which my report and disclosures are being submitted.

Dated this 24th day of May, 2010.

Dick Wolfe

Introduction and Statement of Qualifications.

I am the Colorado State Engineer and Director of the Colorado Division of Water Resources. I was appointed State Engineer in November 2007 and have been employed by the Colorado Division of Water Resources since July 1993.

I was raised on an irrigated farm and ranch in Weld County, Colorado. Our family raised corn, wheat, alfalfa and pasture. We also raised livestock including cattle, horses, pigs and chickens. Along with assisting my family on our farm, I also assisted in farming and ranching activities for my in-law's ranches and farms in Colorado. While attending high school and college I worked at a neighboring farm and dairy. As a result of these experiences, I am familiar with farming and ranching management and irrigation management using surface water, storage water and well water in flood and furrow, sprinkler and drip irrigation systems.

I hold Bachelor of Science and Masters degrees in Agricultural Engineering from Colorado State University. My master's program focused on irrigation water resources and management with a particular emphasis on crop consumptive use, irrigation water management, irrigation system design and evaluation and surface and ground water modeling. My master's thesis involved the evaluation of the effects of wind on center pivot irrigation uniformity.

As the Colorado State Engineer, I am the Colorado Member of the Republican River Compact Administration. I also serve as the Colorado Commissioner on four other interstate water compacts. As State Engineer, I am responsible for the administration of surface water and most ground water in the State of Colorado. As Director of the Colorado Division of Water Resources, I supervise a staff of approximately 278 employees, including seven division engineers who are responsible for the administration of waters of the state in the seven water divisions in the state and over 120 water commissioners who administer water rights in smaller geographic areas in the state. I am a member of and also serve as the Executive Director of the Colorado Ground Water Commission, I am a member of the Colorado Water Conservation Board, and I am the Secretary of the Board of Examiners for Water Well and Pump Installation Contractors.

Prior to my appointment as State Engineer, I held the positions of Assistant State Engineer, Chief of Water Supply, and Supervising Engineer with the Colorado Division of Water Resources. Previous to my tenure at the Division of Water Resources, I was partner in Spronk Water Engineers, a water resources engineering firm located in Denver, Colorado.

I have previously been qualified and accepted as an expert by Colorado water courts in the areas of ground water hydrology, surface water hydrology, water rights administration, and water resources engineering. This report addresses those same areas of expertise. My curriculum vitae is attached to this report

Steps taken by Colorado to achieve Compact compliance.

Since entering into the Final Settlement Stipulation ("FSS"), Colorado has taken steps to reduce its beneficial consumptive use within the Republican River Basin to comply with its Compact allocations. At the time the States entered into the FSS, Colorado was experiencing an extreme drought that both limited available surface water supplies (and thereby reduced the virgin water supplies that are the basis of the States' allocations) and increased the need for ground water. Colorado's water officials assumed at the time that surface water supplies would return to normal when the drought ended, but the lingering drought effects, which persisted for several years after the FSS was approved, combined with the ongoing lagged depletions from past pumping, caused Colorado's Computed Beneficial Consumptive Use ("CBCU") to exceed Colorado's allocations.

Recognizing Colorado's new responsibilities under the FSS, Colorado began investigating actions that could be taken to comply with its Compact allocations. In 2004, the Colorado General Assembly created the Republican River Water Conservation District ("RRWCD") to assist the State of Colorado in complying with the Compact. The State of Colorado encouraged the RRWCD to provide local cost-sharing for federal programs to retire irrigated acreage within the District. In 2006, the State of Colorado signed an agreement with the U.S. Department of Agriculture for the Republican River Conservation Reserve Enhancement Program to convert 30,000 irrigated acres in the District to non-irrigated use and the RRWCD, through its Water Activity Enterprise ("RRWCD WAE"), provided the necessary local cost-sharing for the program. The RRWCD WAE also provided cost-sharing to permanently retire additional irrigated lands through the Environmental Quality Incentives Program. The Colorado Water Conservation Board ("CWCB") provided a $50,000 grant to the RRWCD to prepare a feasibility report on a Colorado Compliance Pipeline ("CCP" or "Pipeline") project to assist with Compact compliance, and the CWCB has authorized over $65 million in loans to the RRWCD WAE for the Pipeline project and to lease surface water rights for Compact compliance. In 2007, the State Engineer considered adopting rules to curtail ground water pumping in areas close to surface streams in the basin in Colorado, but realized that curtailment of ground water pumping would not get Colorado into Compact compliance and

shifted focus to the Pipeline project. The RRWCD WAE then entered into a contract to acquire ground water rights and easements for the project, the CWCB approved a $60.6 million loan to the RRWCD WAE for the project, and the RRWCD WAE has now acquired the ground water rights and easements and completed the final design for the project. In addition, as State Engineer, I have promulgated ground water measurement rules. Lastly, the Division has added four new positions in the basin for the well measurement program and Compact compliance.

The Colorado Compliance Pipeline is necessary for current and future Compact compliance.

In 2008, Colorado, on behalf of the RRWCD WAE, submitted an application to the RRCA to approve a plan for augmentation and revised accounting procedures for the Pipeline. In April and August 2009, Colorado requested that the RRCA adopt a resolution to approve an augmentation plan and revised accounting procedures for the Pipeline. As the Colorado Member of the RRCA, I voted in favor of the resolutions, but the Kansas and Nebraska Members twice voted against the resolution. After the second vote in August 2009, Colorado invoked non-binding arbitration of the dispute. Colorado and Nebraska have resolved their issues, and Nebraska now supports the Pipeline.

Special Master McKusick concluded that to whatever extent ground water pumping depletes stream flow in the basin, such depletion constitutes the beneficial consumptive use of a part of the virgin water supply and must be counted against the allocation of the State where the pumping occurs. In accordance with the FSS, those depletions are calculated using the RRCA Groundwater Model and included in the States' CBCU through the equations contained in the RRCA Accounting Procedures and Reporting Requirements (Appendix C to the FSS).

The Colorado portion of the basin is a large aerial extent and ground water users are scattered over that large area. Much of the basin is remote from the streams of the designated drainage basins from which Colorado receives an allocation under the Compact. Impacts of ground water withdrawals on stream-flows in the basin are highly dependent upon the distance between the ground water withdrawal and the stream. Moreover, a significant portion of ground water withdrawals from the Ogallala aquifer reduces ground water storage rather than depleting stream flows. And, the larger the distance between the point of withdrawal and a stream, the smaller the immediate impact on the stream but the longer that smaller impact will last. Given the distribution of the ground water use within the basin in Colorado, the impacts on stream flows in the basin are correspondingly small but of

long duration. Conversely, it can take many years for the impacts of shutting off those wells to reduce stream depletions. According to the experts I rely on and my understanding based on my general water resources engineering experience, even shutting off all of irrigation wells in Colorado will not bring Colorado into Compact compliance for decades, absent a significant change in the hydrology of the basin. Thus, the only method to bring Colorado into compliance immediately is to deliver water directly to a river to offset stream depletions.

Colorado has twice proposed a resolution for the Compact Compliance Pipeline, but those resolutions have failed.

The FSS states that augmentation plans and the related accounting shall be approved by the RRCA prior to implementation. Colorado submitted an application requesting approval of an augmentation plan and accounting procedures for the CCP in March of 2008. Colorado then worked long and hard to attempt to address the concerns of Kansas and Nebraska regarding the CCP and has provided the underlying data and engineering supporting the proposal to the two States. Recently, Colorado and Nebraska have resolved Nebraska's concerns, and Nebraska now supports the CCP.

Colorado first formally presented a resolution to approve the CCP at a special meeting of the RRCA held in April of 2009. As Colorado's RRCA Member, I voted to approve the resolution, but the Kansas and Nebraska RRCA Members voted no. As the RRCA requires unanimity for any action, this meant the resolution failed. Colorado continued to work to try to address the concerns of Kansas and Nebraska. Colorado then moved for adoption of a second resolution approving the CCP at the RRCA annual meeting on August 12, 2009. That Resolution included proposed revisions to the RRCA Accounting Procedures and Reporting Requirements ("Manual") (Exhibit 2), a limit on withdrawals based on the average annual historical consumptive use of the ground water rights acquired for the CCP (Exhibit 3), and terms and conditions on the augmentation plan, including a minimum annual delivery of 4,000 acre-feet and a limit on the Augmentation Water Supply Credit based on the projected amount of water needed for Colorado to achieve Compact compliance and a table (Exhibit 4) requested by the Nebraska and Kansas that illustrated the limit on the Augmentation Water Supply Credit. Again, I voted for the resolution, but the Kansas and Nebraska RRCA Members voted against it, and that resolution failed.

The proposed changes to the RRCA Accounting Procedures accurately and appropriately account for water that will be

delivered to the North Fork of the Republican River by the Compact Compliance Pipeline.

The CCP proposed to modify the Manual to address the Augmentation Water Supply Credit ("AWS") similar to the manner in which the Manual handles Imported Water Supply Credit ("IWS") as outlined in the "Colorado Proposed Updated" Manual dated January 26, 2009, which was submitted to the RRCA as part of and was included as an exhibit to the August 12, 2009 resolution to approve the CCP. The IWS is the credit that Nebraska currently receives for importing waters into the Basin from the Platte River. Because the water imported into the basin by Nebraska is not directly delivered to a stream gage used in the Compact accounting, the IWS is calculated using the RRCA Groundwater Model and is intended to estimate the increase in stream flows due to recharge of imported water to the ground water system in the basin. Nebraska then receives a credit equal to that increased streamflow that operates as a set-off against its CBCU.

The CCP included revisions to the Manual to include the accounting of AWS delivered by the Pipeline to the North Fork of the Republican River in Colorado a short distance upstream from the streamflow gage at the Colorado-Nebraska state line to offset stream depletions. The primary changes to the Manual include adding AWS Credit in the definitions, the descriptive narrative of the Manual, and in the formula tables in the Manual. The proposed revisions to the Manual address AWS Credit (and IWS Credit) in three areas. The AWS Credit is then included in the calculation of Colorado's five-year Compliance, the calculation of Colorado's Sub-Basin Non-Impairment Requirement, and Colorado's Compliance During Water-Short Year Administration. The specific sections amended are listed below:

Section II (Definitions)

Adding definitions of the following terms:
Augmentation Plan
Augmentation Water Supply
Augmentation Water Supply Credit

Section III (Basic Formulas)

Adding the term AWS to the formula for Sub-basin VWS and identifying the abbreviation AWS as Augmentation Water Supply Credit.

Section III.A (Calculation of Annual Virgin Water Supply)

Adding the term "…and any Augmentation Water Supply Credit." to subsection 1 which is the description of the Sub-basin calculation.

Adding subsection 4 (Augmentation Water Supply Credit), which describes what water the Augmentation Water Supply Credit consists of and noting that the credit is not included in the VWS but is counted as a credit/ offset for the CBCU for the State.

Section III.E (Calculation to Determine Compact Compliance Using Five-Year Running Averages)

Adding "…and the Augmentation Water Supply Credit" after Imported Water Credit to the description of how the five-year running average for compliance is calculated.

Section III.H (Calculation of Computed Water Supply, Allocations and Computed Beneficial Consumptive Use Above and Below Guide Rock During Water-Short Administration Years

Adding Augmentation Water Supply Credit after Imported Water Credit in three areas in the description of how accounting is to be accomplished in water short years.

Section III.J (Calculations of Compact Compliance in Water-Short Administration Years)

Adding Augmentation Water Supply Credit, after Imported Water Supply Credit, to the section detailing that these water credits may be used to offset Computed Beneficial Consumptive Use in a year.

Section IV Specific Formulas

Section IV.B (Specific Formulas for Each Sub-Basin and the Main Stem)

Adding the abbreviation AWS = Augmentation Water Supply Credit to the list of abbreviations that are used in formulas following.

Section IV.B.3 (North Fork of Republican River in Colorado)

Subtracting the term AWS in the calculation of Virgin Water Supply (VWS) in the same manner that IWS is subtracted.

Section V Annual Data/Information Requirements, Reporting, and Verification

Section V.A.10 (Augmentation Plan)

Adding the section Augmentation Plan describing reporting to be provided for an augmentation plan.

Section V.D.1 Verification (Documentation to be Available for Inspection Upon Request)

Adding (i) Augmentation Plan well pumping and augmentation delivery records to the list of items to be available.

Table 3A: Table to Be Used to Calculate Colorado's Five-Year Running Average Allocation and Computed Beneficial Consumptive Use for Determining Compact Compliance

Adding the term Augmentation Water Supply Credit to columns 3 and 4 where adjustments for Imported Water Supply Credits are listed.

Table 4A: Colorado Compliance with the Sub-basin Non-impairment Requirement

Adding the term Augmentation Water Supply Credit to column 3 where Imported Water Supply Credits are listed.

Table 5A: Colorado Compliance During Water-Short Year Administration

Adding the term Augmentation Water Supply Credit to column 3 where Imported Water Supply Credit is listed.

Attachment 1: Sub-Basin Flood Flow Thresholds

The note on this table was amended to reflect that the gaged values for flood flow thresholds would not include the water delivered for AWS.

<u>The Augmentation Water Supply Credit is properly and accurately accounted under Colorado's proposal.</u>

The Colorado AWS was included in the "North Fork of the Republican River in Colorado" of the Specific Formulas in Section IV.B.3 of the Manual. First, the AWS will be subtracted from the gage readings of the state line gage.

The CCP will physically deliver water to the North Fork of the Republican River in Colorado above the state line gage and thus that gage will read artificially higher than the natural flows that would have occurred absent the Pipeline deliveries. Subtracting the AWS volume from the gage reading on the North Fork is so that the added Augmentation Water does not impact calculations of the VWS. The VWS uses the gaged flows as a part of the determination of the allocation available to each State. Adding the AWS to that calculation would artificially inflate the VWS and thus the amount allocated to each State. Removing the AWS from the gage maintains an accurate calculation of the VWS.

Tables 3A, 4A, and 5A describe how Colorado receives the AWS Credit. These tables are Colorado's Five-Year Running Average, Colorado's Sub-Basin Non-Impairment Requirement, and Colorado's Water-Short Year Administration. Generally, the AWS offsets stream depletions by being subtracted from Colorado's CBCU. The resulting number is then compared to Colorado's allocation as calculated elsewhere in the Manual.

Specifically, Tables 3A (Five-Year) and Table 5A (Water-Short Year Administration) look at the current accounting year and the previous 4 years and do not differentiate sub-basin deliveries. These two tables only differ in that Beaver Creek CBCU is not included in Table 5A because of Water-Short Year Administration. These tables are often referred to as the Statewide test, as it compares Colorado's overall computed beneficial consumptive use to its overall Statewide allocation.

Table 4A (Sub-Basin Non-Impairment Requirement) sums up the 5-year running averages of the Colorado Sub-Basin Allocations, the Unallocated Supply, and credits from IWS and AWS to determine the total supply available, then subtracts the Colorado Computed Beneficial Consumptive Use ("$CBCU_C$") from the total supply available for each Sub-basin. This table has specific calculations for the four sub-basins from which Colorado receives an allocation and are subject to this requirement. These sub-basins are: the North Fork of the Republican River in Colorado, the Arikaree River, the South Fork of the Republican River, and Beaver Creek.

Kansas has expressed concern that the AWS will be delivered to the North Fork of the Republican River but will be "credited" against stream depletions in the South Fork of the Republican River sub-basin for the purpose of the sub-basin non-impairment requirement. This is incorrect. Within table 4A (Sub-Basin Non-Impairment), there are spaces provided for each of the four sub-basins subject to the sub-basin non-impairment requirement so that the sub-basin non-impairment requirement can be determined. Colorado has proposed that the credit for AWS be added to Column 3 in the table similar to the manner that the Manual treats the IWS. Since the Augmentation Water Supply is to be physically delivered to the North Fork of the Republican River in Colorado, the AWS would be placed in the cell for the North Fork of the Republican River Colorado in the table. Therefore, under Colorado's proposed changes to the Manual, there would be no "crediting" of North Fork deliveries to the South Fork in this Table 4A for the purpose of determining Colorado compliance with the sub-basin non-impairment requirement.

Limitations on the delivery of Augmentation Water Supply Credit (Exhibit 4 to Resolution).

In response to concerns from the States of Kansas and Nebraska that Colorado would over-deliver water in one year and deliver little or no water in succeeding years in the five-year running average used for Compact accounting, Colorado proposed a minimum delivery requirement for Augmentation Water Supply and a maximum limit on AWS Credit. Those terms and conditions were designed to limit Colorado's ability to "pre-load" Augmentation Water by delivering a large amount in one year and then little

or none in subsequent years in the five-year running average, but allow Colorado the ability to "catch-up" in its deliveries when necessary to offset stream depletions to comply with Colorado's Compact Allocations based on the variance in VWS and CBCU, which are both weather dependent. The total available for Augmentation is also limited by the historical consumptive use of the ground water rights available for the Augmentation Supply (see Source Water Rights below).

The proposed limitations are embodied in illustrative Exhibit 4. This illustrative exhibit uses hypothetical data to demonstrate how the AWS would be limited. This exhibit includes:

A maximum AWS credit based on maximum deficit in the previous 10 years multiplied by 140%.
A minimum physical delivery of 4,000 acre-feet in a calendar year.
Limitations based on available source water.

This proposal as illustrated in Exhibit 4 would allow Colorado to catch up on her deliveries by over delivering slightly one year to make up for an under delivery in a previous year as Colorado's Compact compliance is determined on a 5-year running average. If there were no provision allowing some over-delivery, those years where Colorado under-delivered could not be made up. Colorado also proposed a minimum delivery of 4,000 acre-feet in response to concerns that Colorado would use the five-year running average and attempt to deliver a large supply in one year and no water in subsequent years in the five year average. The minimum deliveries and the limit on AWS Credit remove any concern that Colorado would operate in that manner.

The table works as follows:
Column A is the year
Column B is Colorado's Allocation for that year
Column C is Colorado's CBCU for that year
Column D is the difference between the Allocation and the CBCU for that year.
Column E is the maximum deficit (Column D) in the previous 10 years.
Column F is the Maximum AWS credit allowed (Column E * 140%)
Column G is measured deliveries from the Pipeline
Column H is the calculation of (Allocation minus (CBCU plus Deliveries))
Column I is the five-year running average of Column H
Column J calculates when delivery exceeds the allowable maximum and limits to that maximum allowable.
Remarks Column explains what limiting factors are controlling that year.

The illustrative exhibit is intended to demonstrate how Colorado and the RRCWD WAE will operate the Pipeline to try to make deliveries as close as

possible to the needed amount. Recognizing that the basin hydrology is dominated by precipitation events rather than snowmelt events means that Colorado must react to hydrologic changes during the calendar year rather than after the calendar year. Since the RRCA accounting is done almost a year after the fact, Colorado will have to forecast basin needs each year to estimate the amount of deliveries required to avoid falling out of compliance. Colorado has neither the desire to be out of compliance (under-deliver) nor over-deliver water that could have been used by her citizens.

The Pipeline proposal applies the Colorado Ground Water Commission Water Banking Rules to provide flexibility while ensuring that the Pipeline does not increase the net consumption of water from the aquifer.

Under Colorado law, the ground water to be placed in the Pipeline is limited to the average annual historical consumptive use of those ground water rights. This annual average volume is based upon the prior consumptive use of the crops formerly irrigated by the wells that have been purchased and combined as part of the CCP.

The need for augmentation supplies will be somewhat variable depending on the weather in the basin for a particular year. To accommodate the annual available supply to the variable annual needs, Colorado will utilize the water banking allowed under rules and regulations of the Colorado Ground Water Commission. This will provide flexibility while not increasing the net consumption of water from the aquifer, which will assure that depletions to streams will not increase and will protect existing water rights from injury.

The Colorado Ground Water Commission oversees changes of ground water rights in designated basins in Colorado. Designated basins are a concept authorized by the Colorado General Assembly to allow a modified prior-appropriation administration among wells. Generally, they exist in areas where there is little surface water available and ground water withdrawals have a minimal impact on surface water systems. The Republican River basin is included in the Northern High Plains designated basin in Colorado. The State Engineer for Colorado is the Executive Director of the Colorado Ground Water Commission. The staff of the State Engineer's office process all permits required in the designated basins and reviews changes of designated ground water rights. The Commission consists of representatives from the designated basins plus other agricultural and municipal and industrial representatives, as well as other *ex officio* state agency representatives.

The change of use and consolidation of the ground water rights for the CCP must be approved by the Colorado Ground Water Commission. The Ground

Water Commission has promulgated rules and regulations for changes of ground water rights in the designated basins. Those rules include a methodology to determine the historical consumptive use for changes of use of ground water rights and for water banking of those changed and quantified rights. Those water banking rules, in essence, limit the amount of water to be consumed to that amount that was historically consumed. However, the Water Banking Rules provide some flexibility by allowing the use to be spread out over a longer time period. The rules adopted by the Ground Water Commission allow for three years banking. These Rules are attached as Exhibit B to this Report.

The water projected to be place in the CCP is ground water that was historically used in the Basin within Colorado for irrigation purposes. The water has been purchased and the amount consumed through irrigation on an annual basis has been quantified. The Colorado Ground Water Commission has approved the change in use of the annual historical consumptive use from irrigation to augmentation consistent with the Commission's rules and regulations.

Colorado cannot and should not be required to replace depletions in exact time, location and amount.

Kansas has argued that depletions should be replaced in exact time, location and amount as they occur. This is the standard for a Colorado intra-state concept called a plan for augmentation. A plan for augmentation allows a water user with a junior water right to divert out-of-priority while preventing injury to senior water rights. This is usually done by replacing out-of-priority depletions in time, location and amount when injury to senior surface water rights would otherwise occur. A plan for augmentation must be approved by a Colorado water court.

First, there is nothing in the Compact or the FSS that applies this Colorado state law standard to the operation of the Compact. Even if the notion of applying that standard to the Compact might seem reasonable in the abstract, it would not be appropriate because there is not sufficient data or modeling available that would allow for determination of the exact time and amount of the depletions as they occur to a particular location.

The depletions to the river stretches are estimated by the use of the RRCA Groundwater Model. The model analysis is run almost a year after the compact year occurs to predict the amount of annual stream depletions that occurred in the previous year. This is appropriate as the Compact operates on a calendar year and does not require specific daily or even monthly

deliveries. Allocations and beneficial consumptive use are determined on an annual basis after the fact.

The RRCA Groundwater Model, and the data it relies upon, is not sufficiently accurate to make the type of precise predictions as to when depletions from ground water withdrawals will occur and so the Model was neither designed nor constructed to make such determinations. The model inputs are not daily data and all the inputs have measurement error deviations associated with them. The model covers a regional area within three states and does not have the granularity to predict a rate of depletion at a small time increment and at specific locations. The model is used to predict annual volumes of impact to large reaches of streams and cannot determine the exact location, rate, or timing of streamflow depletion. Although reasonably accurate to predict annual depletions due to ground water withdrawals for a multi-year running average, it cannot and should not be applied as Kansas suggested. Furthermore, the CCP deliveries are to offset stream depletions calculated to the North Fork of the Republican River in Colorado above the streamflow gage on the North Fork at the Colorado-Nebraska Stateline. Nebraska received an allocation from the North Fork of the Republican River drainage, but Kansas did not. Nebraska has agreed to a delivery schedule for Pipeline deliveries. Therefore, even if there were any merit to Kansas' suggestion, the State directly affected by the deliveries has agreed with a proposed delivery schedule.

Conclusion.

I base the foregoing opinions on my general knowledge of the Republican River Basin and the Pipeline, my engineering knowledge and expertise, my knowledge and expertise in the areas of Colorado water law and conversations with my staff and outside consultants.

My qualifications, a list of all publications authored by me in the previous 10 years, a list of all other cases in which, during the previous four years, I have testified as an expert at trial or by deposition are also attached.
As a state employee I am compensated by a salary. My compensation is not dependent upon nor affected by the outcome of this matter.

Dick Wolfe, M.S., P.E.

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EMPLOYMENT HISTORY

2007-present *State Engineer and Director, Colorado Division of Water Resources*

Responsible for the direction and management of the Colorado Division of Water Resources, which has a staff of approximately 300 employees and an annual budget of approximately $27 million. The Division is responsible for distribution and administration of water in accordance with statutes and interstate compacts; the implementation of a statewide dam safety program; the permitting of the use of ground water and construction of wells; the collection and dissemination of data on water use and streamflow; and conducting various studies concerning water resources and the availability of water supplies. The State Engineer is Colorado's commissioner on five interstate compacts and is responsible for assuring compliance with these compacts. The State Engineer is also the Executive Director of the Colorado Ground Water Commission and is the Secretary of the Board of Examiners for Water Well and Pump Installation Contractors.

2005-2007 *Assistant State Engineer, Colorado Division of Water Resources*

Manager of the Water Supply Branch including Designated Basins. Manage a staff of 33 for well permitting, substitute water supply plan review, subdivision water supply plan review, litigation support for water court, Ground Water Commission and State Engineer, policy and rule development, budgeting and public presentations.

2000-2005 *Chief of Water Supply, Colorado Division of Water Resources*

Senior Supervising Engineer for the Water Supply Branch including well permitting, substitute water supply plan review, subdivision water supply plan review, litigation support for water court and State Engineer, policy and rule development, database management, permit statistics, budgeting and public presentations.

1993-2000 *Supervising Engineer and Team Leader, Colorado Division of Water Resources*

Supervising engineer and Team Leader in Water Divisions 1, 2, 3, 6 and 7 for well permitting; Denver Basin modeling and findings; nonexempt well permit findings; substitute water supply plans, subdivision review from counties for water supply; water supply analyses; water court resume review; and water court litigation support; computer programming and applications in Lotus 123, Dbase, Word, WordPerfect, Access, Excel, and Power Point; hearings before the State Engineer; drafting policies; develop Guidelines for Substitute Water Supply Plans for Gravel Pits and Water Well Construction Rules.

1986-1993 *Partner, Spronk Water Engineers, Inc., Denver, Colorado*

Water Rights Engineering
- Water Right Transfers
- Applications for Permits and Decrees
- Plans for Augmentation
- Evaluations and Appraisals
- Litigation Support

Hydrology
- River Basin Yield Evaluations
- Reservoir Evaporation and Seepage Analyses

- Stream Depletion and Accretion Analyses
- In-stream Use

Water Resources Engineering
- Reservoir Operation Studies
- Groundwater and Well Development Evaluations
- Assisted with Development of Water Rights and Hydrologic Database for the Arkansas River Basin in Colorado
- Water Quality and Sedimentation Analyses
- Consumptive Use Analyses Including Phreatophytes
- Evaluation of High Mountain Consumptive Use
- Construction Cost and Quantity Estimates
- Analyses of Lawn Irrigation Return Flows Using Lysimeters

EDUCATION

1984-1986 Master of Science Degree in Agricultural Engineering, Colorado State University

1979-1983 Bachelor of Science Degree in Agricultural Engineering, Colorado State University

PROFESSIONAL MEMBERSHIPS AND REGISTRATIONS

- Appointed to Colorado Supreme Court Water Court Committee, December 2007
- South Platte River Basin Task Force, Engineering Advisor, June-September 2007
- Colorado Foundation for Water Education (Mentor for 2006 Water Leaders Program)
- Advisory Board Member, Department of Civil and Environmental Engineering, Colorado State University
- Registered Professional Engineer in Colorado, 1989, Registration Number 26816
- American Society of Civil Engineers
- American Water Resources Association, Colorado Section
- Colorado Water Officials Association
- Alpha Epsilon, the Honorary Society of Agricultural Engineering

PUBLICATIONS

Colorado's Interstate Compacts. Colorado Foundation for Water Education. Reviewer. February 2010.

Reservoir Administration Guidelines. June 2007. Author and Chief Editor. Colorado Division of Water Resources.

Water Administration: State Engineer's Office. Chapter 14. Colorado Water Law Bench Book. Byers, Jack and Dick Wolfe. First Edition (Carrie L. Ciliberto ed., CLE in Colo., Inc. 2006).

Produced Waters Workshop- Practically, How Do We Do This? *Practically, how do we determine who has the right to beneficially use treated produced waters, and how do they obtain the right?* Wolfe, Dick. April 5, 2006. Colorado Water Resources Research Institute.

Surface Water and Ground Water Administration in Colorado. September 23, 2003. Presenter at Judicial Conference for continuing legal education in Denver for Water Court Judges and Supreme Court Justices. Presentation and paper.

Graywater Systems and Rainwater Harvesting in Colorado. April 2003. Colorado Division of Water Resources.

Surface Irrigation and Ditch Operations. Reagan. Waskom, Ernie Marx, and Dick Wolfe. February 2003. Colorado State University Cooperative Extension.

Private Wells for Home Use. E. Marx, R. Waskom, and D. Wolfe. November 2002. Colorado State University Cooperative Extension.

Water Rights and Beneficial Use of Coal Bed Methane Produced Water in Colorado. Dick Wolfe and Glenn Graham. October 16-17, 2002. *Ground Water Protection Council Produced Water Conference*, Colorado Springs. Presentation and paper.

Guide to Well Permitting and Water Rights Administration in Colorado. June 2002 (updated March 2006 and June 2008). Co-author and Editor. Colorado Division of Water Resources.

Well Commissioner Training Manual. January 2002. Author and Chief Editor. Colorado Division of Water Resources.

Evaporation. Wolfe, Dick, and Richard Stenzel. October 1995. Paper presented at the *Evapotranspiration and Irrigation Efficiencies Seminar held by the American Consulting Engineers Council*.

Evaluation of South Platte River Call Data. Spronk, Brent E., and Dick Wolfe. February 1989. Published in the Proceedings for the *Colorado Water Engineering and Management Conference.*

EXPERT REPORTS IN PAST 4 YEARS

- June 2008, August 2009 and September 2009. In the Matter of the Rio Grande Water Conservation District in Alamosa, Colorado, Water Division 3 Case No. 2007CW52 concerning the Office of the State Engineer Approval of the Plan of Water Management for Special Improvement District No. 1 of the Rio Grande Water Conservation District.

TESTIMONY IN PAST 4 YEARS

- October 2008 and October 2009. Trial testimony in 2006CV64 In the Matter of the Rio Grande Water Conservation District in Alamosa, Colorado, Water Division 3 and 2007CW52 concerning the Office of the State Engineer Approval of the Plan of Water Management for Special Improvement District No. 1 of the Rio Grande Water Conservation District.

STATE OF COLORADO
GROUND WATER COMMISSION

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RULES AND REGULATIONS FOR THE MANAGEMENT AND CONTROL OF DESIGNATED GROUND WATER

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RULES AND REGULATIONS FOR THE MANAGEMENT AND CONTROL
OF DESIGNATED GROUND WATER

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RULES AND REGULATIONS FOR THE MANAGEMENT AND CONTROL OF DESIGNATED GROUND WATER

RULE 1 TITLE

1.1 The title of these rules and regulations is "Rules and Regulations for the Management and Control of Designated Ground Water." The short title is "Designated Basin Rules," and may be referred to herein collectively as the "Rules" or individually as a "Rule."

RULE 2 AUTHORITY

2.1 These Rules are promulgated pursuant to the authority of the Colorado Ground Water Commission in the "Colorado Ground Water Management Act," Title 37, Article 90, Colorado Revised Statutes, primarily Sections 37-90-107, 108, 109 and 111, C.R.S.

RULE 3 SCOPE AND PURPOSE

3.1 The rules establish the management criteria or allowable rate of depletion for ground water in each designated ground water basin. Such management criteria will be used as the basis for the review of applications to use ground water pursuant to Section 37-90-107, C.R.S. The management criteria establish the basis to determine whether a proposed permit would result in unreasonable impairment to existing water rights.

3.2 The rules for replacement wells will expedite the processing of replacement applications and establish limits to differentiate between a replacement well pursuant to Section 37-90-111(1)(c), C.R.S. and a change of water right pursuant to Section 37-90-111(1)(g), C.R.S.

3.3 The rules establish equitable standards for the review of applications to change a right to use designated ground water pursuant to Section 37-90-111(1)(g), C.R.S. These standards also set limitations necessary to prevent material injury.

3.4 The rules establish reasonable guidelines for water measuring devices to be required as a condition of a permit or change application approval.

3.5 The rules seek to improve communication and coordination between the Ground Water Commission and the Designated Ground Water Management Districts.

3.6 The rules are intended to standardize policies and procedures of the Ground Water Commission, to make information as widely available as possible, and to ensure uniform and consistent action by the Commission.

3.7 The rules are not intended to change any terms or conditions of any permits already issued or of any approvals already granted. However, the State Engineer or the Commission, in the exercise of their statutory authority, may impose certain additional terms or conditions on such previously issued permits or approvals.

RULE 4 DEFINITIONS

4.1 The following terms are defined in Section 37-90-103, C.R.S., and these terms shall have identical meaning where used in these Rules:

Alternate Point of Diversion Well, Aquifer, Artesian Well, Board or Board of Directors, Designated Ground Water, Designated Ground Water Basin, Ground Water Commission or Commission, Ground Water Management District or District, Historical Water Level, Person, Replacement Well, Subdivision, Supplemental Well, Underground Water and Ground Water, Waste, and Well.

4.2 Specific Definitions - Unless expressly stated otherwise the following terms when used in these Rules shall have the meaning indicated in this Rule.

4.2.1 "Additional Well" Means a well permitted under Rule 5.3.9 wherein an additional well, together with the previously permitted well(s) withdrawing ground water under provisions of Rule 5.3 or 5.4 may withdraw the allowed average annual amount of withdrawal of the previously permitted well(s).

4.2.2 "Allowed Maximum Annual Amount of Withdrawal" means the maximum amount of water in acre-feet that a permittee may withdraw from a well in a calendar year.

4.2.2.5 "Allowed Average Annual Amount of Withdrawal" means the average amount of water in acre-feet that a permittee may withdraw from a well in a calendar year.

4.2.3 "Applicant" means that person or entity who applies to the Ground Water Commission for a well permit or for a change in water right or for any other permitting action from the Commission pursuant to these Rules.

4.2.4 "Appropriation" means the application of a specified portion of the designated waters of the state to a beneficial use pursuant to the procedures prescribed by law.

4.2.5 "Artificial Recharge" means the intentional introduction of water into any underground formation.

4.2.6 "Bedrock Aquifers" means Denver Basin bedrock aquifers as identified in Rule 5.3.1 and those other aquifers within the Designated Basins considered for appropriation under Rule 5.4.

4.2.7 "Beneficial Use" is the use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste the purpose for which the appropriation is lawfully made and, without limiting the generality of the foregoing, includes the impoundment of water for recreational purposes, including fishery or wildlife.

4.2.8 "Change of Water Right" means a change in acreage served, volume of appropriation, pumping rate, well location, place, time or type of use by any water right, either conditional or final, or any combination of these changes including commingling of waters under such water rights.

4.2.9 "Commission Staff or Staff" means an employee or agent of the Colorado Division of Water Resources authorized by the State Engineer to act or assist in discharging the duties of the Commission.

4.2.10 "Conditional Water Right" means a right to perfect a water right under the provisions of the law with a certain priority upon the completion of the appropriation upon which such water right is to be based.

4.2.11 "Confining Layer" means all or part of a formation which impedes the flow of ground water from an adjacent aquifer.

4.2.12 "Confined Well" means a well completed in or producing from an aquifer or portion of an aquifer in which the static water level in the well rises due to hydrostatic pressure above where it was first encountered in the aquifer.

4.2.13 "Contiguous Parcel" means that portion of the overlying land that is in contact with itself so that no part is totally separated.

4.2.14 "Crop Consumptive Use" means the total amount of water taken up by vegetation for transpiration or building of plant tissue, plus the evaporation from the adjacent soil or from intercepted precipitation on the plant foliage.

4.2.15 "Cylinder of Appropriation" means a hypothetical cylinder centered around the location of an existing or proposed well which, for a specific aquifer, contains a volume of water equal to one hundred times the annual appropriation of an existing well or the allowed average annual amount of withdrawal of a proposed well. The radius of the cylinder of appropriation is computed from the following formula:

Radius of Cylinder (ft.) = the square root of:

$$\frac{\text{43,560 (ft. sq./acres) x withdrawal (acre ft./yr.) x 100 (yr.)}}{\text{Specific yield x saturated aquifer materials (ft.) x 3.1416}}$$

where withdrawal means the annual appropriation or allowed average annual amount of withdrawal.

4.2.16 "Denver Basin Bedrock Aquifers" or "Denver Basin Aquifers" means the Upper Dawson, Lower Dawson, Denver, Upper Arapahoe, Lower Arapahoe and Laramie-Fox Hills aquifers as defined in the Denver Basin Rules, 2 CCR 402-6.

4.2.17 "Historic Withdrawal" means the average annual volumetric amount of ground water withdrawn by a well including any replacement well(s) during the life of the well permit. This amount shall be computed under the provisions of Rule 7.10 unless it is a bedrock aquifer well, where the provisions of Rule 7.1.3 shall apply. These terms differ from the term "the historic depletion of the aquifer " in the sense that the amount of historic depletion of the aquifer is equal to the amount of historic withdrawal from the aquifer minus the portion of the withdrawal which percolates back to the aquifer.

4.2.18 "Large Capacity Well" means any well which is permitted to put designated ground water to beneficial use provided the said permit is not for a small capacity well pursuant to Section 37-90-105, C.R.S.

4.2.19 "Nontributary Ground Water" means that ground water, the withdrawal of which will not, within one hundred years, deplete the flow of a natural stream, or its alluvial aquifer, at an annual rate greater than one-tenth of one percent of the annual rate of withdrawal. The determination of whether ground water is nontributary shall be based on aquifer conditions existing at the time of permit application; except that, in recognition of the de minimis amount of water discharging from the Dawson, Denver, Arapahoe, and Laramie-Fox Hills aquifers into surface streams due to artesian pressure, in determining whether ground water of the Dawson, Denver, Arapahoe, and Laramie-Fox Hills aquifers is nontributary, it shall be assumed that the hydrostatic pressure level in each such aquifer has been lowered at least to the top of that aquifer throughout that aquifer.

4.2.20 "Overappropriated Aquifer" means an aquifer for which the net average annual depletion rate of ground water is considered to be in excess of the allowable net average annual depletion rate for that aquifer as set by the Commission.

4.2.21 "Overlying Land" means that land owned by the applicant, or by another who has consented to the applicant's withdrawal of ground water, which overlies the bedrock aquifers as described in Rule 5.3 and 5.4 of these Rules, and which the applicant requests be considered in determining the allowed average annual amount of withdrawal sought in the application.

4.2.22 "Priority" means the date that a water right or a conditional water right will be entitled to use water in relation to other water rights and conditional water rights deriving their supply from a common source.

4.2.23 "Replacement Plan" means a detailed program to increase the supply of water available for beneficial use in a designated basin or portion thereof by the development of new or alternate means or points of diversion, by a pooling of water resources, by water exchange projects, by providing substitute supplies of water, by the development of new sources of water, or by any other appropriate means. "Replacement Plan" does not include the salvage of designated waters by the eradication of phreatophytes, nor does it include the use of precipitation water collected from land surfaces which have been made impermeable, thereby increasing the runoff but not adding to the existing supply of water.

4.2.24 “Republican River Compact Compliance Wells” are wells acquired or constructed within Colorado for the sole purpose of offsetting stream depletions to the Republican River and its tributaries in order to comply with Colorado’s allocations under the Republican River Compact, including the Final Settlement Stipulation filed in Kansas v. Nebraska and Colorado, No. 126 Original.

4.2.25 "Saturated Aquifer Material(s)" means those aquifer materials containing sufficient water that can be drained by gravity and placed to beneficial use.

4.2.26 "Specific Yield" means the volume of water which can be drained by gravity from a saturated volume of aquifer material divided by the volume of material. This ratio can be expressed as a percentage.

4.2.27 "Three-Mile Circle" or "Circle" means a circle with a radius of three miles centered at the location of the well or proposed well used to appropriate water from the Ogallala Aquifer of the Northern High Plains Designated Ground Water Basin.

4.2.28 "Waiver of Claim of Injury" means a written affidavit given by a well owner to an applicant waiving all claims of any injury to an existing water right as a result of the approval of applicant's request by the Commission.

4.2.29 "Water Right" means a right to use in accordance with its priority a certain portion of the designated ground water by reasons of the appropriation of the same.

4.2.30 "Well Field" means two or more wells, which are permitted to withdraw ground water from the same aquifer in any combination thereof up to the full permitted amount of the aggregate appropriations.

4.2.31 "Well Owner" means any person or his agent who holds the title or other rights of property in a well.

4.2.32 "Wire to Water Efficiency" or "Overall Pumping Plant Efficiency" means the ratio of the water energy output from the pump divided by the input energy to the power plant expressed as a percentage.

4.3 Other Definitions - All other words used herein shall be given their usual customary and accepted meaning. Terms that were not defined in this Rule which are defined in the statutes or other rules of the State Engineer shall use the meaning given therein. All words of a technical nature specific to the water well industry shall be given the meaning which is generally accepted in said industry.

RULE 5 APPROPRIATION OF DESIGNATED GROUND WATER

5.1 Applicability

5.1.1 Section 37-90-107, C.R.S. provides for the Commission's review and approval of applications to use designated ground water. The availability of water for appropriation, prevention of unreasonable impairment to the rights of other appropriators, and prevention of unreasonable waste are criteria the Commission is to consider in determining whether to grant or deny an application.

5.1.2 The use of ground water requiring a permit pursuant to Section 37-90-107, C.R.S. may include use for irrigation, municipal, commercial, industrial, mining, fishery, recreational and all other beneficial uses as occur through the use of a well. The use of ground water may also include the incidental use through evaporation from mining excavations or recreational ponds.

5.1.3 The spacing limits, calculations of appropriation and other limits set forth herein apply to large capacity wells. Certain applications to be considered pursuant to prior court decree may not be subject to this rule but when a conditional decree previously granted by a court becomes absolute by reason of a well being drilled and water put to beneficial use, the well becomes fully subject to the Colorado Ground Water Management Act, Title 37, Article 90 and the Commission's rules and policies. For all applications to construct wells or use ground water within the boundaries of a designated basin, the Commission shall first determine if it has jurisdiction.

5.1.4 If an application to appropriate designated ground water can be given favorable consideration, such fact shall be published in accordance with Sections 37-90-107(2), and 112 C.R.S.

5.1.5 Applications for well permits pursuant to Section 37-90-105, C.R.S. may be granted by the State Engineer without regard to any provisions of these rules.

5.2 Appropriation from all Aquifers except Bedrock Aquifers - This rule applies to all aquifers except bedrock aquifers. Aquifer boundaries defined here are deemed presumptive upon the Commission and applicants, except that site specific data may be used to better define an aquifer boundary.

5.2.1 No application for a permit to appropriate ground water from an aquifer under Rule 5.2 shall be granted within 1/2 mile of an existing large capacity well unless a Waiver of Claim of Injury is obtained from the owner of such a well or unless the Commission, after a hearing, finds that circumstances in a particular instance allow a permit to be issued without regard to the above limitation.

5.2.2 Northern High Plains Designated Ground Water Basin - Ogallala and White River Aquifers.

5.2.2.1 The areal extent of the Ogallala and White River Aquifers are considered to coincide with the areal extent of the Northern High Plains Designated Basin.

5.2.2.2 All new appropriations from the Ogallala Aquifer (including the White River) shall be controlled by management criteria that limit the maximum allowable rate of depletion to 40% of the water in storage within the saturated materials over a 100 year period. No new appropriation that exceeds this allowable rate of depletion, absent an approved replacement plan, shall be granted. The amount of water in storage shall be determined as of the date of acceptance of a complete application.

5.2.2.3 In the evaluation of new permit applications, the following three-mile radius circle formula shall be used in the determination of whether an application shall be granted or denied:

$$A = \frac{640(D)(S.Y.)\,3.1416\,R^2\,H}{(1.0 - Ir)t} + \frac{640(f)(Pr)\,3.1416\,R^2}{12(1.0 - Ir)}$$

where,

A	=	Annual appropriation allowable within the circle being evaluated in acre-feet per year
D	=	Allowable depletion (expressed as a decimal)
S.Y.	=	Specific yield (dimensionless)
R	=	Radius of circle (miles)
H	=	Average saturated thickness within the circle (feet)
t	=	Time period during which depletion, D, occurs (years)
Pr	=	Precipitation recharge (inches/yr.)
f	=	Fraction of Pr that is available for appropriation in the circle (dimensionless)
Ir	=	Fraction of A that returns to the aquifer as deep percolation, i.e., irrigation return (dimensionless)

The constants in the above equation are:

D = 0.4, S.Y. = 0.15, R = 3 miles, t = 100 years, f = 0.2 and Ir = 0.15

Use of these constants in the formula above gives:

$$A = 12.77H + 354.82Pr$$

Saturated thickness, H, shall be determined by an evaluation of contour maps developed from well completion reports of existing wells as well as other pertinent available water level data. Precipitation recharge, Pr, will be determined from Figure 18 of the report "Distribution of Ground Water Recharge," AER66-67 DLR9, Colorado State University, June 1967 by Donald L. Reddell.

5.2.2.4 When the three-mile circle includes the White River Formation, located in the area as shown on figure 1, the value for Specific Yield (S.Y.) in the above formula will be 0.25. The thickness of saturated materials, H, will be the average net sands thickness in the three-mile circle. The annual available appropriation from within the three-mile circle can then be computed as:

$$A = 21.29H + 354.82Pr$$

5.2.2.5 Appropriations within the three-mile circle shall be included as a chargeable appropriation against the application for the stated annual appropriation on a final permit or for the amount evidenced to have been put to beneficial use under a valid conditional permit. The appropriation amounts on all new conditional permits and prior applications not yet permitted shall also be included as chargeable amounts against the application.

5.2.2.6 When an application is received within 3 miles of the state line or the boundary of the Northern High Plains Designated Basin, the volume of water in storage, the amount of precipitation recharge and the existing appropriations shall be calculated in such a way as to only include those amounts within the basin and within Colorado.

5.2.2.7 When an application is received within 3 miles of the administrative line shown in Figure 1, the amount of water in storage shall be determined by adding the amounts of water in storage under the parts of the three-mile circle in the net sand area (Rule 5.2.2.4) and the regular sand area (Rule 5.2.2.3).

5.2.2.8 The following sections in Kiowa and Prowers Counties are deemed overappropriated for the Ogallala Aquifer (including Alluvium) and no new appropriations will be approved absent an approved replacement plan in accordance with Rule 5.6:

Township 21 South, Range 41 West:	Sections 5 through 8, 18;
Township 21 South, Range 42 West:	Sections 1 through 20
Township 21 South, Range 43 West:	Sections 1, 2, 11 through 13;
Township 20 South, Range 42 West:	Sections 7, 8, 17 through 21, and Sections 28 through 36
Township 20 South, Range 43 West:	Sections 1, 2, 10 through 36;
Township 20 South, Range 44 West:	Sections 13, 24, 25, 36.

5.2.2.9 No new application for a permit to withdraw ground water from the Ogallala Aquifer (including Alluvial and White River Aquifers), absent an approved replacement plan, shall be granted where the new appropriation either will exceed the allowable rate of depletion (40 percent in 100 years) or will cause any depletion in time, amount, or location to any stream within the Republican River Compact Administration (RRCA) Ground Water Model Domain, approved in the final settlement stipulation for the case Kansas v. Nebraska and Colorado, No. 126 Original. The stream depletion shall be determined by the RRCA Ground Water Model and will extend over a 100-year period.

5.2.2.10 Any approved replacement plan must be adequate to prevent material injury to all water rights (including ground water rights within any three-mile circle in accordance with Rules 5.2.2.3 and 5.2.2.4) of other appropriators in accordance with Rule 5.6. The plan must also provide for the replacement of any depletions caused to streams within the RRCA Ground Water Model Domain.

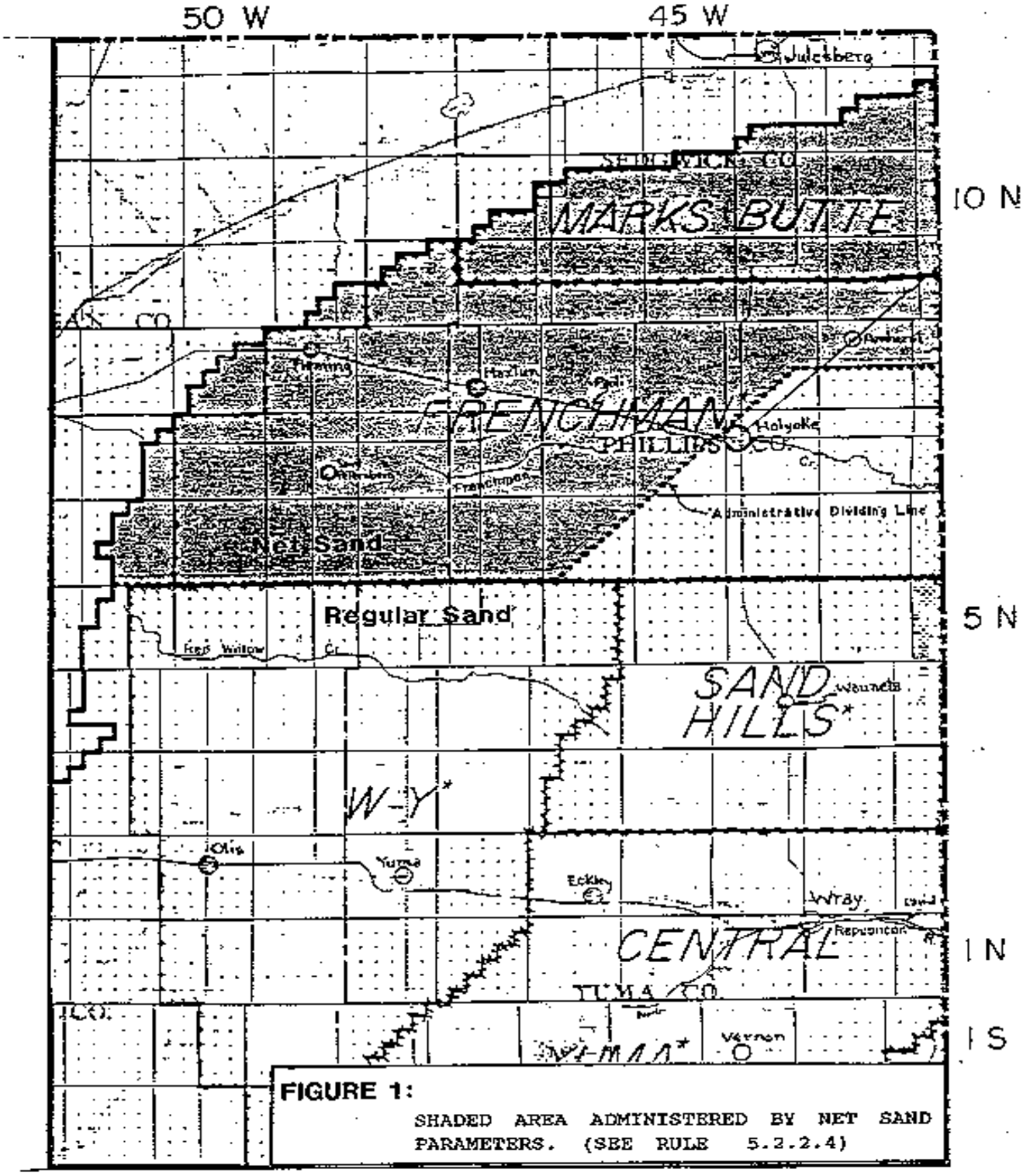

FIGURE 1:
SHADED AREA ADMINISTERED BY NET SAND PARAMETERS. (SEE RULE 5.2.2.4)

5.2.3 Southern High Plains Designated Ground Water Basin - Alluvium, Cheyenne, Dakota, Dockum and Ogallala Aquifers

5.2.3.1 The areal extent of the Cheyenne, Dakota, and Ogallala aquifers are shown in Figures 3, 4, and 5 respectively of the report entitled "Ground Water Resources Study - Relating to Portions of Prowers, Baca and Las Animas Counties, Colorado" prepared for the Colorado Ground Water Commission by R. W. Beck and Associates, Denver, Colorado, 1967. The areal extent of Alluvium and Dockum aquifers shall be determined by site specific information and any applicable literature.

5.2.3.2 The aquifers identified above shall be administered as a single geo-hydraulic system.

5.2.3.3 New large capacity well permits can be granted by the Commission to appropriate water from any of the aquifers identified above in Rule 5.2.3.1, or from the single geo-hydraulic system, if this appropriation does not unreasonably impair any existing water rights.

5.2.3.4 For any existing large-capacity well that was constructed and put to beneficial use in compliance with all applicable statutory procedures, and is completed in one, or more than one of the aquifers identified above in Rule 5.2.3.1, an additional large capacity well permit can be granted by the Commission pursuant to Section 37-90-107, C.R.S. for an increase in appropriation, including an increase in irrigated acres. Any such additional well permit shall have an appropriation date based on the date of application for the additional permit consistent with Section 37-90-109, C.R.S., which shall be separate and distinct from the original appropriation for the existing well.

5.2.4 Kiowa-Bijou Designated Ground Water Basin - Alluvial Aquifer

5.2.4.1 The Alluvial Aquifer shall be defined as identified in Plate 2 of the report "Evaluation of Water Resources in Kiowa and Bijou Creek Basins, Colorado" prepared for the Colorado Water Conservation Board by Colorado State University, Fort Collins, Colorado, 1966.

5.2.4.2 The Alluvial Aquifer within the Kiowa-Bijou Designated Ground Water Basin is determined to be overappropriated and, therefore, no new large capacity well permits shall be granted in the Alluvial Aquifer unless a replacement plan is approved by the Commission in accordance with Rule 5.6.

5.2.5 Lost Creek Designated Ground Water Basin - Alluvial Aquifer

5.2.5.1 The Alluvial Aquifer shall be defined as the area identified in Plate 3 of the report entitled "Ground Water Resources of the Lost Creek Drainage Basin - Weld, Adams and Arapahoe counties, Colorado," prepared for the Colorado Ground Water Commission by Nelson, Haley, Patterson and Quirk, Inc., Greeley, Colorado, 1967.

5.2.5.2 The Alluvial Aquifer within the Lost Creek Designated Ground Water Basin area south of the line between Township 2 North and Township 3 North is determined to be overappropriated and, therefore, no new large capacity well permits shall be granted in this area unless a replacement plan is approved by the Commission in accordance with Rule 5.6. A new large capacity well permit can be granted to appropriate water from the Alluvial Aquifer within the

Lost Creek Designated Ground Water Basin area north of the line between Township 2 North and Township 3 North if this appropriation does not unreasonably impair any existing water rights.

5.2.6 Upper Black Squirrel Creek Designated Ground Water Basin - Alluvial Aquifer

5.2.6.1 The Alluvial Aquifer shall be defined as the area identified in Plate 3 of a report entitled "Ground Water Resources of the Upper Black Squirrel Creek Basin, El Paso County, Colorado," prepared by the Colorado Division of Water Resources, Denver, Colorado, 1967.

5.2.6.2 The Alluvial Aquifer within the Upper Black Squirrel Creek Designated Basin is determined to be overappropriated and, therefore, no new large capacity well permits shall be granted in the Alluvial Aquifer unless a replacement plan is approved by the Commission in accordance with Rule 5.6.

5.2.7 Upper Big Sandy Designated Ground Water Basin - Alluvial Aquifer

5.2.7.1 The Alluvial Aquifer shall be defined as the area identified in Plate 1 of the report entitled, "Geology and Ground Water Resources of Parts of Lincoln, Elbert, and El Paso Counties, Colorado," by the Colorado Water Conservation Board and the U.S. Geological Survey, Denver, Colorado, 1946.

5.2.7.2 A new large capacity well permit can be granted by the Commission to appropriate water from the Alluvial Aquifer identified above in Rule 5.2.7.1 if this appropriation does not unreasonably impair any existing water rights.

5.2.8 Camp Creek Designated Ground Water Basin - All Aquifers

5.2.8.1 Camp Creek Designated Ground Water Basin consists of Alluvial, Dune Sand, Chadron and Ogallala aquifers. The aquifer boundaries within the basin are identified in Plates 2, 3 and 5 of the report entitled, "Ground Water Resources of Northwest Washington County, Colorado" prepared for Town of Akron by Nelson, Haley, Patterson, and Quirk, Inc., Greeley, Colorado, 1967.

5.2.8.2 A new large capacity well permit can be granted by the Commission to appropriate water from any of the aquifers identified above in Rule 5.2.8.1 if this appropriation does not unreasonably impair any existing water rights.

5.2.8.3 For any existing large-capacity well that was constructed and put to beneficial use in compliance with all applicable statutory procedures, and is completed in more than one of the aquifers identified above in Rule 5.2.8.1, an additional large capacity well permit can be granted by the Commission pursuant to Section 37-90-107, C.R.S. for an increase in appropriation, including an increase in irrigated acres. Any such additional well permit shall have an appropriation date based on the date of application for the additional permit consistent with Section 37-90-109, C.R.S., which shall be separate and distinct from the original appropriation for the existing well.

5.2.9 Upper Crow Creek Designated Ground Water Basin - Alluvial, Fan and White River Aquifers

5.2.9.1 The extent of each aquifer shall be defined as the area identified in Plate 1 of the report entitled, "Water Resources of Upper Crow Creek, Colorado" prepared for the

Colorado Geological Survey by Robert Kirkham and John Rold, Denver, Colorado 1986. All but the southern tip of the study area is underlain by the White River Aquifer. The southern tip area is underlain by the Laramie formation.

5.2.9.2 The Fan Aquifer east of Crow Creek and the White River Aquifer underlying this part of the Fan Aquifer is determined to be overappropriated and, therefore, no new large capacity well permits shall be granted in these aquifers unless a replacement plan is approved by the Commission in accordance with Rule 5.6. A well permit can be approved in the Alluvial Aquifer and in the Fan and White River Aquifer not mentioned above if this appropriation does not unreasonably impair any existing water rights.

5.2.9.3 For any existing large-capacity well that was constructed and put to beneficial use in compliance with all applicable statutory procedures, and is completed in more than one of the aquifers identified above in Rule 5.2.9.1, an additional large capacity well permit can be granted by the Commission pursuant to Section 37-90-107, C.R.S. for an increase in appropriation, including an increase in irrigated acres, provided that the requirements of Rule 5.2.9.2 are met. Any such additional well permit shall have an appropriation date based on the date of application for the additional permit consistent with Section 37-90-109, C.R.S., which shall be separate and distinct from the original appropriation for the existing well.

5.3 Appropriation from Denver Basin Bedrock Aquifers

5.3.1 Denver Basin Aquifer Definitions

5.3.1.1 The Denver Basin Aquifers are Dawson, Denver, Arapahoe, and Laramie-Fox Hills aquifers within the Kiowa-Bijou, Lost Creek, Upper Big Sandy, and Upper Black Squirrel Creek Designated Ground Water Basins. The extent of each aquifer is defined in Rule 4(A) of the Denver Basin Rules, 2 CCR 402-6.

5.3.1.2 These aquifer definitions are deemed presumptive upon the Commission and applicants except that the Commission, after reviewing any site specific data, may revise an aquifer boundary.

5.3.2 Allowable Rate of Withdrawal

5.3.2.1 The allowable rate of withdrawal for these aquifers shall be limited so as to allow at least a 100 year aquifer life. Waters which have not been separated from land owned by the applicant or waters to which applicant has separate title under a described land area shall be available for appropriation. The availability of such waters is limited by the provisions of these rules to prevent unreasonable impairment to existing water rights.

5.3.2.2 Applicant shall demonstrate prima facie land ownership or consent of an overlying landowner as evidenced by a completed consent statement provided by the Office of the State Engineer. Any waters identified as a water supply to be developed through individual wells in an approved subdivision water supply plan shall be deemed as being under the control of the individual lot owners absent a legal conveyance to the contrary or absent a resolution adopted pursuant to Rule 5.3.10.

5.3.2.3 The allowed average annual amount of withdrawal of water from any of these aquifers is determined by the formula:

Average Annual Withdrawal (acre-feet) =

$$\frac{\text{land area (acres) x saturated aquifer materials (ft.) x S.Y.}}{\text{100 years}}$$

where S.Y. is the specific yield of the aquifer (dimensionless). See Rule 5.3.4 for the thickness of saturated aquifer materials and Rule 5.7 for Specific Yield values.

5.3.2.4 In computing the land area to be used under Rule 5.3.2.3, the area of the cylinder of appropriation for a well(s) which has or can be issued a small-capacity well permit pursuant to Section 37-90-105, C.R.S., shall be considered to be zero. The average annual withdrawal computed under Rule 5.3.2.3 may be reduced by any applicable appropriation amount for such a small-capacity well(s) located on this land area and withdrawing water from the aquifer under consideration.

5.3.2.5 The allowed maximum annual amount of withdrawal may exceed the allowed average annual amount of withdrawal as long as the total volume of water withdrawn from the well or wells does not exceed the product of the number of years since the date or dates of issuance of the well permit or permits times the allowed average annual amount of withdrawal. This provision is applicable only for Denver Basin aquifer wells but is not applicable to a well whose water right was created prior to November 19, 1973 in accordance with the provisions of Rule 5.3.3. Existing permitted well owners may avail themselves to this provision upon written approval of the Commission.

5.3.3 Determination of the extent of appropriations created prior to November 19, 1973

5.3.3.1 If the cylinder of appropriation of a well for which a right was created prior to November 19, 1973 as evidenced by a well registration or by a well permit and its beneficial use statement, overlap(s) the overlying land claimed in the application, the number of acres of overlying land to be used in determining the available water in storage shall be reduced by the number of acres of the cylinder of appropriation which overlaps the land. An applicant whose water rights are reduced by such cylinder(s) may, upon notice to all affected parties, challenge the Commission's determination of the size of such overlap by requesting an evidentiary hearing before the Commission.

5.3.3.2 In the event that a well completed prior to November 19, 1973 does not fully penetrate the aquifer, the radius of the cylinder of appropriation for that well shall be calculated assuming that it does fully penetrate that aquifer.

5.3.3.3 In the event that a well initiated prior to November 19, 1973 is constructed so as to produce water from more than one aquifer, cylinders of appropriation shall be calculated for each aquifer. The production of the well from each aquifer shall be allocated in proportion to the historical production of the well from each aquifer. The interval of each aquifer through which the well is completed shall be considered in the determination of the historical production from each aquifer. Where this perforation interval cannot be determined, the well shall be assumed to be producing from the entire interval of the aquifers involved.

5.3.4 Determination of thickness of Saturated Aquifer Materials in the Denver Basin Aquifers

5.3.4.1 The thicknesses of sandstones and siltstones in the Denver Basin Aquifers are shown on the following figures prepared by the Colorado Division of Water

Resources:

a. Upper Dawson	Denver Basin Atlas No. 1, Plate 3, Figure 1E
b. Lower Dawson	Denver Basin Atlas No. 1, Plate 2, Figure 1C
c. Denver	Denver Basin Atlas No. 2, Plate 2, Figure 2C
d. Upper Arapahoe	Denver Basin Atlas No. 3, Plate 4, Figure 3E minus Plate 5, Figure 3F*
e. Lower Arapahoe	Denver Basin Atlas No. 3, Plate 5, Figure 3F
f. Laramie-Fox Hills	Denver Basin Atlas No. 4, Plate 3, Figure 4C

* To find the thickness of the Upper Arapahoe Aquifer subtract the thickness value shown in Plate 5, Figure 3F from the thickness value shown in Plate 4, Figure 3E. Where there is no overlap between figures, Figure 3F value is zero.

5.3.4.2 The thicknesses on the above figures, subject to any revisions thereof by the Commission based upon any site specific data, shall be considered to be the thickness of saturated aquifer material as long as the aquifer is confined, i.e., under artesian pressure. The applicant may be required by the Commission to demonstrate that the aquifer is still confined or, if the aquifer is unconfined, to provide data on the site specific location of the water table. Upon evaluating the location of the water table, the Commission shall determine the thickness of saturated aquifer materials.

5.3.5 Standards for requirements of geophysical logs and test holes in the Denver Basin aquifers shall be the same as set forth in Rules 9 and 10 of the Statewide Nontributary Ground Water Rules, 2 CCR 402-7.

5.3.6 Replacement Water Requirements for the Denver Basin aquifers: The Commission recognizes that the pumping of waters from the Dawson, Denver, Arapahoe and Laramie-Fox Hills aquifers may cause depletions in the overlying alluvial aquifers which may affect vested water rights. Necessary terms and conditions shall be imposed on any new well permit to insure no unreasonable impairment to the rights of other appropriators.

5.3.6.1 The locations of Nontributary Ground Water for the Denver Basin aquifers are shown in the figures referenced below. The Commission may accept site specific information if it finds that information is more precise.

A. The location of nontributary ground water in the Upper Dawson Aquifer is shown in Denver Basin Atlas No. 1, Plate 4, Figure 1G as revised March 21, 1991.

B. The location of nontributary ground water in the Lower Dawson Aquifer is shown in Denver Basin Atlas No. 1, Plate 4, Figure 1F as revised March 21, 1991.

C. The location of nontributary ground water in the Denver Aquifer is shown in Denver Basin Atlas No. 2, Plate 2, Figure 2D as revised March 21, 1991.

D. The location of nontributary ground water in the Upper Arapahoe Aquifer is shown in Denver Basin Atlas No. 3, Plate 6, Figure 3H as revised March 21, 1991.

E. The location of nontributary ground water in the Lower Arapahoe Aquifer is shown in Denver Basin Atlas No. 3, Plate 5, Figure 3G as revised March 21, 1991.

F. The location of nontributary ground water in the Laramie-Fox Hills Aquifer is shown in Denver Basin Atlas No. 4, Plate 4, Figure 4D as revised March 21, 1991.

5.3.6.2 Replacement Water Required:

A. For wells proposing to withdraw water from the Dawson, Denver, Arapahoe and Laramie-Fox Hills aquifers within the nontributary zone, the terms and conditions shall provide that no more than 98% of the water withdrawn annually is consumed.

B. For wells proposing to withdraw not-nontributary ground water from the Denver, Arapahoe, or Laramie-Fox Hills aquifers at a point farther than 1 mile from the contact with the alluvium, the terms and conditions shall provide for the replacement of 4 percent of the water diverted from such well. The return of replacement water to the uppermost aquifer in the vicinity of the point of withdrawal shall be presumed to be in compliance with Rule 5.6.1.(C) but replacement at other locations may be approved by the Commission.

C. For wells proposing to withdraw not-nontributary ground water from a Dawson Aquifer or not-nontributary ground water from the Denver, Arapahoe, or Laramie-Fox Hills aquifers at a point closer than one mile from the contact with the alluvium, the amount of such replacement water shall provide for the depletion of alluvial water for the first 100 years due to all previous pumping and if pumping continues beyond 100 years, shall replace actual impact until pumping ceases, assuming water table conditions in the bedrock aquifer. The applicant shall be required to develop terms and conditions necessary to prevent injury to prior designated ground water rights. Such terms and conditions shall meet the standards for a Replacement Plan as defined in Rule 5.6.

5.3.6.3 For wells which will appropriate water from more than one zone of an aquifer as identified in Items A, B, and C of Rule 5.3.6.2, the replacement requirements to meet the intent of replacement needs of Rule 5.3.6.2 shall be determined based upon the overlying land acreage located in each zone and the location of the well.

5.3.6.4 The measurement of annual withdrawals and the keeping of records is the responsibility of the well owner. The annual diversion from the period January 1 to December 31 of each year shall be the basis for computation of the replacement requirement.

5.3.6.5 The replacement water may occur as a return flow from the owner's use of the well pursuant to a plan which provides an accounting for the use of the well and the source of each point of return flow. The well owner shall be responsible for any required measurements of the return flow. Credit for diffuse return flow shall be given only to the extent that the well owner has maintained control over such waters and can quantify such returns by reasonable engineering methods acceptable to the Commission. A plan proposing return flow as a source of replacement water must be incorporated as a term and condition of the permit.

5.3.6.6 The well owner shall be required to provide such self-administration as necessary to assure compliance with permit terms and conditions. Self-administration may include metering, reporting or the retention of a neutral third party as reporting agent.

5.3.7 Well Location: All wells, including additional wells, withdrawing water from the Denver Basin aquifers, must be located on the overlying land.

5.3.7.1 A permit shall not be issued for a large-capacity well under Rule 5.3 if this

well is to be located within 600 feet of an existing large-capacity well in the same aquifer unless a Waiver of Claim of Injury is obtained from the owner of the existing well or unless the Commission, after a hearing, finds that circumstances in a particular instance warrant that a permit can be issued without regard to the above limitation.

5.3.7.2 If the applicant has identified noncontiguous parcels of overlying land, the applicant may withdraw the total allowed average annual amount of withdrawal from one or more wells, provided that the well or wells are located so that the cylinder or cylinders of appropriation for at least one of the wells overlap, at least in part, the noncontiguous parcels. In determining the cylinder of appropriation, the acreage from the noncontiguous parcels shall be included in the calculation.

5.3.8 Operation of a well field may be permitted where the entire appropriation for the several wells withdrawing water from the same aquifer may be withdrawn from any combination of wells within the well field. Such a plan may be approved at the time of original permitting or by subsequent request for a change pursuant to Section 37-90-111(1)(g).

5.3.9 Additional wells may be permitted so long as the effect is that the allowed annual amount of withdrawal from all wells involved will not exceed the permitted average annual amount as originally established pursuant to Rule 5.3.2.

5.3.10 It is recognized that economic considerations generally make it impractical for individual landowners to drill wells into the aquifers named in Rule 5.3 for individual water supplies where municipal or quasi-municipal water service is available and that public interest justifies the use of such ground water by municipal or quasi-municipal water suppliers under certain conditions. Therefore, wherever any existing municipal or quasi-municipal water supplier is obligated either by law or by contract in effect prior to January 1, 1985, to be the principal provider of public water service to landowners within a certain municipal or quasi-municipal boundary in existence on January 1, 1985, said water supplier may adopt an ordinance or resolution, after ten days notice pursuant to the provisions of Part 1 of Article 70 of Title 24, C.R.S, which incorporates ground water from the Dawson, Denver, Arapahoe, Laramie-Fox Hills, or Dakota aquifers underlying all or any specified portion of such municipality's or quasi-municipality's boundary into its actual municipal service plan. Upon adoption of such ordinance or resolution, a detailed map of the land area as to which consent is deemed to have been given shall be filed with the Commission. Upon the effective date of such ordinance or resolution, the owners of land which overlies such ground water shall be deemed to have consented to the withdrawal by that water supplier of all such ground water, except that no such consent shall be deemed to be given with respect to any portion of the land if:

A. Water service to such portion of the land is not reasonably available from said water supplier and no plan has been established by that supplier allowing the landowner to obtain an alternative water supply;

B. Such ordinance or resolution was adopted prior to the effective date of these Rules, and, prior to January 1, 1985, such ground water was conveyed or reserved or consent to use such ground water was given or reserved in writing to anyone other than such water supplier and such conveyance, reservation, or consent has been properly recorded prior to the effective date of these rules;

C. Such ordinance or resolution is adopted on or after the effective date of these Rules, and said ground water has been conveyed or reserved or consent to use such ground water has been given or reserved in writing to anyone other than such water supplier

and such conveyance, reservation, or consent is properly recorded before the effective date of that ordinance or resolution;

D. Consent to use such ground water has been given to anyone other than such water supplier by the lawful effect of an ordinance or resolution adopted prior to January 1, 1985;

E. Such ground water has been decreed or permitted to anyone other than such water supplier prior to the effective date of such ordinance or resolution; or

F. Such portion of the land is not being served by said water supplier as of the effective date of such ordinance or resolution and such ground water is the subject of an application for determination of a right to use ground water filed with the Commission prior to the effective date of these Rules.

5.4 Appropriation from all Bedrock Aquifers Except the Denver Basin Bedrock Aquifers

5.4.1 This Rule shall apply to all aquifers in all the designated basins except those aquifers listed below:

A. Lost Creek, Kiowa-Bijou, Upper Big Sandy and Upper Black Squirrel Creek Basins: Alluvium and Denver Basin Bedrock aquifers.

B. Northern High Plains and Camp Creek Basins: Alluvium, Ogallala, and White River.

C. Southern High Plains Basin: Alluvium, Ogallala, Dakota, Cheyenne and Dockum.

D. Upper Crow Creek: Alluvium, Fan, and White River.

5.4.2 An application to appropriate ground water from these aquifers shall be analyzed on the basis of the ownership of the overlying land and on the basis of an aquifer life of one hundred years.

5.4.3 The amount of water available in storage in a specified bedrock aquifer under a specified parcel of land shall be computed based upon the site specific hydrogeologic information available to the Commission.

5.4.4 The provisions of Rule 5.3.7 dealing with the well location for the Denver Basin bedrock aquifer wells shall also apply to all other bedrock aquifer wells.

5.5 Water Quantity Requirements for Issuance of New Permits for Irrigation Use - For new permits, the amount of water to be appropriated for irrigation of agricultural lands shall be 2-1/2 acre-feet per irrigated acre for all aquifers in all designated basins except the Southern High Plains Basin where this amount shall be 3-1/2 acre-feet per acre. In reviewing permit applications, the amount of water available for appropriation must be sufficient to irrigate the requested acreage at the prescribed rate unless an exception is granted by the Commission.

5.6 Replacement Plans

5.6.1 New appropriations of designated ground water from aquifers which are otherwise overappropriated or where such approval may result in unreasonable impairment to existing water rights may be allowed pursuant to a detailed replacement plan. This plan must be adequate to

prevent any material injury to water rights of other appropriators. A replacement plan must contain, as a minimum, the following elements:

A. A detailed description of the source of the replacement water. The source must be such that the water it provides is not required for the fulfillment of vested water rights which are not a part of the plan.

B. A detailed description of the proposed diversion, use, and depletion of designated ground water which would result under the plan.

C. Proof that the plan will not cause material injury to water rights of other appropriators.

D. Proof that the plan will not cause unreasonable impairment of water quality.

E. Proof that the plan can and will be operated and administered on an ongoing and reliable basis, which must include at least the following general conditions of approval:

1. Flow measurement devices shall be required on all wells involved in the plan unless the Commission finds that such devices would be unnecessary or impractical.
2. Monitoring to insure that the estimates of consumptive use, return flows, and replacement water are accurate and that depletions are actually replaced.
3. Monitoring of ground water quality to insure that the water quality of the receiving aquifer is not unreasonably impaired.
4. Providing a plan compliance report acceptable to the Commission.
5. Reporting the information required by subparagraphs (1) through (4) above and any other data required by the conditions of approval for the plan to the Commission and District on a schedule determined by the Commission, but on no less than a yearly basis.
6. Recording the terms and conditions of the plan with the county clerk and recorder. Such terms and conditions shall be regarded as covenants running with the land.

F. The Commission retains jurisdiction to modify or revoke approval of the plan, if monitoring or operating experience reveals that the plan results in any material injury to water rights of other appropriators or in unreasonable impairment to water quality.

5.6.2 Upon receipt of any such replacement plan, the staff shall review it to determine whether it is adequate to meet these criteria and the provisions of C.R.S. 37-90-107. The applicant shall have the burden of proving the adequacy of the plan in all respects. If the plan is located within a ground water management district, a copy of the application shall be sent by the staff to the management district and the staff shall consider any comments or recommendations from the management district. The staff shall propose any additional terms and conditions or limitations which are necessary to prevent material injury and to ensure that the plan is administrable and enforceable.

5.7 Specific Yield Values - Unless site specific information acceptable to the Commission is available, the specific yield for the various aquifers to be used in the evaluation of applications pursuant to these Rules is determined to be as follows. For all other aquifers, the specific yield will be determined from the best available information to the Commission

Aquifer	Specific Yield
Dawson (Upper and Lower)	20%
Denver	17%
Arapahoe (Upper and Lower)	17%
Laramie-Fox Hills	15%
Lost Creek Alluvium	17%
Kiowa Bijou Alluvium	17%
Upper Black Squirrel Alluvium	20%
Upper Big Sandy Alluvium	20%
Upper Crow Creek - Fan Aquifer east of Crow Creek	20%
Upper Crow Creek Alluvium	20%
Northern High Plains - Ogallala Aquifer	15%
Northern High Plains - Ogallala and White River formations north of the Administrative Line (on Figure 1).	25% for sand layers
Southern High Plains - Ogallala Aquifer	15%

5.8 Artificial Recharge - Subject to permitting requirements, artificial recharge may be captured by the person causing such recharge to the extent that other water rights are not impaired and provided that the waters used for recharge are either imported to the basin, or originate from a different aquifer, or are waters which would not otherwise recharge the same basin at some downstream point. The capture of these waters is subject to permitting requirements pursuant to Section 37-90-107, C.R.S. As such waters move away from applicant's ability to capture, they become designated ground water available to other appropriators within the Basin.

5.9 Well Completion - All wells must be completed in accordance with the Rules and Regulations of the Board of Examiners of Water Well Construction and Pump Installation Contractors for the State of Colorado (2 CCR 402-2).

5.10 Geophysical Logs - Geophysical logging is required for all large-capacity wells from any bedrock aquifers as permitted under Rules 5.3 and 5.4. Such logs shall be made in accordance with Rule 9 of the Statewide Nontributary Ground Water Rules 2 CCR 402-7.

5.11 Deviation from Permitted Location for New Wells - The following distances are the allowable variation from the permitted site in each aquifer or basin. Wells completed farther than the specified distance from the permitted location shall be deemed to be in violation of permit conditions. If a Management District's Rules and Regulations specify a lesser distance for a new or replacement well, the lesser distance shall apply. For bedrock aquifer wells, well to well minimum spacing requirements of Rule 5.3.7.1 shall also apply.

Aquifer	Allowable Variation from the Permitted Well Site
Bedrock Aquifers	200 feet
All other aquifers	300 feet

RULE 6 REPLACEMENT WELL PERMITS

6.1 Applicability - For consideration as a replacement well under Section 37-90-111(1)(c), C.R.S., the limitations in this Rule 6 shall apply. All replacement applications not within the limits of this rule shall be reviewed under Rule 7 as a change of water right.

6.2 A replacement well shall be constructed within the following distance of the originally permitted well site except where a Management District's Rules and Regulations specify a lesser distance, in which case, the lesser distance shall apply:

Aquifer	Allowable Distance from Originally Permitted Well Site
Bedrock Aquifers	200 feet
All other aquifers	300 feet

6.3 A replacement well in a bedrock aquifer subjected to the 200 feet distance limitation of Rule 6.2 shall also satisfy the well to well minimum spacing requirement of Rule 5.3.7.1 but a replacement well in any other aquifer subjected to the 300 feet distance limitation of Rule 6.2 shall not be required to satisfy the well to well minimum spacing requirement of Rule 5.2.1.

6.4 The originally permitted well site shall be the site as specified on the original well permit or a relocated site as approved by the Commission pursuant to Section 37-90-111(1)(g), C.R.S. Where sectional coordinate distances are not available from any document in the permit file, the original site may be established by field location of the original well.

6.5 A replacement well permit will be limited so as to produce water from the same aquifer or aquifers as the original well.

6.6 A permit for the replacement of a well which was previously completed in one aquifer, but did not fully penetrate the water-bearing materials in that aquifer, shall allow full penetration of that aquifer, except that for a Denver Basin aquifer well, it shall not result in increasing its cylinder(s) of appropriation.

6.7 A replacement well permit shall be limited to the same terms and conditions as the original well permit.

RULE 7 CHANGE OF RIGHTS TO DESIGNATED GROUND WATER

7.1 Applicability and Exceptions

7.1.1 This rule applies to all changes of rights to designated ground water to be processed pursuant to Section 37-90-111(1)(g), C.R.S. A change can be approved only upon such terms and conditions as will not cause material injury to the vested rights of other appropriators. It shall be the applicant's burden to demonstrate that the above criteria are met. Also, the Commission may require the applicant to provide for any administration necessary to ensure compliance with the terms and conditions of any approval under Rule 7.

7.1.2 A change request may consist of but is not limited to the following:

A. Change of well location greater than the distance that was authorized for a replacement well as set forth in Rule 6.2;

B. Change of description of irrigated acreage without an increase in the number of acres irrigated;

C. An increase in the number of acres to be irrigated above the number of acres permitted;

D. A change to commingle two or more wells;

E. A change of type of use (with or without export from a designated basin);

F. A change of the volume of annual appropriation;

G. An increase in the pumping rate in gpm.

H. A permit may be issued to change an existing well to a Republican River Compact Compliance Well as part of an application for change of water right pursuant to these Rules, so long as the well would be in compliance with: (a) paragraph 3.B.1.k. of the Final Settlement Stipulation filed in Kansas v. Nebraska and Colorado, No. 126 Original; and (b) Rule 7.7 of these Rules.

7.1.3 For bedrock aquifer wells which are permitted to use designated ground water on the basis of the ownership of the overlying land pursuant to Section 37-90-111(5), C.R.S. or pursuant to an equivalent Commission policy to include those wells covered under Rule 5.4, the historic use amount for such a well shall be the maximum annual amount of water put to beneficial use pursuant to Section 37-90-108, C.R.S. but within the limits of the permitted annual amount except that for those Denver Basin aquifer wells issued on or after July 1, 1991, the historic use amount shall be the permitted annual amount provided a well completion report for the well is filed with the Commission pursuant to Section 37-90-108, C.R.S. This provision shall override any other requirement under Rule 7 to estimate historic use but shall not apply to those wells whose appropriation is not based upon the ownership of the overlying land including those wells having claims to cylinder(s) of appropriation under Rule 5.3.3. If the historic use amount as defined above is less than the permitted annual amount, additional well permits for any such unappropriated ground water may be obtained from the Commission in accordance with the applicable statutes and rules in effect at the time such a new application(s) is filed with the Commission.

7.2 Publication - Except as noted in this section, applications for changes of rights to designated ground water shall be published in accordance with Section 37-90-112, C.R.S. The staff shall act upon an application, or a resubmitted application, within sixty days of the receipt thereof. An incomplete application shall be returned to the applicant with an explanation; this shall be deemed action by the staff. An application that is found to be complete and requires a publication, shall be submitted to the appropriate newspaper for publication; which shall also be deemed action by the staff. Publication does not require a favorable staff finding and no such indication shall be made. The publication shall indicate (a) the name of the applicant, (b) the well permit number, presently permitted annual volume, presently permitted pumping rate, presently permitted well location, and presently permitted irrigated land or other appropriate description of type of use for each well included within the application, and (c) a general statement describing the changes requested by the applicant. The publication shall also indicate the deadline and location for filing any objections to the application.

7.2.1 The following types of applications may be authorized without publication:

A. A decrease in either the pumping rate, annual appropriation or acreage to be irrigated by a well;

B. A correction in the description of the acreage historically irrigated which is at least 70% within the description of acreage authorized by the conditional permit or the final permit, if a final permit has been granted for the well; or

C. A temporary change of use to overcome an emergency situation for a time period not to exceed ninety days if the staff determines the change will not cause material injury to the vested rights of other appropriators. An emergency situation is defined as a situation affecting public health or safety where a water supply is needed more quickly than the time required to process a permanent change in use.

7.2.2 If an emergency situation as defined in Rule 7.2.1(C) will last for more than ninety days, a temporary change of use may be approved for a time period not to exceed one year, if the staff determines that the change will not cause material injury to the vested rights of other appropriators and the following requirements have been met: (a) an application for a permanent change of use has been filed; (b) the publication of the permanent change application has been initiated; and (c) the publication describes both the temporary change of use and the permanent change of use requested by the applicant. All objections to both the temporary and permanent changes of use will be heard and resolved using the normal hearing process for change of use applications. If the hearing officer (or the Commission) enters a decision which is different than the decision of the staff regarding an emergency situation, the decision of the hearing officer (or the Commission) shall immediately supersede the decision of the staff. Any extension of a temporary approval beyond one year, if the emergency situation continues and the permanent change of use hearing process has not been completed, will be considered and acted upon by the hearing officer (or the Commission) and not by the staff.

7.3 Change of Well Location - In determining whether a proposed new well location will cause material injury to the vested rights of other appropriators, the following factors shall be considered for wells other than those wells covered by Rule 6 and Rule 7.3.6.

7.3.1 The applicant shall be required to provide evidence of historic withdrawals and depletions of water from the well, in accordance with Rule 7.10. In addition, to crop data, applicant may be required to submit a wire to water pump efficiency test and power use data. Terms and conditions shall be imposed to prevent an increase over historic depletion to the aquifer.

7.3.2 Where the proposed well site would have a greater saturated thickness than the original site, terms and conditions shall be imposed to limit future withdrawals to the permitted historic withdrawal of the well. Future withdrawals shall also be limited so as to not exceed the amount of water physically divertable at the well site if the well was replaced under Rule 6. Limitations on future diversions may include consideration of the effect of any future water level declines at the original site.

7.3.3 No relocation site shall place a well closer to an existing well than the minimum distance required for new wells under rule 5 unless specifically approved by the Commission, or unless the owner of the existing well gives a waiver of claim of injury in writing.

7.3.4 For the Northern High Plains Designated Ground Water Basin, a request to change the location of any well in excess of 300 feet from the original permitted site shall be denied, unless there is water available for appropriation at the proposed well location using the methodology described in Rule 5.2.2.

7.3.5 For all designated ground water basins other than the Northern High Plains Designated Ground Water Basin, a request to change the location of any well in excess of 1/2 mile from the original permitted site shall be denied.

7.3.6 A change in the permitted site of the well to allow its original historic site in the field may be approved by the Commission without any other requirements of Rule 7.3 provided that, based upon the records available in the State Engineer's office, the same permit could have been issued by the Commission at that location at the time the well was constructed, and that such a change will not otherwise cause material injury to the vested rights of other appropriators.

7.4 Change of Description of Irrigated Acres (No Increase in Acreage).

7.4.1 An application to change the description of acres may be approved if a right to irrigate the claimed number of acres is established pursuant to Sections 37-90-107 and 108, C.R.S., and the requested change will not result in any material injury to the vested rights of other appropriators.

7.4.2 Applications filed for a change of description of irrigated acres shall be deemed as an application for rotational acres to be evaluated under Rule 7.5 if the permit has already been granted a change of description of acres by the Commission twice within the last four years.

7.5 Increase in Permitted Irrigated Acreage (Including Rotation of Acres)

7.5.1 Application shall be on a form prescribed by the Commission. No application shall be considered complete without a statement from the applicant agreeing to comply with metering and administrative requirements set forth in the application.

7.5.2 Implementing the practice of rotational acres shall be considered an increase in the permitted irrigated acreage and subject to the requirements of Rule 7.5.

7.5.3 An increase in acreage allowed to be irrigated shall not result in an increase over the amount of water historically depleted by the well from the aquifer. The future average annual appropriation allowed from a well under this Rule shall not exceed the average legal historic withdrawal of water from the well and may be less than the historic withdrawal to ensure no increased depletion of the aquifer, i.e., to compensate for any reduction in return flows back to the aquifer . The burden of proof for the application shall rest with the applicant. The provisions of Rule 7.10 shall apply to establish the historic withdrawal and depletion by a well.

7.5.4 The allowed maximum annual amount of withdrawal from a well shall be administered by the three-year modified banking provisions of Rule 7.11.

7.5.5 Administrative Conditions - The following conditions are necessary in order to control and monitor ground water withdrawals when operating under an approval of expanded acres:

7.5.5.1 All wells approved for expanded acres shall have a flow meter installed and approved by the Commission or its authorized agent. Any alternate method or device for

measurement instead of a flow meter must be Commission approved. A backup meter shall be kept on hand unless a specific backup water measurement program is approved by the staff.

7.5.5.2 No person shall begin the irrigation of expanded acres until the well owner has signed a contract with the Management District or the Commission to pay the actual cost of administration, or until the well owner has contracted with a person or entity acceptable to the Commission to perform the same services as would otherwise be performed by the Commission, and the Commission determines, after consultation with the District, that the terms of the said contract provide for the required administration of the expanded acres.

7.6 Commingling

7.6.1 Commingling of water from two or more wells may be allowed by the Commission to achieve greater efficiency of water use, to encourage new irrigation methods, to facilitate water availability during temporary shutdown of a well or for any other purpose that enhances the beneficial use of water without causing material injury to vested rights.

7.6.2 A commingling request may be approved only upon such terms and conditions as will prevent material injury to the vested rights of other appropriators. For irrigation wells the applicant shall also be required to demonstrate that the acre-feet per acre appropriation of each well to be commingled is the same when used on their originally permitted acreages. The data required may include crop data, irrigation methods, pump tests and power records.

7.6.3 The withdrawal from each individual well shall not exceed its permitted annual acre-feet appropriation and may be further restricted to ensure no increase in the historic depletion of the aquifer.

7.6.4 Since commingling may be considered as a mechanism of achieving an alternate point of diversion, commingling shall not be allowed where the effect is to enable a greater withdrawal of water than would otherwise be available. For example, commingling shall not be approved if it results in supplementing the water needs of a use served by a poorly producing well by commingling this well with a better producing well.

7.6.5 Commingling shall not be allowed where the intent or effect is to perfect the water right of a well by means of diversions through another well.

7.6.6 All wells approved for commingling shall have a flow meter installed at their individual wellhead and all such wells must be connected together with pipe(s) or other water-carrying devices of reasonable size sufficient to carry water for the requested use. No commingling of water shall actually commence without first obtaining a commingling permit from the Commission and the approval of the improvements required by this Rule, from the Commission or its authorized agent.

7.6.7 No person shall begin the actual commingling of water of such wells until the owner of the wells has signed a contract with the Management District or the Commission to pay the actual cost of administration or until the owner has contracted with a person or entity acceptable to the Commission to perform the same services as would otherwise be performed by the Commission, and the Commission determines, after consultation with the District, that the terms of the said contract provide for the required administration of the commingling of the wells.

7.7 Change of Type of Use (With or Without Export from a Designated Basin)

7.7.1 A change of type of use or an export out of a designated basin shall not result in an increase over the historic depletion of the aquifer by the well. The future average annual withdrawal from a well under this Rule shall not exceed the average annual legal historic withdrawal by the well and may be less than this amount to ensure no increased depletion of the aquifer, i.e. to compensate for any reduction in return flows back to the aquifer. Where a change in the season of use will result in an increased ability to withdraw water, conditions or limitations shall be imposed to prevent the changed season of use from resulting in an increase in the withdrawal of water over what would occur during the original season of use under present and future aquifer conditions at the original point of withdrawal.

7.7.2 It shall be the burden of the applicant to demonstrate the historic withdrawal of water and the resulting depletion to the aquifer. The provisions of Rule 7.10 shall apply to determine the historic withdrawal and depletion by a well.

7.7.3 The permitted average annual withdrawal from a well shall be controlled by the three-year modified banking provisions of Rule 7.11.

7.7.4 Change of Use Involving Export from a Ground Water Management District

7.7.4.1 In consideration of the authority granted to management districts pursuant to Section 37-90-130(2)(f), C.R.S., if the requested change involves export of water out of the boundary of a Designated Ground Water Management District, the Commission shall request a written recommendation from the District and shall limit the approval of any export out of the District to an annual acre-feet amount not to exceed the amount approved for export by the District. A District may request that the Commission evaluate the matters described in Rules 7.7.1, 7.7.2, and 7.7.3 prior to the District conducting its formal review of the export request, and if so requested, the Commission staff shall provide a preliminary evaluation to the District (which evaluation shall not constitute final action by the Commission on any portion of the change application), and then the Commission shall wait for the outcome of the District's formal review of the export request before taking final action on the change application. After receiving the District's final decision on the export request, the Commission shall take final action on the change application and shall limit any approval to an annual acre-feet amount not to exceed the amount approved for export by the District.

7.7.4.2 However, if the District requests deferral, or has a rule deferring its consideration of the export issue until after the Commission has approved the change application, the Commission shall take final action on the change application prior to District approval of an amount for export, in which case the Commission's approval shall limit the future use to an amount not to exceed the legal historical depletion of the aquifer, and shall include a condition requiring subsequent District approval pursuant to Section 37-90-130(2)(f) before any actual export may occur.

7.7.4.3 Any Commission approval under this Rule 7.7.4 shall also be limited by the provisions of Rule 7.7.1, 7.7.2 and 7.7.3.

7.8 Change of Annual Volume of Appropriation - A change of annual volume of appropriation that does not exceed the permitted amount for a well may be allowed as determined by the historic use of the well within the limits of other permit parameters and provided that no material

injury occurs to the vested rights of other appropriators. For irrigation use the appropriation shall not exceed the current allowable duty of water (acre-feet/acre), as determined under Rule 5.5.

7.9 Increase in Pumping Rate in GPM

7.9.1 An increase in pumping rate for a well may be allowed if such a change does not materially injure the permitted pumping capabilities of other wells and does not result in increased depletion of the aquifer on an annual basis. Where necessary, conditions or limitations shall be imposed to prevent any increase over the historic depletion of the aquifer.

7.10 Determining Historic Withdrawal and Depletion

7.10.1 It shall be the burden of the applicant to determine the average annual historic withdrawal and depletion by a well. The evidence required to determine historic withdrawal and depletion may include irrigation system and pump efficiency tests, information on pump and irrigation method(s), flow meter readings and water consumption records where available, power and crop data and such other data as is determined by the staff to be necessary. Ten or more most recent consecutive years of records shall be submitted unless the applicant can show good cause why the data cannot be supplied.

7.10.2 No credit toward historic use shall be given for water used on acreage which exceeds the number of permitted acres, or for any other water use not authorized by the permit.

7.10.3 The annual historic withdrawal of water computed for any given year shall not exceed the permitted annual appropriation.

7.10.4(a) If in any given year or years the land permitted to be irrigated by a well was placed into a federal set aside or conservation reserve program resulting in limited or no irrigation, average historic use may be computed by excluding such year(s) from the average. Annual reporting to the Commission is not required to take advantage of the provisions of this subrule (a).

7.10.4(b) Water diversion during the calendar year 1997 and during any successive calendar year may be excluded in computing average annual historic use provided at least ten years of water use information is available to compute historic use and provided a written request to exclude water use for any given calendar year is received by the Commission by May 1 of that calendar year. This written request must be on a form prescribed by the Commission. To avoid having applicants pick and choose water use years during this period to maximize the estimate of average annual historic use, a request to exclude water use for any year once submitted can not be withdrawn.

7.10.5 Where historic withdrawal cannot be established using power records or flow meter records, the average annual historic withdrawal shall be determined as follows:

(a) for an irrigation well, the allowable average annual historic withdrawal shall be limited to the historic average of net crop irrigation requirement in acre-feet (potential crop consumptive use minus effective precipitation) on the authorized number of acres as determined by the Modified Blaney-Criddle method. This determination shall be made as an average of such use for consecutive years for the period of record defined under Rule 7.10.1. When crops which may be grown as irrigated or dry land, i.e., pasture or winter wheat, are included in the cropping pattern, it shall be the burden of the applicant to demonstrate the land was irrigated.

(b) For a well used for other than an irrigation use, the allowable average annual historic withdrawal shall be limited to the actual average historic use as determined from actual records or other data establishing the amount of actual historic use. This determination shall be made as an average of such use for consecutive years for the period of record defined under Rule 7.10.1.

7.10.6 Limitations necessary to prevent an increase over historic depletions to the aquifer shall include a reduction in allowable withdrawal where necessary to compensate for any decrease in return flows to the aquifer, resulting from a change in method of operation.

7.10.7 The Commission staff will make available the values for potential crop consumptive use, effective precipitation, and net irrigation requirement for major crops at key weather station locations in the vicinity of the designated ground water basins as computed by the Modified Blaney-Criddle method. The staff will update this information as necessary.

7.11 Three-Year Modified Banking

7.11.1 Only those wells for which a change in water right has determined historic withdrawal in accordance with Rule 7.10 can use the three-year modified banking provision. To initiate a banking reserve, an applicant must have a written authorization from the Commission. In the first year, the applicant will be allowed to withdraw an amount up to the specified amount determined to be the allowed average annual historic withdrawal. In successive years, the amount which can be withdrawn during the current year will be the allowed average annual historic withdrawal plus the amount of water in banking reserve for the well, not to exceed the maximum annual permitted appropriation of that well.

7.11.2 The maximum number of acre-feet that can be placed in banking reserve shall not exceed an amount equal to three times the difference between the maximum annual permitted appropriation of that well and the allowed average annual historic withdrawal for that well. The annual amount of water to be added to the banking reserve is the difference in the allowed average annual historic withdrawal minus the amount of water actually withdrawn by the well for that year. Likewise, the banking reserve shall be reduced by an amount equal to the quantity of banking reserve water pumped by the specific well for that year.

7.11.3 The applicant may choose to operate an irrigation well under the terms of the original permit rather than those required for expanded acres, limiting the pumping for that year to the maximum annual permitted appropriation of that well so long as said water is applied only to the land as appropriated under its original permit and none is used elsewhere and the well is not in violation of its permit and/or other approval conditions and any past withdrawals in excess of the approved limitations have been remedied to the Commission's satisfaction. However, this will be cause for reinitiating the three-year modified banking program to the first year situation with no credit for real or claimed carryover.

7.11.4 For any situation where actual pumping cannot be determined using flow meter records and/or power meter records, it shall be the applicant's burden to demonstrate estimated pumping from the well; (a) for irrigation use from the net crop irrigation requirement (potential crop consumptive use minus effective precipitation) as determined by the Modified Blaney-Criddle method, (b) for any other use, from actual records or other data establishing the amount of actual use. The Commission shall make the final decision on the reasonableness of such pumping estimates. Failure of the applicant to meet this requirement will be a cause for reinitiating the three-year modified banking program to the first year situation with no credit for real or claimed carryover. However, any deficit or overpumping will be carried over the reinitiation of the banking program to prevent injury to other water rights.

7.11.5 The three-year modified banking program shall be adjusted to account for a change in the method of irrigation or any other factor which would affect the allowed historic depletion of the aquifer from the well.

7.11.6 The owners of wells for which a previous change in water right has determined average annual historic withdrawal may apply to the Commission to avail themselves of the provisions of three-year modified banking. For these applications the banking reserve for the current calendar year shall be computed using the pumping that occurred in the prior three consecutive calendar years, so long as the well was operating under average annual historic withdrawal limits. If the well was operating under average annual historic withdrawal limits for less than the prior three consecutive calendar years, then the actual number of prior consecutive calendar years for which the well operated under the said limits shall be used to compute the banking reserve for the current calendar year.

RULE 8 FLOW METER REQUIREMENTS

8.1 The Commission has the authority to require a totalizing flow meter or other measuring device for any well in a designated ground water basin. In the exercise of this authority the Commission shall consider these rules and Management District rules and regulations. In cases where Management District rules and regulations require a meter, the Commission shall require a meter and notify the applicant of the District's meter requirements as a condition of a new permit, replacement permit, or a change of water right approval unless the District notifies the Commission that it waives the requirement. The Commission shall require meters in the following cases regardless of the Districts' metering requirements:

A. For wells which are relocated pursuant to Rule 7.3.

B. For all increases of acreage or implementation of rotational acres pursuant to Rule 7.5.

C. For any commingling of wells pursuant to Rule 7.6.

D. For any change of type of use approved pursuant to Rule 7.7.

E. For all large-capacity wells for municipal, commercial or industrial use.

F. For all large-capacity wells completed in bedrock aquifers.

8.2 When a meter is required, it shall be the owner's responsibility to keep the meter in acceptable operating condition. The Commission may adopt standards and specifications for measuring devices and the installation, repair, and maintenance of measuring devices. As a minimum, meters shall be installed according to the manufacturer's recommendations and shall contain sufficient recording digits to assure that "roll over" to zero does not occur within three years. Meters shall be maintained by the well owner so as to provide a continuous, accurate record of withdrawals. If the meter is not operational, the well shall not be pumped unless a working meter is installed or unless a specific backup water measurement program approved by the Commission is put into effect.

8.3 The Commission may allow any alternate methods or devices for measurement instead of totalizing flow meters.

8.4 Well owners are responsible to record the meter reading as required but no less than once each year and to retain these records and submit them to the Colorado Ground Water Commission and the applicable management district upon request.

8.5 Exceptions to these metering guidelines may be approved by the Commission on a case by case basis.

RULE 9 COORDINATION WITH GROUND WATER MANAGEMENT DISTRICTS

9.1 The Commission shall request written recommendation from the board of directors of any ground water management district before issuing any orders or promulgating any regulations affecting that district and shall request written recommendations on any permit applications received from within the boundaries of that district.

9.2 The Commission shall contact each district for the purpose of developing a working agreement which sets criteria, timetables, and procedures for the referral requests set forth in Section 37-90-111(3), C.R.S. and Rule 9.1.

RULE 10 SEVERABILITY

10.1 If any portion of these rules is found to be invalid, the remaining portion of the rules shall remain in force and unaffected.

RULE 11 VARIANCE

11.1 Applicability and Exceptions

11.1.1 When the strict application of any provisions of these rules would cause unusual hardship, the Commission may grant a variance for a specific instance provided a written request for the variance is made to the Commission and the Commission finds the request justifiable in accordance with the provisions of this rule.

11.1.2 This rule is applicable to variance requests for all applications for new appropriations and for change applications for high capacity wells located in Designated Ground Water Basins that require Commission action pursuant to Rule 5 and Rule 7.

11.1.3 This rule does not apply to variance requests made under rules other than rule 5 and rule 7. However, if an application is filed for a replacement well pursuant to Rule 6 and the application includes a variance request to allow the well to be relocated to a place greater than the distance allowed for replacement wells as specified in Rule 6, said request shall be interpreted by the Staff as a request for a change of water right and the Staff shall, consistent with Rule 6.1, evaluate such request pursuant to the provisions of Rule 7 and Section 37-90-111 (1)(g), C.R.S.

11.2 Requirements for Variance Requests From Rules 5 and 7

11.2.1 Before consideration of any request for a variance from Rule 5 or Rule 7, the Staff must receive an application for a new appropriation (Rule 5) or for a change in water right (Rule 7). An applicant seeking a variance pursuant to Rule 11 may submit the variance request at the time of application for either the new appropriation or change in water right. The applicant may also submit a variance request after a new appropriation or change in water right application has been submitted, provided the Staff has not acted on the application. However, if

the Staff has already acted on the application (i.e. denied the application) the applicant must file a new application and request for a variance.

11.2.2 The Executive Director of the Commission or his Staff shall have the authority to initially review all variance requests and determine whether they are complete and ready for Commission consideration. Such determinations shall be made within 60 days of the variance filing date. If not, the variance request will be returned to the applicant with a written description of the deficiencies and the steps necessary to cure them. Once the variance request is deemed complete and ready for Commission consideration, it will be published. A copy of the variance request will be sent to the appropriate Ground Water Management District.

11.2.3 Publication of a variance request will follow the provisions of Section 37-90-112, C.R.S.

11.2.4 Any hearing scheduled on the variance request will be held at the next Commission meeting, but no earlier than 14 days after the end of the statutory objection period.

11.2.5 The Applicant requesting the variance shall be required to pay for all publication costs associated with the variance. The Commission will not hear the request for variance unless, at least seven days prior to the time set for the hearing, the applicant has paid all publication costs for the variance request.

11.3 COMPLIANCE - Failure to comply with any portion of this rule may subject the applicant to a denial of its variance request by the Commission.

RULE 12 REVISION

12.1 The Commission may revise any portion of these rules in accordance with the applicable provisions of the Ground Water Management Act, Article 37-90, C.R.S. and the Administrative Procedures Act, Article 24-4, C.R.S. Such revisions may be the result of new data and/or any other need to upgrade these rules in order to best serve the intended purpose of these rules.

RULE 13 EFFECTIVE DATE

These rules shall become effective on May 1, 1992.